

FINAL UNDERGRADUATE DISSERTATION

The effects of tourism on the environment

Attitudes and beliefs towards the use of social media when travelling:

geotagging

Can social media used by tourists be harmful to the environment?

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ABSTRACT

The surge of social media has reshaped the tourism industry from within, and has been impacted by new technologies specially social networks as they influence who wants to travel where, for how long, to do what, and at what prices (Buckley et. al., 2015). It has changed the way people travel and interact, sharing information and pictures of their travels online leading to a phenomenon known as “geotagging”, where individuals tag the location where a picture was taken on a social media post, which can cause overtourism and environmental concerns. This study aimed to further investigate travellers' attitudes and beliefs towards the use of social media when travelling and the subsequent impact on the environment. For that purpose, three research questions were put forward, on whether travellers 1) think tourism can be harmful to the environment, 2) think that social media use when travelling negatively affects the environment, and 3) benefit from geotagging and are aware of its potential harmful effect. The study found that travellers use social media for travel planning purposes as well as during their trips which often impacts their decision-making process and creates expectations that sometimes are not met, in most cases participating in the “geotagging” phenomenon. Travellers recognised the impact travelling has on the environment and were keen to modify their behaviour to adapt to the rising environmental crisis even unaware of the actual impact their travelling decisions and actions had on the environment.

Keywords:

tourism, sustainability, geotagging, ICTs and tourism, smart tourism

1. INTRODUCTION

Tourism has become one of the fastest-growing industries worldwide, majorly contributing to economic growth and development (Ashfaq et al., 2022). However, the exponential increase in tourist activities has led to detrimental effects on the environment (Cohen, 1978). Tourism is affected by social, political, economic, technological and environmental changes at all scales; most recently impacted by new technologies specially social networks as they influence who wants to travel where, for how long, to do what, and at what prices (Buckley et. al., 2015).

The impact of tourism on the environment is multifold - air pollution, waste, habitat destruction, resource depletion, overuse of water and energy, transformation of natural landscapes, and loss of biodiversity among others. With tourism being increasingly accessible to a wider population, it needs to cater for a large number of tourists, which has led to the development of infrastructure and facilities resulting in the intrusion into local ecosystems and the destruction of natural habitats. The tourism industry is also responsible for generating significant amounts of waste, which can have long-lasting effects on the environment. Furthermore, the rising demand for air travel, especially for long-haul flights, has led to an increase in greenhouse gas emissions, contributing to climate change and the overall carbon footprint of the tourism industry (Veiga et al., 2018).

What is more, in recent years technology has added to the existing concerns as it has led to mass tourism and social media “electronic word of mouth” (Živković et al., 2014; Ashfaq et al., 2022). Social media has changed the way people travel and interact, sharing information and pictures of their travels online. This has led to a phenomenon known as “geotagging”, where individuals tag the location where a picture was taken on a social media post, which can cause overtourism and environmental concerns.

Therefore, this study focuses on the intersection of an issue which development is trifold: tourism, technology and the environment. Specifically, the perceptions and beliefs of tourists on the way geotagging could have a potentially damaging effect on the environment.

2. THEORETICAL BACKGROUND

In an examination of potentially influential trends for the global tourism sector over the next 30 years, Buckey et. al. (2015:1) presented six major avenues: (1) The social, economic and environmental consequences of climate change; (2) The effects of higher fuel costs and social concerns on mass long-haul travel; (3) The role of new technologies, including social media, in marketing, managing, experiencing and monitoring tourism; (4) Economic growth and social change in the highly populous and newly wealthy nations; (5) The consequences of armed conflict and geopolitical negotiation for tourism, and the use of tourism as a tool for geopolitical interests; (6) The increasing linkages, and also conflicts, between tourism and conservation in many countries. Thus, future tourism research has to be oriented toward examining the interactions between them (Buckley et. al., 2015). In the following lines is outlined the way in which tourism affects the environment and how social media is intertwined.

2.1. The impact of tourism on the environment

According to UNWTO, tourism has become one of the fastest-growing industries worldwide, contributing significantly to economic growth and development. That being said, tourism can be a double-edged sword: while moderately distributed tourism can greatly benefit the upkeep of tourist hotspots and preserve the neighbouring environment, if not properly handled it can cause greater damage than what it is worth. The accurately named mass tourism can lead to unique threats and risks to the environment at a monumental scale (Cohen, 1978).

The tourism industry has severely impacted the environment in many ways - pollution from means of transport, wasteful attitudes towards natural and local resources such as water and energy, and wildlife degradation among others. What is more, the development of tourism can be extremely harmful in areas where natural resources are already scarce, resulting in overconsumption (Camarda & Grassini, 2003). The degree to which the tourism industry negatively impacts the environment depends on a variety of factors: the first and most important -transportation-, as well as accommodation and choice of recreational activities (Davies et al., 2000). According to (Jones et al., 2017) it also depends on the destination's characteristics. Vacations on sites such as islands and shorelines, and snow and nature destinations have the most environmental impact.

The construction of the infrastructure required to support the industry and cater for the specific needs of tourists can also lead to the destruction of the local habitats and loss of biodiversity. Tourist facilities such as airports, hotels, and attractions must be linked through a set of roads and public and private transportation alike, which contributes to noise and air pollution, and the displacement of wildlife. Adding to the problem is the rising demand for resources such as food, water and energy, and the consequent amount of waste it leaves behind. (Buckley, 2011; Davies et al.,2000; Gretzel et al, 2015)

According to the World Tourism Organization (UNWTO), international travel worldwide has risen from 940 million in 2010 to 1.5B in 2019, pre-pandemic. The massive increase in tourists has greatly affected the environment, in the form of land and resource degradation, pollution, and waste, posing great risks to the local biodiversity. In recent years, governments across the world have set regulations on their tourism hotspots in order to protect local wildlife. Such is the case of Maya Bay, a popular tourist destination within Phi Phi islands, Thailand. The island featured in the Hollywood Blockbuster movie “The Beach”, gaining great popularity shortly. Due to the great amount of tourism received in the area, the Thai government decided to close the island to tourism for a total of 4 years, in an effort to regenerate the marine wildlife. It opened once again as recently as last year, with the due regulations to keep the environment from deteriorating - the number of tourists per day is limited and swimming is no longer permitted on the premises (TourismThailand.org). Similar cases occur globally: Venice is now releasing limited “tickets” for visitors to enter the city.

Advances in technology have changed the tourism industry from within, causing travel to be quicker, more accessible, and what’s more important, affordable for the general public. The effect it has on the environment is undeniable - The increasing demand for air transportation is contributing to the rise of greenhouse gas emissions, adding to the carbon footprint and causing climate change (Davies, Terry & Cahill, 2000). As aforementioned, the tourism industry can have a detrimental effect on the environment, and new threats are emerging through the advancement of Information and Communications Technologies (ICTs).

2.2. Tourism and the Internet

Both providers and consumers have been affected by the Internet, with the travel and tourism industry being among the first affected by it (Standing et. al., 2014). The use of travel agencies decreased with airlines and accommodations directly offering their services to customers (Law et al., 2010). In addition, the rise of travel blogs and reviews provide a wealth of information readily available to travellers (Huang et. al., 2010). In a literature review of the intersection of tourism and the internet (Standing et. al., 2014) seven main areas were presented: tourism sector studies, e-business, information search, online purchasing, marketing, website analysis, and e-research methods. As a result of ICTs integration, the barriers between life and travel, home and away, work and leisure, and daily life and tourist experiences have been blurred (Uriely, 2005). Thus, research on the role of the Internet in tourism is required and is vitally important to maintaining an informed sector that is a major contributor to many economies (Standing et. al., 2014). In such a degree that it has lead to its own terminology.

