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Abstract

Undoubtedly, the pandemic has shifted the way we live, work, interact and travel. It has also highlighted the need to address the issue of climate change. In this context, a great deal of attention is being given to the issue of metatourism, given the proposals it may entail in terms of sustainable development. This study aimed to explore tourism sector employee's attitudes towards metatourism and their perception of its impact on sustainable development. This study was quantitative and was conducted by administering self-report questionnaires via the internet to a sample of 50 participants. The measures administered to the participants were: 1) measures of social demographic characteristics, 2) a 6-question questionnaire on attitudes towards metatourism and 3) a 6-question questionnaire on its perceived impact on sustainable development. This study found highly positive attitudes of the participants towards metatourism and its perceived impact on sustainable development. It was also found that Students had statistically significantly more positive attitudes compared to others (p=0.015). Furthermore, Filmmakers, Photographers or Scenographers had higher values compared to those involved in Extreme Sports (p=0.019). Finally, a positive and statistically significant correlation was found between attitudes towards metatourism and its impact on sustainable development (r=0.494, p=0.000). In conclusion, the potential of metatourism to contribute to sustainable development has been proved. Therefore, those who make relevant policies in our country should: a) promote metatourism in the context of the wider tourism product of Greece, b) emphasize and c) promote the sustainability of its tourism industry.

JEL classification: I18, Z39

Keywords: Metatourism, tourism, tourism industry, sustainable development

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1. Introduction

Tourism is a complex and multidimensional phenomenon, consisting of various subsystems, which are interdependent, creating an integrated whole, the tourism system. It is influenced by environmental forces and its nature is economic, ecological, technological and political. The study and interpretation of tourism development therefore requires interdisciplinary synergy (Williams, 2006). Tourism is not a closed system. It is influenced by the environment in which it is embedded and conversely it influences the environment through the development of tourism activity. A better understanding of tourism development and its contribution to the economic and cultural development of a place is considered essential for tourism promotion planning, tourism marketing strategy and sustainable tourism development. Economic science has highlighted tourism as an important sector since the 1960s, while its socio - cultural dimensions emerged in the following decade.

An initial part of tourism economics was limited to the quantitative expression and evaluation of monetary income from tourism, often expressed in terms of export earnings and number of jobs. Over time, the supply side attracted more interest, which gradually led to the realization that economics is related to and dependent on many factors, which are examined and interpreted in the field of psychology, ecology, political science, sociology. This led to the view that tourism economics can be better understood if it is interpreted beyond its scientific boundaries (Williams, 2006).

Developments and current trends in tourism show that the tourism product is becoming more complex as it incorporates increasingly specialized services that take into account human psychology, the environment, culture, culture, health and nutrition. The tourism industry has therefore been significantly influenced by technological developments, both in terms of the development of tourism infrastructure and the promotion of the tourism product (Williams, 2006). Internet, social media, virtual reality technologies are the modern tourism marketing tools (Buhalis & Law, 2008; Kotler et al., 2014). Alongside the new means of promoting the tourism product, which are mainly based on technological development, the so-called traditional means of promoting the tourism product are still used, such as tourist websites, brochures, outdoor advertising, participation in tourism fairs and the creation of an information center for tourists. Promotion of the tourism product is the responsibility of all tourism operators, both public and private. The purpose of this study is to investigate the importance (advantages and disadvantages) of using modern marketing technologies in tourism and to understand the contribution of multimedia technology and virtual reality in shaping the tourism experience. At the same time, however, this study also highlights the problems that may arise from the indiscriminate tourism development (Buhalis & Law, 2008).

There is a prevailing view that indiscriminate tourism development will lead to the deterioration of local traditions and culture, the abandonment of the agricultural sector and agricultural production, the pollution of the natural environment and the destruction of tourist destinations. The attractiveness of a destination may be reduced due to natural disasters and excessive tourism. The presence of an excessive number of tourists in a place makes it necessary to have a demarketing strategies applied in

order to avoid problems of excessive demand in relation to supply. Tour operators should consider the consequences of the uninterrupted flow of tourists on cleanliness, the general protection of the natural environment, the preservation of historical monuments, noise pollution and the overall quality of services (Casaló - Ariño et al., 2010). So, it is necessary to emphasize the sustainable tourism development of a place.