2.2.1 Smart tourism

Smart tourism is a novel term that implies the use of ICTs in every phase of the trip (Koo et. al., 2016) and can be considered a social phenomenon that stems from the convergence of ICTs and the touristic experience (Hunter et.al., 2015). Mainly aimed at enhancing the tourist experience through state-of-the-art technologies and big data exploitation (Femenia-Serra and Neuhofer, 2018), and improving the competitiveness of the destination (Celdrán-Bernabeu, 2018). The Spanish innovation fostering agency Segittur maintains that smart destinations employ state-of-the-art technology to improve their performance in sustainability, innovation and accessibility (Segittur, 2015). One of the goals of smart destinations is to enhance tourist experiences, which can only be improved by acquiring travellers' information in terms of feelings, behaviours, preferences and needs (Femenia-Serra and Neuhofer, 2018). Nevertheless, some research on the field has raised concerns on smart tourism as it depends on the premise that tourists are willing to share their data in exchange for better, personalised services resulting in the mass collection and distribution of tourist data (Afolabi et al., 2020; Femenia-Serra, Neuhofer, et al., 2019). A mixed-methods study on privacy in smart tourism ascertained that more ethical practices need to be promoted as some tourists feel exploited for information which can be compensated by providing a clear and fair benefit in exchange to promote more than just transactions (Femenia-Serra et. al., 2022). That being said, the smart tourism research field is still in its

early stages. Further investigation into smart technologies for tourism, as well as their scope of application can greatly benefit the development of smart destinations (Celdrán-Bernabeu, 2018). Research on experiences and tourists' participation in smart tourism requires more effort (Femenia-Serra, Neuhofer et al., 2019; Femenia-Serra and Neuhofer, 2018).

Technological innovations have been incorporated into sustainable tourism development on firms' operation and marketing orientation as they have altered the way tourists travel, allowing a more interactive and exciting experience (Giotis and Papadionysiou, 2022). Nevertheless, ICT use has impacted the whole journey of a tourist as a customer, therefore technologies have been adopted beyond their potential to transform business, to become more user-centred specifically in the availability of smartphones and social media use (Femenia-Serra and Neuhofer, 2018). Tourists have drastically changed their behaviour, becoming the main agent of their experience, modifying the whole process of touristic mediation through the use of Web 2.0 (Buhalis and Licata, 2002) which in turn has led to unprecedented impacts to the environment. Taking all the above into consideration, it is of paramount importance to examine the effects of social media on tourism.

2.2.2 Social Networks and tourism

Over the last few years, the rise of social media has greatly impacted tourism in the form of tourist behaviours (Zeng & Gerritsen, 2014). Social media can be considered a group of Web 2.0 online tools, platforms and apps that individuals can use to create and share user-generated content (Mirzaalian & Halpenny, 2019). Social media has become the main search tool when planning a holiday and has become an essential way in which information is disseminated on tourism destinations and how tourists get informed about them (De la Ballina et.al., 2017). They have been proven to enhance the smart tourism experience by mediating and co-creating experiences through social networks given smartphone availability (Femenia-Serra and Neuhofer, 2018). Social media has become an essential tool for channelling an interaction between providers and demanders of tourist services and producing an enormous data flow to feed the smart tourism logic, where the two meet becomes a highly interesting subject of study.

Social media is a powerful tool within the tourism industry, especially when it comes to the promotion of destinations while impacting travellers' choices and behaviours (Zeng & Gerritsen, 2014). On the same note, the rising digital presence of the so-called social media

influencers plays a major role in altering traveller's decisions and modifying travelling trends (Pop, Săplăcan, Dabija & Alt, 2022). Previous studies have covered the impact of social media influencers on customers' purchase decisions regarding characteristics such as trustworthiness and quality of information (Magno & Cassia, 2018). Public internet figures and celebrities are chosen as tools to promote destinations or high-end hotels, enhancing a positive attitude for customers (van der Veen, 2008). Those advertisements are often taking place through Instagram, one of the most popular social media platforms, with around a billion monthly active users (Statista.com, 2023). Advertisers search for influencers with a substantial following base, who cater for the specific target audience of such products or destinations. According to Google Trends, in recent years destinations such as Bali, Indonesia have gained popularity online through Instagram, becoming a hotspot for honeymooners, backpackers and digital nomads.

Previous research shows that social networks are usually preferred over other kinds of media-sharing platforms, as travellers choose social media networks as their preferred tool to share their travel experiences. (Munar and Jacobsen, 2014). Platforms such as Instagram, Youtube and Facebook are commonly used by tourists to share their travel vacation, with the former excelling among the younger generations (Daxböck et al., 2021). Instagram has been proven essential for tourists to share their travel experiences, and over 45% of users consider travel one of their top interests on the platform (Iqbal, 2020). Having established that travellers research recommendations, travel tips, and insights from social media when planning their vacation (Bilgihan, Barreda, Okumus and Nusair, 2016), understanding the motivation behind the post-vacation picture sharing has been a topic of study (Daxböck et al., 2021).

Some people prioritize security and privacy concerns when it comes to sharing their travel experiences on social media, whereas others are happy to share their vacation out of self-esteem, altruism or simply because they've spent a considerable amount of money on their dream vacation (Oliveira, Araujo and Tam, 2020). The rise of user-generated content (UGC) dramatically increases available information on destinations, improving tourists' travel choices and decisions (Chung, Nam & Koo, 2016; Lee, 2017). In the decision-making process, travellers collect and manage all kinds of information from social media, aligning with their travel motivations, be it leisure and adventure, relaxation, cultural and learning experience or social bonding (Chavez, Ruiz, Curras & Hernandez, 2020). These authors

propose that the stronger the individual's travel motivations are, the more interested they will be in the social media niche that will fulfil their needs aligning with their travel motivations. Having established the great impact social networks have on tourist behaviour, it is relevant to examine how it reflects on the environment.

2.3. The impact of ICTs and social networks in touristic use on the environment

With the development of new technologies, it has become a priority of the tourism industry to explore the potential of Information and Communication Technologies (ICT) and more specifically, that of social networks, as strategic tools to positive enhance tourism experiences (Živković et al., 2014). While ICTs have made travelling more efficient and accessible, negative impacts are also in order. As mentioned above, social networks are a gateway to the over-tourism of located sights, which results in the creation of infrastructure and the strain and degradation of local wildlife. Nonetheless, studies have shown that ICTs have played a role in sustainable tourism and ecotourism (Sarkar & George, 2018). Some ICTs have proven to have a direct correlation with the reduction of environmental impact in the tourism and hospitality sector (Ruiz-Molina, Gil-Saura & Moliner-Velázquez, 2010). These authors explore the use of ICTs in the hospitality industry to help manage water and energy consumption, increase efficiency and customer satisfaction, as well as improve communication and set up communities to share good environmental practices. Other studies such as Mallick and Bajpai (2019) state that social media is a major tool to promote environmental awareness and spread information about a variety of environmental issues such as climate change and global warming to a large mass of people in a short time span. They found that social media acts as a bridge between people to connect locally and internationally with other individuals with the same pro-environmental interest and support environmental campaigns.

The Web 2.0 has greatly influenced the decision-making process in travellers (Živković et al., 2014). Impulsed by Web 2.0, a new term called Travel 2.0 has surged to convey the new generation of travel websites, which foster social interaction between travellers, allowing them to share their own experiences with other travellers (Del Chiappa, 2011). According to Živković et al. (2014:758): “The credibility and trustworthiness of Travel 2.0 applications are increasing and today's tourists trust these travel applications more

than professional travel advice.” Thanks to social media travellers are easily able to influence other travellers with their own experiences.

The development of cheap and powerful mobile technologies allows the expansion of mobile infrastructure and service availability to cover remote areas all around the globe. This has a direct impact on tourism, as it allows tourists to undergo planning in advance as well as encouraging less experienced tourists to take the leap and explore not so well known locations. This effect continues to rise as mobile phones become a must-have and travel apps are widely used by the majority of travellers (Buckley et al., 2015, Wang et al., 2012)

2.3.1. Tourists' attitudes and beliefs towards the impact of social media on the environment

The definition of pro-environmental tourists is that of those “...who strive to reduce environmental impacts, contribute to environmental preservation and/or conservation efforts, and not disturb the ecosystem and biosphere of a destination during recreation/tourism activities” (Lee, Jan, and Yang, 2013:455). Such tourists are environmentally knowledgeable and concerned about current environmental issues, willing to step in and be an example to others in order to protect the environment. Generally, tourists have a positive attitude towards protecting the environment and do not wish to engage in activities that could pose a threat to it (Wurzinger & Johansson, 2006). According to Hudson (2008), contemporary tourists have modified their behaviours in terms of higher environmental awareness, raising demand for fast travel services and higher frequency of travel for shorter periods. Nonetheless, some researchers argue that tourists have a hard time making conscious decisions about the environment when planning their holiday vacations, as it can increase their budget and pose an inconvenience when making decisions (Juvan & Dolnicar, 2014; McKercher, Prideaux, Cheung & Law, 2010). Making environmentally sustainable decisions as a customer is no easy task due to factors such as lack of knowledge and available information to make a sustainable choice, confusing information on the environmental impact of their actions and scepticism regarding greenwash, a marketing practice aimed at creating an illusory image of ecological responsibility (Moisander, 2007).

As aforementioned, social media has made travel more accessible for everyone, in terms of researching and planning, organising and booking. the part of the travelling process that has the most environmental impact is the initial travel decision, as it determines how far

the destination is and which mode of transport is required. This decision alone causes the majority of the carbon emissions of our holidays (Scott et al., 2010).

A role of social media not largely researched in the tourism field is activism. Tourism content in social media can be both pro-tourism or on the contrary anti-tourism (Gretzel, 2017). In recent years, hashtags such as #touristsgohome or #boycotthawaii have been widely spread across social media to express locals' rejection towards the damage mass tourism has inflicted on their communities and to discourage tourists from visiting. Thanks to these social media movements tourists have been made aware of the conflicts their presence caused in the area and have been educated on what can be done on the matter to ensure a two-way benefit for both residents and tourists. According to some studies (Nunkoo, 2020), the full willing support of local residents is needed to favour the development of the tourism industry in a socially compatible way.

2.4 Geotagging

A practice that has gained popularity in social media geotagging, a feature on social media platforms that allows users to tag the specific location of where a picture has been taken. Its potential in the tourism landscape has been examined as Dickinger et al. (2008) emphasize the equal importance of location and destination for travellers and consider that map embodying geographical information significantly influences the information search experience.

It has been studied as a tool to provide information on tourist activity in urban areas, namely visits by locals or tourists, temporal analysis (seasons, weekday/weekend), paths; and its potential for urban planning (Kádár and Gede, 2013). It then enables travellers to filter pictures by specific location. Social media data is not only rich in text and image information but also in geo-information. This allows researchers to pinpoint tourism hotspots as well as traveller's trajectories and behaviours at a large scale (Wu et al., 2018). The so-called social media "electronic word of mouth" (Živković et al., 2014; Ashfaq et al., 2022).

The use of user-generated tags is becoming increasingly popular and has a great contribution to the travel industry (Gretzel et al. 2007; Wilson et al. 2012). What is more, user-generated reviews about travel services, hotels or destinations have become a significant source of information for tourists (Pan et al., 2007).

Several studies have explored the use of geotagged photos on different backgrounds. Gunter (2021) analysed geotagged pictures from Instagram with the aim to identify the difference between popular places in Vienna for locals and tourists. Derdouri and Osagari (2021) studied the differences between tourists and locals through geotagged pictures in Tokyo. Alternatively, Vu et al. (2015) used geotagged pictures to further research the travel behaviours of tourists in Hong Kong. Similarly, Zhong et al. (2020) conducted a case study to help identify tourists' interests using geotagged data in Hong Kong. Choonhawong and Phumsathan (2022) define Instagram as one of the most popular social media tools and imply that such a tool can help encourage appropriate environmental behaviours in tourists. The latest studies of geotagged data concluded that knowledge of tourists' travel behaviour is essential to develop strategies and aid in the decision-making process aimed at the creation of a sustainable tourism industry.

Nonetheless, geotagging can also pose a threat to the local environment. Over the last few years, we can encounter several instances where geotagging caused overcrowding issues. For instance, in 2016 China opened the world's highest glass-bottom bridge and, as expected, floods of tourists visited the location and posted their pictures on social media, causing more visitors. Consequently, the bridge was forced to close down due to overcrowding issues. (KC et al., 2022). It is no surprise geotagging and overcrowding problems come hand in hand, as tourism numbers are increasing worldwide and locations that once were remote, are now being promoted all over social media - the previously mentioned Maya Bay in Thailand, bases at Mount Everest, the Komodo Islands, Icelandic canyons, are all examples of tourist sites that had to shut down after tourist floods threatened to destroy the natural ecosystem (Insider, 2019). Oftentimes, mass tourism eventually leads to "tourism phobia" or "anti-tourism" movements, as it happened in Barcelona where even as tourism is one of the main industries of the city, public manifestations with the slogan "tourists go home" could be seen all through the city. The reason for the social discontent in Barcelona and according to Postma and Schmuecker (2017), overtourism is mainly due to three factors: low-cost airlines, the rise of tourist rental accommodation platforms such as Airbnb and large cruise ships.

Social media has been noted as a major cause of overtourism (Gretzel, 2019). Geotagging can be linked to mass tourism or overtourism, a phenomenon increasingly common due to social media and the so-called "electronic word of mouth" (Živković et al., 2014; Ashfaq et al., 2022). This causes destinations to become viral or increasingly popular

on social media, which consequently results in visitor saturation, creating a negative experience for both tourists and locals. Therefore, this study aims to assess tourist's attitudes and beliefs towards the use of social media for travel purposes, and the consequent impact on the environment specifically due to geotagging.

3. CASE STUDY

3.1 Research Objective and Methodology

This study aims to further investigate travellers' attitudes and beliefs towards the use of social media when travelling, diving deeper into the topic of geotagging - their familiarity with the term, their social media habits and their personal pro-environmental intention. The main objective is to identify whether tourists' believe social media impacts their travel behaviours and its impact on the environment.

Having established the objectives and methods of this research, the following research questions will be addressed:

RQ1: Do travellers think tourism can be harmful to the environment?

RQ2: Do travellers think that social media use when travelling negatively affects the environment?

RQ3: Do travellers benefit from geotagging? Are they aware of its potential harmful effect?

3.1.1. Participants

The current research presents a case study which consists of 42 participants. By means of an online questionnaire which was shared through a snowball sampling, the participants shared their attitudes and beliefs towards the use of social media when travelling. Furthermore, they shared their opinions on whether the tourism industry and most specifically, geotagging, could pose a threat to the environment. The age range of participants is quite wide, from 18 to 64, with the majority ranging from 18 to 24 with 40,5% ($n = 17$) and 25 to 34 with 33,3% ($n = 14$). The gender distribution of the sample is 73,8% female ($n = 31$) and 26,2% male ($n = 11$). Participants are from eight different nationalities: 35 Spanish, 1 French, 1 Iraqi, 1 Portuguese, 1 Jordanian, 1 Austrian, 1 Czech, 1 German. Regarding the level of education, 66,7% ($n = 28$) has been to university while 28,6% ($n = 12$) have a master's or PhD. The area of expertise varies considerably, with 7 participants belonging to education studies and the others ranging from disciplines such as Health

sciences, Finance, Engineering, Communication, Logistics and Tourism and hospitality. It is important to note that 57,1% ($n = 24$) of the participants travel 2 to 3 times a year while 21,4% ($n = 9$) travel 4 to 10, 7,1% ($n = 3$) more than 10 times per year, and finally 14,3% ($n = 6$) once a year. The survey conducted was anonymous.