2. Literature review

2.1 Definition of the concept of Metaverse and its characteristics

In order to study metatourism, it is first necessary to study the concept of metaverse. The term metaverse, is in fact an acronym of the words *"meta"* and the abbreviation of the word *"universe / verse"*. The term in question should be emphatically pointed out that it was coined by Neal Stephenson in his science fiction novel *Snow Crash* that was first published in 1992. According to the illustrations presented in that novel, the metaverse is a powerful virtual world that exists alongside the physical world that humans experience physically. This is more accurately reflected in the term *"digital twin"*. Moy and Gadgil (2022) define the metaverse as *"a seamless convergence of our physical and digital lives, creating a single, virtual community where we can work, play, relax, transact and socialize"*. This effort is aided by the use of gadgets that can support immersive technologies, such as MR/VR headsets and smart glasses (Dwiedi et al., 2022; Zhang & Ye, 2021).
Metaverse differs radically from previous 3D technologies due to specific features such as: a) *functionality* that allows its users to participate in meetings, reply to emails and attend concerts and shop. Thus, metaverse mirrors real life in a virtual world (Dwivedi et al., 2022), b) *interoperability* as metaverse provides users with an interoperable environment for networking and socializing for networking and socializing. Users' accounts/profiles are platform-independent, allowing them to cross-platform and network with other users in different virtual worlds (e.g. Horizon World, Sandbox, Roblox). This creates unprecedented marketing opportunities (Dwivedi et al., 2023) and c) *sustainability* as already large companies from apparel to aviation have chosen to do business within the metaverse.

2.2 Connecting Metaverse with the tourism industry

The emergence of the metaverse expands the social ties between consumers and suppliers in the tourism ecosystem (Tsai, 2022). The co-creation space of the metaverse also facilitates collaboration between the above. User-generated visual content posted on social media by past travelers has long been recognized as useful information for future travelers to stimulate dreams and ideas about travel (Meier et al., 2020). Photos and videos can convey intangible travel experiences to viewers. However, these stimuli lack tactile sensations and cannot evoke mental images or the viewer's sense of presence (Alyahya & McLean, 2022). Tourism products and experiences are difficult to evaluate. Due to their

intangible nature, tourists often collect user-generated content from various sources in order to experience and compare potential options and avoid poor purchase decisions.

User-generated content, such as text reviews and numerical ratings, are useful sources of information for tourists to evaluate their choices. However, they may not reflect the thinking of all people due to their subjectivity (Koh et al., 2010).User-generated content related to travel is mostly asynchronous, as the content is reviewed after the creator's journey. The conditions in a destination, hotel, attraction or restaurant may be different from those prevailing at the time the content was published. It is difficult for travelers to obtain representative information in time to optimize their travel plans. Viewers can only find travel inspiration if previous travelers have shared videos and stories. The role of the viewer is relatively passive and can only wait for someone to generously share content. In many cases, the content is located on different applications and platforms and it is not always easy to find or access it (Koh et al., 2010).

Metaverse supports a *"digital twin"* and other pre-travel interface tools, giving consumers the opportunity to consider alternatives in an immersive environment (Dwivedi et al., 2022). Metaverse thus offers potential travelers the opportunity to experience virtual destinations and locations. Visiting natural places can be accurately represented in the virtual world. This is similar to the digital representation of historical sites and exhibits in Google's Arts & Culture project, where immersive technologies (such as VR headsets and wearable experience devices) can be used to explore tourist destinations and products in the immersive videos and virtual tours available on the metaverse. Metaverse virtual tours use technology to provide psychological and physiological immersion (Chen & Yao, 2022; Tsai, 2022). Alternatives to immersive travel can be experimented with and evaluated to stimulate experiential consumption, such as skydiving. Navigation with a digital twin, representing destinations, tourist sites, hospitality sites and heritage sites, allows users to choose the one that best suits their needs and preferences.