3.1.2. Instrument

Data was collected by means of an online questionnaire (see Appendix 1) that was distributed to 42 participants. Questions are tailored to the specific aim of research in a way that data on attitudes and opinions are successfully collected. The questionnaire consists of four sections. The first section focuses on demographic information and the travel frequency of the participants. The second section contains questions regarding the participant's general social media use and interests. The third section dives deeper into the use of social media while travelling. Lastly, the fourth section aims to gather information on the participant's attitudes towards geotagging and their opinion on whether geotagging can be detrimental to the environment. Furthermore, the questionnaire summarised a list of 6 statements to measure the attitudes and beliefs of travellers over the impact of tourism on the environment and the role of social media, using a 5-point Likert scale (1 strongly disagree, 5 strongly agree). Data was collected in May 2023 through social media sharing and snowball sampling, mainly through Instagram. A total of 42 participants completed the survey successfully.

4. RESULTS AND DISCUSSION

First, the second section mainly deals with the individual's social media use. 28 participants (66,7%) chose Instagram as their preferred social media platform over the others, such as Twitter, Youtube or Tik Tok. Youtube was chosen in second place with 5 votes (11,9%) and Twitter ranked third with 4 votes (9,5%). Pinterest, Snapchat and Tik Tok followed. This correlates with the findings of a study conducted by Choonhawong and Phumsathan (2022), who found Instagram and Facebook to be the most popular social network sites. Facebook was regarded as the number one social platform, although, from the 42 participants surveyed in this questionnaire, none mentioned it as their preferred platform. It might be due to the majority of the sample being "Generation Z" or "millennials". According to Daxböck et al. (2021), platforms such as Instagram, Youtube and Facebook are commonly used by tourists to share their travel vacation, with the former excelling among the younger generations. In the same section, participants were asked about their top interests in their chosen platform. Travel was their top pick, with 25 votes (59,5%), followed by

Nutrition and cooking (40,5%), Music and Artists (42,9%) and Fitness and Fashion and makeup (28,6% each). This shows agreement with a study conducted by Iqbal (2020), who proved that Instagram is essential for tourists to share their travel experiences, and over 45% of users consider travel one of their top interests on the platform.

Moving on with the third section, participants were asked about their social media usage while travelling. 26 individuals (61,9%) mentioned following travel accounts such as travel influencers or travel bloggers, while 16 participants (38,1%) admitted to not following travel media. When asked about their posting behaviour, 28 participants (66,7%) stated that when posting pictures on social media they do tag the location where the picture was taken. Only 7 participants (16,7%) declared that they do not tag the location and another 7 individuals (16,7%) mentioned they do not share pictures on social media. According to Daxböck et al. (2021) understanding the motivation behind the post-vacation picture sharing has been a topic of study. Most people surveyed do share do share their vacation on social media, which could be due to high self-esteem, to share the word or simply because they've spent a considerable amount of money on their dream vacation. Meanwhile, 7 individuals commented they do not share pictures on social media, perhaps prioritizing security and privacy concerns (Oliveira, Araujo and Tam, 2020).

In a similar line, 24 participants (57,1%) admitted that when planning a trip, they do look for information and pictures of the destination on social media, while 10 participants (23,8%) do sometimes and only 8 (19%) declared they do not rely on social media on their travels. The majority of the participants admitted to doing previous research online ahead of their vacations, which concurs with a study conducted by Bilgihan et al. (2016) that established that travellers research recommendations, travel tips, and insights from social media when planning their vacation. Similarly, 22 participants (52,4%) think that social media influences their choice of destination or travel itinerary, while 14 participants (33,3%) expressed that it happens sometimes and 6 participants (14,3%) believe that social media has no influence on their decisions. This concurs with Lalicic et.al (2020), who state that social media content can influence tourism destination decisions. On the same note, Tuclea et al. (2020) agree that social media is a powerful tool to shape tourists' needs, search for information and weighs in choosing their final destinations. Chung et al. (2016) and Lee (2017) remark that the rise of user-generated content dramatically increases available information on destinations, improving tourists' travel choices and decisions. Chavez et al. (2020) agree that in the decision-making process, travellers collect and manage all kinds of

information from social media, aligning with their travel motivations. Likewise, Živković et al. (2014) assure that the Web 2.0 has greatly influenced the decision-making process in travellers.

Participants were also asked whether a destination they chose to visit due to social media ended up living up to their expectations, of which 27 (64,3%) said it fulfilled their expectations while 15 individuals (35,7%) were disappointed. From the reasons as to why it didn't fulfil their expectations, most participants found the location to be way too touristy (52,9%), overcrowded (47,1%), was not an accurate representation of the pictures and videos (29,4%), overpriced (23,5%), dirty (5,9%) or not easily accessible (5,9%). The considerable amount of disappointed individuals might be due to their preconceived notions towards a destination, powered by social media, which largely contributes to their expectations. (Wirtz and Lovelock, 2016). Zeithaml et al. (2016) agree that tourists need to know what their experience is going to look like in order to create expectations and reduce uncertainty. According to Živković et al. (2014), tourists nowadays find travellers' opinions on social media to be more reliable than those of official marketing websites.

Lastly, the fourth and final section emphasizes tourists' attitudes towards geotagging, a practice that simply consists of tagging the exact location when posting media about a specific destination. 24 participants (57,1%) revealed to be familiar with the term, while 18 (42,9%) admitted not having previous knowledge on the topic. Even as 24 participants know of geotagging, 28 participants (66,7%) admitted to tagging the location on social media posts. This reveals that some individuals do engage in the practice of geotagging, even if they have no knowledge of the term itself.

Most importantly, participants were asked to share their opinion on the question: *“Do you think tagging the specific location on a picture can be detrimental to the environment? Why? Why not?”* While the opinion is varied, answers tend to be positive.

“I guess it depends, it can be beneficial to the local community to make the place go viral and attract more tourists, hence more money coming in; although it can also overstress the destination if the infrastructure cannot cater for such a large number of tourists.”

“If the location is increasingly shared it can become viral and the destination overcrowded, making it lose its charm and appeal. If it's a natural spot it might even get destroyed”

“Depending on the context it may cause massification on the area, and if it's a natural environment it might cause harm”

“It depends on the location. If it is a location which gets massively touristy because of its appearance or attractiveness, it could make people travelling there and have serious consequences on it.”

“Definitely. Humans are responsible of all the environmental damage. Traveling requires most of the times transport, overconsumption, exploitation of the natural environment for purely recreational purposes... so the bigger is the audience, the more possibilities to find that spot crowded are met, meaning more misbehavior and pollution. Just in order not to generalize, it also depends on the profile of the people or community who actually interacts with that tag.”

“Yes. On one hand it turns the locations in overcrowded places, with the damage and deterioration that entails. On the other it gives them some visibility and can help to try to preserve them better, although it is usually more the first case.”

“Yes, more popularity on social media means more people are going to be aware of the site thus resulting in an increase of visitor numbers which will have a negative affect on the environment state of that area.”

“I'd say yes, because the more advertisement the place gets (tags, pics on socials), the more popular or fashionable it gets. This way the amount of tourists visiting this place increases to a point when it's too much - and I'm not talking just about environmental pollution, but also increase in prices which especially for the locals can be devastating. Also it enhances business opportunities for the locals (new hotels, restaurants etc) which is good, but after the place loses its charm and the inflow of tourists stops, these businesses will be forced to shut down leaving people out of jobs.”

One of the main concerns mentioned by participants is overcrowding and the potentially harmful effect over-tourism has on the environment. While researchers agree that overcrowding is an increasing problem in the tourism industry, mainly due to social media, it is true that a regulated inflow of tourists can be beneficial for the sites. Social media has been noted as a major cause of overtourism (Gretzel, 2019). Overcrowding can be addressed through a common effort by local governments and the application of legal measures aimed to limit and control the flow of tourists and regulate their impact on the local ecosystems (Veiga et al., 2018). Once measures to tackle such problems are implemented, tourism could become an opportunity for economic growth.

Although negative answers to the question *“Do you think tagging the specific location on a picture can be detrimental to the environment?”* are scarce, they are also present:

“No, because i think it can help people to know the place where the photo was taken and promote the tourism there”

“No. Beautiful places and places of interest are known to most people. Before they could be labelled in an app, there were the guidebooks, the agencies, the tours, word of mouth...”

“What doesn't help the environment is the lack of civic and environmental awareness of many tourists.” (Statement translated from Spanish)

Relating to this last statement, several authors such as Mallick and Bajpai (2019) sustain that social media is a powerful tool to promote environmental awareness and spread information about a variety of environmental issues, and plays a role in educating tourists and encouraging proper behaviour. Issues ranging from climate change, global warming, and renewable energies are very present on a multitude of social networks, where users post and share valuable information that reaches a wide public. A great example is the social movement “Fridays for Future”, which grew popularity in recent years thanks to social media. Demonstrations were mainly partaken by school students who coordinated internationally online and took the streets to demand political action to prevent climate change.

Finally, participants were asked to rate a series of statements regarding the tourism industry and the environment, intertwined with social media. The scale ranged from 1 (Strongly disagree) to 5 (Strongly Agree). The statements are as follows:

In relation to the first statement, *Travelling can be harmful to the environment* 15 participants (35,7%) tended to agree, while 8 (19%) strongly agreed. 3 participants (23,8%) showed neutrality while 4 (9,5%) disagreed and 5 (11,9%) strongly disagreed. As several studies show (Veiga et al., 2018; Davies et al., 2000), the tourism industry can cause great environmental impact, the degree of which can be determined by the choice of transportation, accommodation and activities. Overall, researchers (Cohen, 1987; Veiga et al., 2018; Davies et al., 2000) agree that travelling can pose a threat to the environment in many forms - intrusion and destruction of local habitats, land reshaping, overuse of natural resources, increase in air pollution and thus carbon footprint, to name a few.

As for the second statement, *I am willing to put extra effort into pro-environmental behaviour when travelling* answers tend to be positive, with 10 participants (23,8%) strongly agreeing, 12 agreeing (28,6%) and 14 (33,3%) showing neutrality. On the contrary, only 3 participants disagreed and the other 3 strongly disagreed (7,1% each). The general consensus agree with that of Wurzinger and Johansson (2006), which state that on a regular basis tourists have a positive attitude towards the protection of the environment and do not wish to engage in activities that could pose a threat to it. Hudson (2008) agrees, noting that contemporary tourists have modified their behaviours in terms of higher environmental awareness. However, some researchers argue that tourists have a hard time making conscious decisions about the environment when travelling, as it can become an inconvenience (Juvan and Dolnicar, 2014; McKercher, Prideaux, Cheung and Law, 2010). Moisander (2007), sustains that making environmentally sustainable decisions can be challenging due to the lack of general knowledge on the topic and on the actual environmental impact of their own actions.

As for statement three, *the tourism industry can cause pollution, climate change, and exhaustion of natural resources because of the infrastructures required to cater to a degree number of tourists*, goes hand in hand with the first “*Travelling can be harmful to the environment.*”. Nonetheless, participants tend to agree way more with this statement: 12 votes (28,6%) show strong agreement, 20 agree (47,6%), 5 show neutrality (11,9%) and only 4 strongly disagree (11,9%). This shows agreement with plenty of studies (Julvan et al., 2013,

Scott et al., 2010) that state the consequences of the tourism industry if not properly researched and managed. Although researchers tend to agree that tourism is not the main cause of climate change, the increase in demand for long-haul flights has increased greenhouse gas emissions thus contributing to climate change and the tourism carbon footprint (Cohen, 1987; Veiga et al., 2018)

When it comes to their opinion on whether *Social media creates a snowball effect and increases the likeness of tourism hotspots* 16 participants (38,1%) show strong agreement to this statement, while 12 agree (28,6%). 12 participants show neutrality (28,6%), whereas only one participant disagrees and another one disagrees strongly (2,4% each). Ultimately, when making a decision about the travel destination for the holidays, tourists rely on “online word of mouth” as a significant source of information (Živković et al., 2014). This entitles that as more visitors travel to a specific destination, more online data and posts will be shared and reach an exponentially bigger audience which consequently will result in an increase in visitors. Such is the case of the aforementioned destination Maya Bay in Thailand and many others.

When it comes to the statement *Social media has ruined certain destinations for me*, it offers the most varied range of answers. On the agreement side, 8 participants (19%) strongly agree and 4 agree (9,5%). 10 participants (23,8%) are neutral, 12 disagree (28,6%) and 8 strongly disagree (19%). This statement goes hand in hand with issues such as overcrowding or expectation creation. Siegel et al. (2023) state that Instagram has caused the popularity of otherwise pretty much unknown destinations to increase considerably. For instance, such is the case of the Gion District of Kyoto, Japan. The authors argue that, besides the rise of visitors, the behaviours of travellers encouraged by social media can be irresponsible and detrimental to the environment.

As for the last statement *When I see a post about a place that interests me and I am not familiar with, I look for the exact location by reading the caption or the comments on the post* answers are mostly positive. With 16 participants (38,1%) strongly agreeing and 13 agreeing (31%). Showing neutrality we find 7 individuals (16,7%), while on the disagreement side, we only find 2 votes (4,8%) and 4 votes (9,5%) that strongly disagree. The vast majority of participants agree that they are curious about locations they see on social media, which might lead them to visit the site in the future. Authors such as Dickinger et al. (2008) highlight the

importance of location and destination for tourists and sustains that map embodying geographical information greatly impacts the information search experience. The more social media presence, the more likely it is to attract more visitors and therefore create a snowball effect that can cause overtourism and all the issues that come with it.

5. CONCLUSION

The surge of social media has undoubtedly impacted the core of the tourism industry - the way travellers interact and share their experiences online, the research previous to the holiday, the decision making process...- to the point in which travellers are now more influenced by social media content rather than actual corporate marketing strategies. This new way of travelling has not only impacted the tourism industry itself but also the environment. The use of social media by tourists can cause a multitude of issues, being overtourism and the spread of inappropriate environmental behaviours the most researched. Nonetheless, social media can also be a powerful tool to promote sustainable tourism to large audiences.

Diving deeper into the phenomenon of geotagging, it has been proven that sharing the specific location of a site on social media can cause a snowball effect and lead to an increase in popularity. In some cases, that increase happens with a very large number of people and in very short time. Therefore, more often than not those places which were once remote have to endure a considerable influx of tourists for which they are not prepared of in terms of infrastructure, personnel and transportation. This severely affects the natural ecosystem and the local habitat, as it may lead to overuse of natural resources, the reshaping of the land, loss of biodiversity, to name a few. In order to mitigate it, local environmental regulations and the limitation of visitors can be set up.

This study has found that indeed travellers use social media for travel planning purposes as well as during their trips. Social media impacts their decision-making process and creates expectations that sometimes are not met. After the holidays, most travellers like to share their experiences online, therefore spreading the “electronic word of mouth”, in most cases participating in the “geotagging” phenomenon, even if they are unaware of it. Travellers recognise the impact travelling has on the environment and are keen to modify their behaviour to adapt to the rising environmental crisis. Nonetheless, they might not be aware of the actual impact their travelling decisions and actions impact the environment.

6. LIMITATIONS AND FURTHER RESEARCH

As for the limitations of the present study, participants were mostly young people who are digital natives and therefore had a great impact on results. Further studies could be focused on the impact of geotagging on specific locations or examine social media use statistics.