It allows users to immerse themselves in the intangible experience of past travelers with a strong sense of their journey. The same can be experienced with the marketing content of tourism destinations and organizations (Dwivedi et al., 2022).In the metaverse, tourists can use immersive environments to experience the service landscape of a hotel or a restaurant in advance to gain a lifelike visit experience before paying for a trip or a meal (Flavián & Barta, 2021). This allows tourists to find content about different locations in advance, obtain confidential information, personalize their experience and understand the specifics of the destination they want to visit. By giving tourists the ability to get a realistic preview and experience different options in advance, the metaverse can effectively reduce tourists' travel anxiety and, therefore, revolutionize media inspiration for travel. Travelers can seek engaging information from acquaintances (e.g., friends and relatives) and other travelers (e.g., travel influencers and local tour guides) who have traveled before to the chosen destination. They can also connect with local residents or tourism authorities and

organizations, such as tourist offices, hotels, attractions, tour guides and inbound agents, and engage in conversations with them using immersive media and experts in the destination they intend to visit (Fan et al., 2022).

Using the metaverse to customize travel offers allows for higher levels of autonomy and participation in value co-creation (Turner et al., 2020). Travelers can customize their experiences by giving a series of verbal commands to a voice assistant for navigation and interaction (Sepulveda-Escobar & Morrison, 2020). Travel service providers can leverage digital stores in the virtual world to showcase their offerings and model personalized on-demand value. As a result, tourists will enjoy a highly personalized and engaging immersive experience (Turner et al., 2020). Metaverses can enhance travelers' experiences during their travel and stay. Travelers enjoy face-to-face and online social interactions during their journey (Fan et al., 2022). Metaverses assist travelers in retrieving augmented textual and/or audiovisual information when they arrive at a destination or a heritage or historical site. This is similar to how AR is applied to museums and attractions (Buhalis & Karatay, 2022; Fenu & Pittarello, 2018).

Metaverse effectively supports users to become active participants and virtual actors in the context they have chosen. In restaurant environments, AR and the metaverse can add an element of educational entertainment to the tasting experience when tourists try unfamiliar dishes. Tourists can not only taste the dish, but also gain more knowledge about the selected dish by displaying the ingredients, preparation method, production process and edible value of the dish on the screen of the display device (Rejeb et al., 2021). They can also immerse themselves in the cooking process and experience the entire value chain. In the context of destinations, metaverse helps users to make the most of destinations without the threat of over-tourism or climate change (Bec et al., 2021).

After a trip, metaverse can be used to recall experiences, record and share UGC, expand knowledge and interact with others who have similar experiences. Users can *"relive"* past experiences and share content and resources with their close social circle. They can also share content with all those who may be interested in the same destination through engaging, media-driven reviews. For example, those who have been to Acropolis in Athens can share their content in metaverse. They can also virtually enjoy the ancient Greek rituals that were performed in the temple. Engagement with tourism materials can increase the intention to support destinations and tourism organizations and increase engagement with local resources, leading to transformative experiences. Go and Kang (2023) suggest that *"the production of licensed and profitable transformative tourism products and experiences could increase the profitability of tourism destinations and should be developed in line with the United Nations' sustainable development goals"*.

An important question is whether the metaverse replaces or stimulates physical travel. This is a question that has often been asked about virtual reality, and is now coming back to the fore with reference to the metaverse: the pandemic situation of COVID-19 (now disavowed by the World

Health Organization) has led to significant travel restrictions. But the world has seen many physical functions, including travel, conferences, business meetings and exhibitions, being replaced by virtual meetings/travel during the three-year period of COVID-19 pandemic. Many people have also been forced to use virtual means to connect with loved ones and maintain family affairs and friendships. In terms of leisure travel, people used virtual travel to watch travel movies, live streaming of destinations and documentaries. Once restrictions were removed, people recognized the importance of physical presence and basic business travel recovered faster than leisure travel. However, people also realized the value and benefits of hybrid environments in terms of convenience, sustainability and cost control. Technology will not allow virtual travel to completely replace real life travel. The metaverse is stimulating more physical travel as technology becomes more advanced and it will attract more virtual travelers (Schwab & Malleret, 2020).