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Appendix 1: Questionnaire

SECTION I: Demographic information

PROFILE	
Gender	M
	F
Age	18-24
	25-34
	35-44
	45-54
	55-64
	65+
Education	Primary school or under
	Middle School
	High School
	College/University
	Master/Ph.D
Area of expertise (studies/work..)	
Nationality	
Travel Frequency (times/year)	1
	2-3
	4-10
	10+

Table 1. Participant profile

SECTION II: Social media use

- Which is your preferred social media platform?
- What are your top interests in such platform?
 - Travel
 - Fitness
 - Nutrition and cooking
 - Music and artists
 - Photography
 - Fashion and make-up
 - Other

SECTION III: Social media use when travelling

- Do you follow travel accounts, travel influencers, or travel bloggers...? How many?
1-3, 4-6, 6-8,>8
- Do you post pictures of your travels on social media? If so, do you usually tag the location where the picture was taken?
- When planning a trip, do you look for information and pictures of the destination on social media?
- Do you think social media influences your choice of destination or travel itinerary?
- If you have opted to visit a place you saw on social media, did it live up to its expectations? Why/why not?
 - Overcrowded
 - Dirty
 - Not easily accessible
 - Overpriced
 - Too touristy
 - Harassment to over-consume (tourist traps)
 - Didn't look like the pictures/videos
 - Other:
- Do you think making use of social media while traveling can be harmful to the environment? Why/why not?

SECTION IV: Attitudes towards geotagging

- Geotagging consists of tagging on social media the specific location where a picture was taken. Are you familiar with the term?
- Do you think tagging the specific location on a picture can be detrimental to the environment? Why? Why not?

Rate the following statements on whether you strongly agree(5) or strongly disagree(1)

Environmental awareness	Harland (2007); Kiatkawsin & Han (2017); Vandenberg (2005); Vining & Ebreo (1992)
1. Travelling can be harmful to the environment.	
2. I am willing to put extra effort into pro-environmental behaviour when travelling.	
3. The tourism industry can cause pollution, climate change, and exhaustion of natural resources because of the infrastructures required to cater to a degree number of tourists.	
Social Media and Geotagging	
1. Social media creates a snowball effect and increases the likeness of tourism hotspots	
2. Social media has ruined certain destinations for me	
3. When I see a post about a place that interests me and I am not familiar with, I look for the exact location by reading the caption or the comments on the post.	

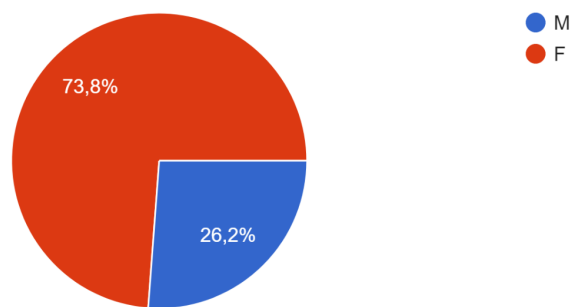
Questionnaire partly sourced from Han, McCabe, Wang & Chong (2017)

Appendix 2: Responses

SECTION I: Demographic information

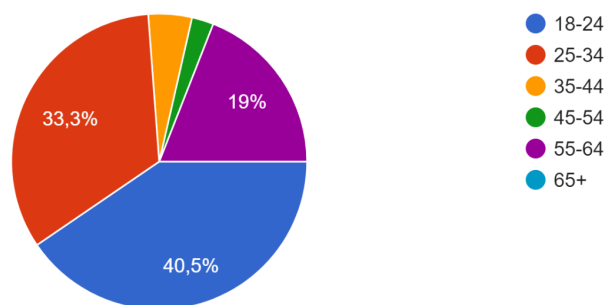
Gender

42 respuestas



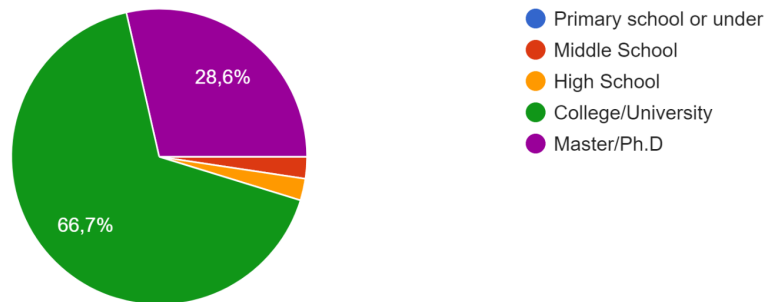
Age

42 respuestas



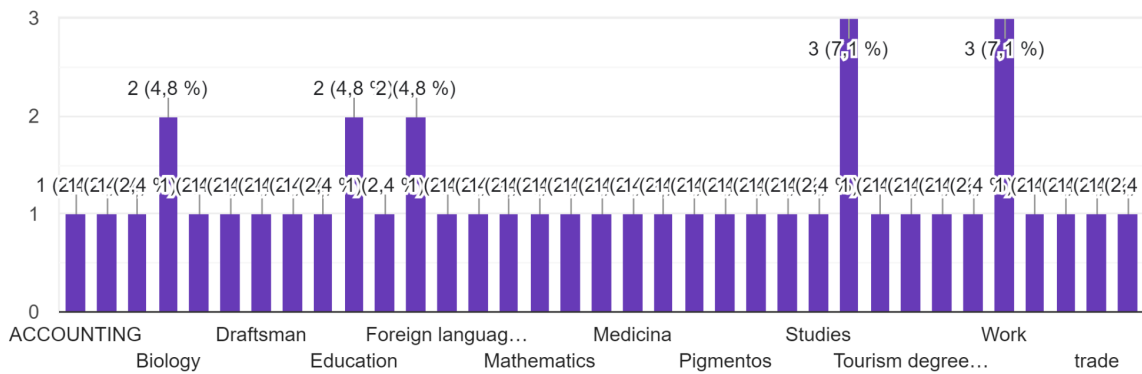
Education

42 respuestas



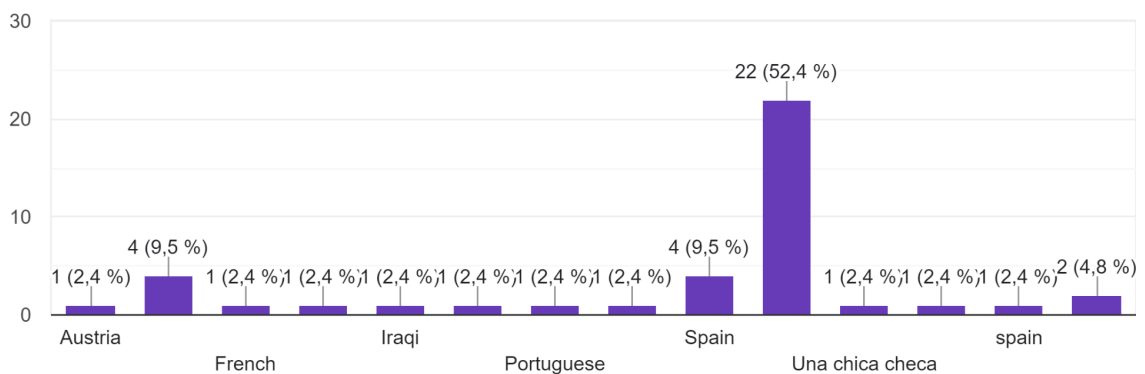
Area of expertise (Studies/Work...)

42 respuestas



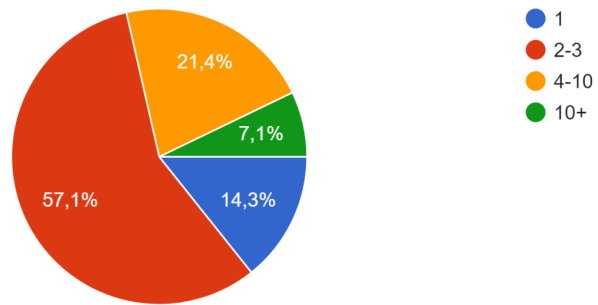
Nationality

42 respuestas



Travel Frequency (times/year)

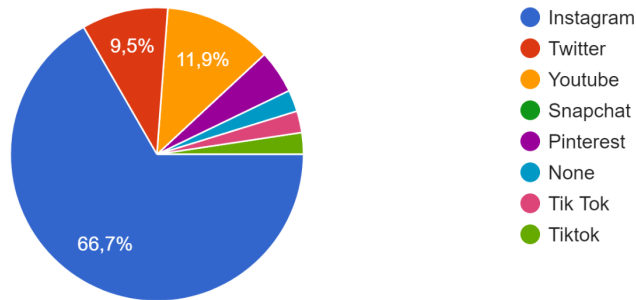
42 respuestas



SECTION II: Social media use

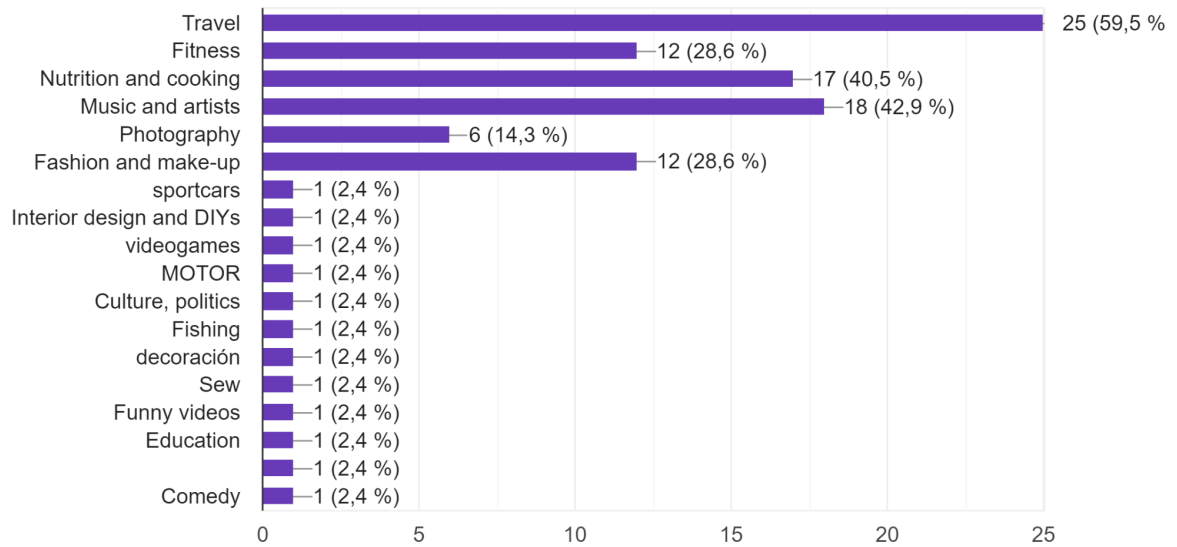
Which is your preferred social media platform?

42 respuestas



What are your top interests in such platform?

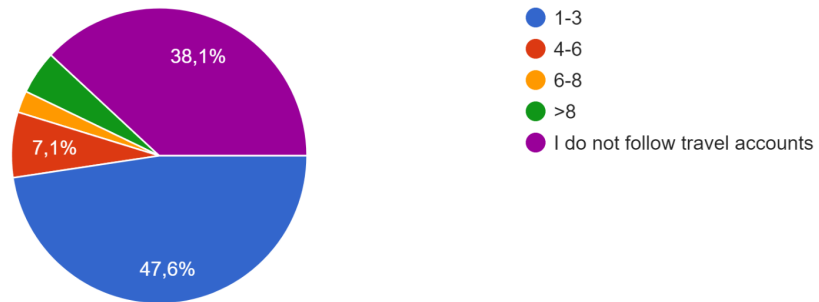
42 respuestas



SECTION III: Social media use when travelling

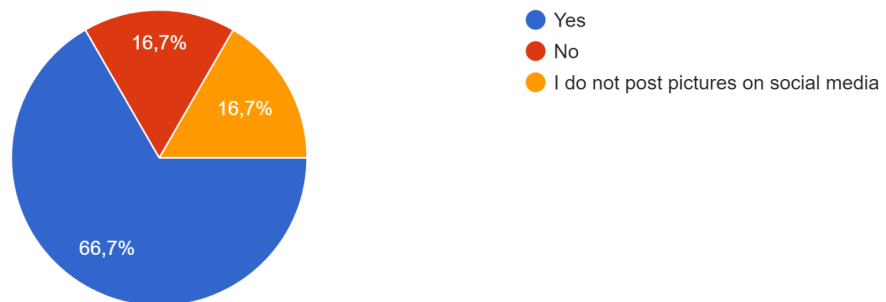
Do you follow travel accounts, travel influencers, or travel bloggers? How many?

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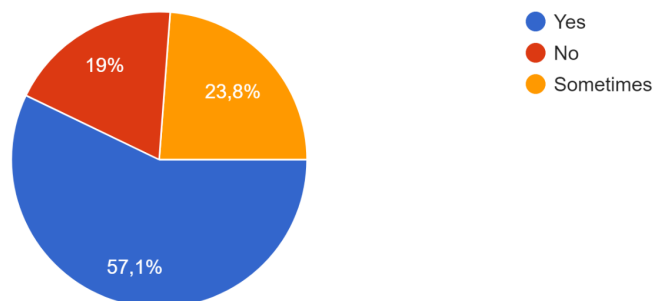
Do you post pictures of your travels on social media? If so, do you usually tag the location where the picture was taken?

42 respuestas



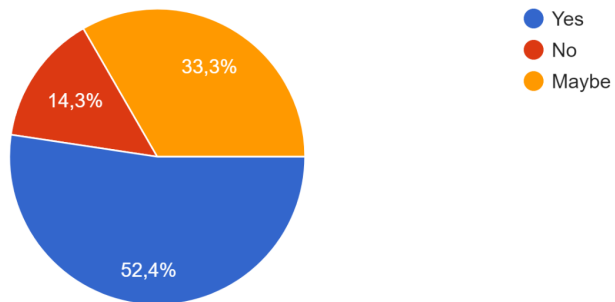
When planning a trip, do you look for information and pictures of the destination on social media?

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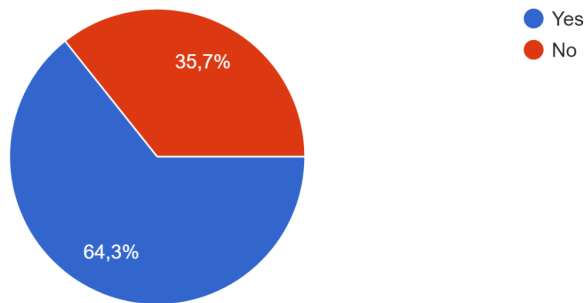
Do you think social media influences your choice of destination or travel itinerary?

42 respuestas



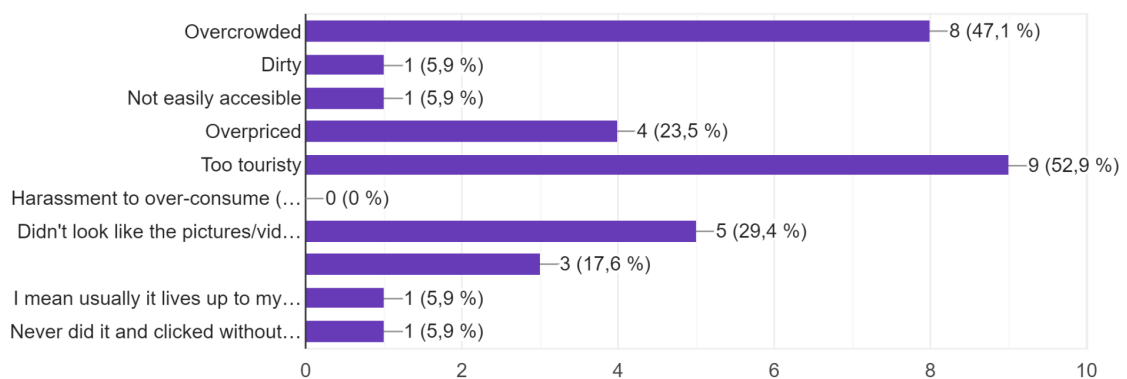
If you have opted to visit a place you saw on social media, did it live up to its expectations?

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If you voted no, why?

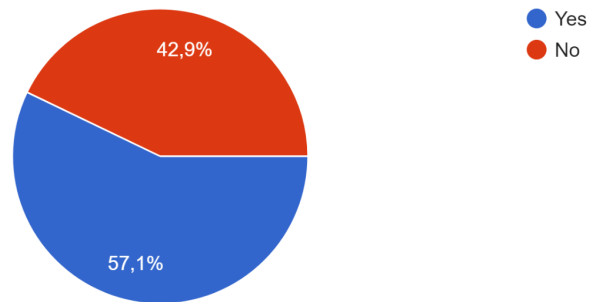
17 respuestas



SECTION IV: Attitudes towards geotagging

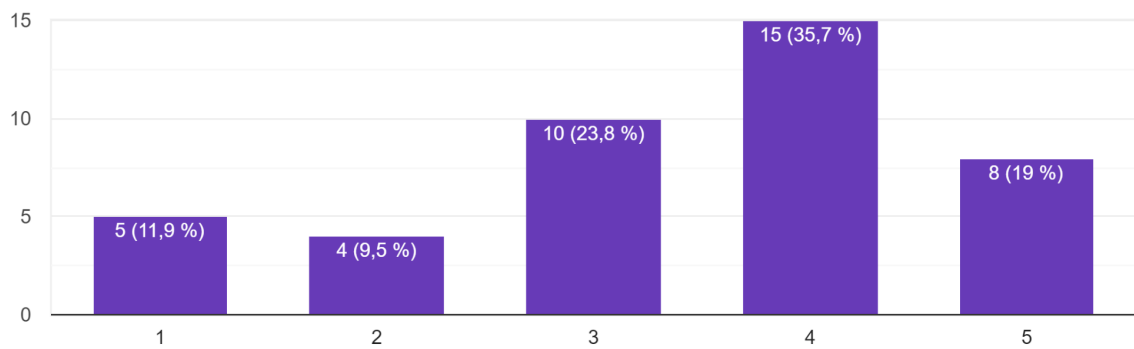
Geotagging consists of tagging on social media the specific location where a picture was taken. Are you familiar with the term?

42 respuestas



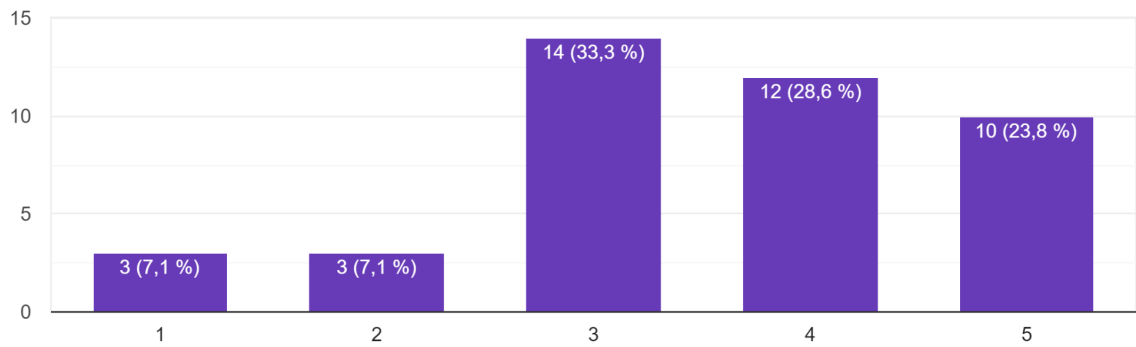
1. Travelling can be harmful to the environment.

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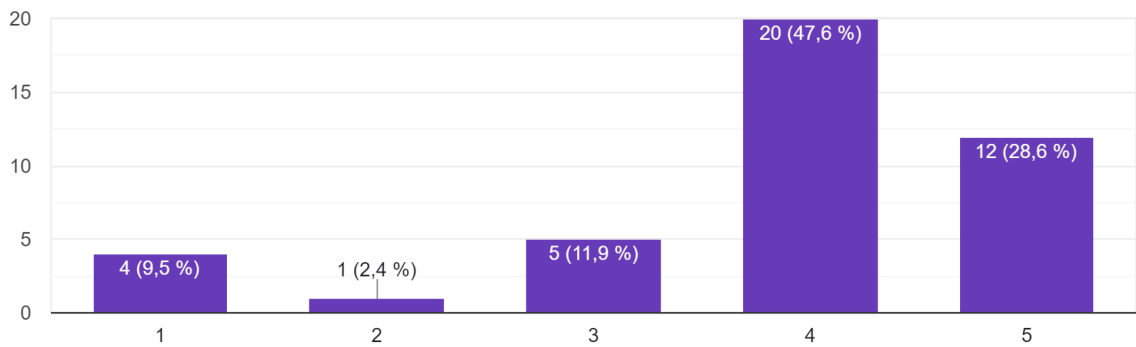
2. I am willing to put extra effort into pro-environmental behaviour when travelling.

42 respuestas



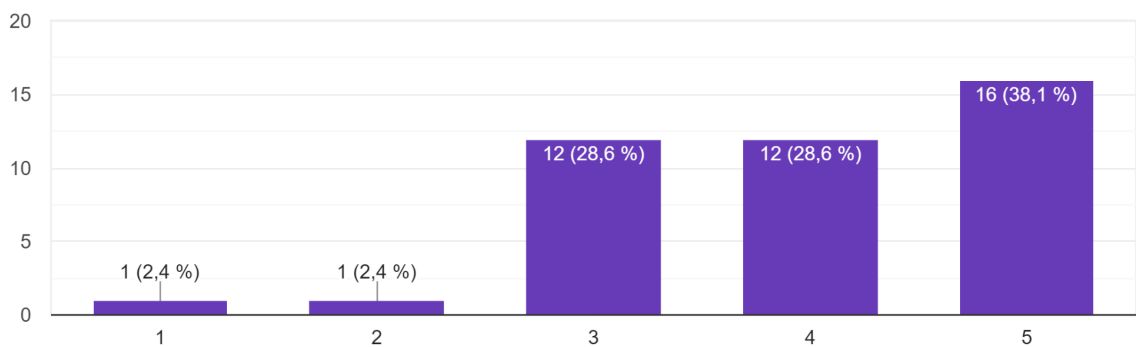
3. The tourism industry can cause pollution, climate change, and exhaustion of natural resources because of the infrastructures required to cater to a degree number of tourists.

42 respuestas



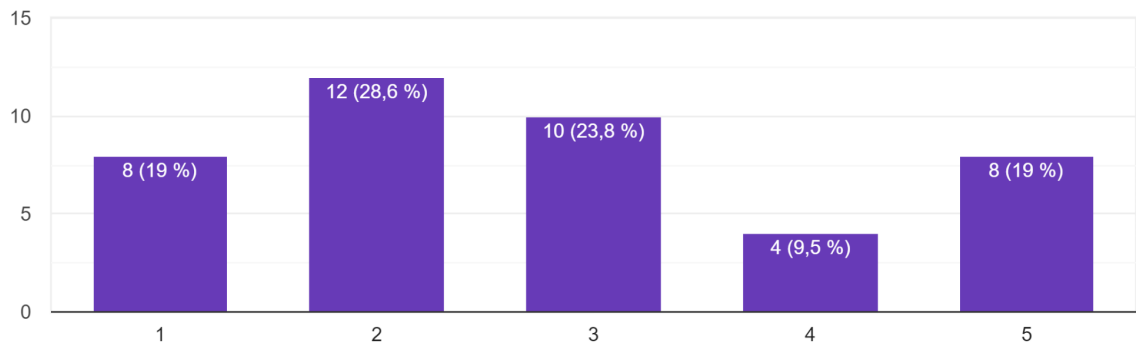
4. Social media creates a snowball effect and increases the likeness of tourism hotspots

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5. Social media has ruined certain destinations for me

42 respuestas



6. When I see a post about a place that interests me and I am not familiar with, I look for the exact location by reading the caption or the comments on the post.

42 respuestas