However, the metaverse can also be a feasible alternative and complementary form of some forms of travel. For example, people with disabilities can immerse themselves in virtual travel experiences (Rubio-Escuderos et al., 2021). Transitional travel can also involve individuals who are unable to experience destinations for various reasons. For example, individuals with highly pressured business schedules, such as business and government executives and distinguished academics, can benefit from virtual travel and effectively engage in multiple activities in different locations. Companies can also hold meetings and project discussions through the metaverse. This can reduce travel costs, increase efficiency, reduce carbon emissions and improve sustainability. Hybrid environments are increasingly being used in a variety of business and leisure environments and tourism will not escape this global trend (Pero, 2022).

2.3 Linking Metaverse with tourism marketing

Metaverse provides an immersive, dynamic and innovative digital platform for the promotion of tourist attractions, events and hospitality services. For tourism service providers, metaverse offers a powerful way to promote products and services through immersive engagement. Metaverse supports deeper insight into consumer needs and preferences. Tourism destinations and tourism industry stakeholders can leverage this innovative technology to promote their attractions in a virtual world. The metaverse is rapidly evolving and offers new opportunities for companies, such as increased brand engagement and direct sales opportunities at scale (Dwivedi et al., 2023). Consumers can also co-create products, services and experiences with companies in virtual worlds. The metaverse offers the ability to provide digital and physical services around the clock to support the customer experience.

On this particular element, Buhalis (2020) notes that smart and competitive firms must *"integrate to create innovative services, products, processes and data by leveraging interconnectivity and interoperability of technologies"*, stressing that *"interconnectivity and interoperability of technologies*

must be leveraged to restructure processes and data". The metaverse is therefore becoming the new competitive battleground for tourism destinations and tourism organizations.

Tourist destinations can recreate their digital twins and attractions in virtual space and increase information about their history and attractions (Bec et al., 2021). The use of photorealistic rendering to create immersive virtual experiences can generate interest in potential travelers to visit real tourist attractions and purchase tourism products and services. Engaging storytelling stimulates engagement (O'Regan et al., 2022). Destination marketing organizations can copy international brands such as *Ralph Lauren*, *Hermès*and *Nike* to create digital stores, sell digital travel products (such as digital tickets and sightseeing tours) before arrival, and promote destination products and services (Dwivedi et al., 2023). Hotel companies can implement metadvertising and rent digital billboards of their establishments in the metaverse to other companies to place digital advertisements. Hotel companies can promote their brands in the virtual space and increase brand awareness while offering virtual tours and personalization (Buhalis et al., 2023; eMarketer, 2021; Hollensen et al., 2023). Immersion can be used to organize virtual tours and experiences (Hollensen et al., 2023).

The metaverse enables the co-creation of immersive virtual event experiences. The outbreak of the COVID-19 pandemic has particularly affected the metatourism sector. Natural events, concerts, conferences and exhibitions were cancelled due to restrictions in mobility. Many event organizers successfully converted their events into a hybrid (full or partial) virtual format. This allows remote audiences to participate virtually without the need to travel and remain physically at the event; tools such as *Zoom* and *GoToMeetings* can facilitate real-time information sharing, but due to the low sense of integration provided, virtual participation is not comparable to on-site participation (Cui & Mousas, 2021). In metaverses, users are not only able to see scenes and hear sounds, but also gain a sense of engagement, interaction and touch in the digital world. As a result, the metaverse helps to create an unprecedentedly powerful sense of user embodiment through immersive virtual events and experiences.

Metaverses can be used as prototypes for the development of facilities and services. Developing virtual facilities, attractions, activities and destinations is faster, cheaper and more flexible than building physical facilities. Destinations can leverage the metaverse to develop prototype attractions, invite people to experience them in real life using MR/VR devices, and solicit feedback for further improvements. Many aspects can be easily adapted, allowing destinations to virtually test different iterations before deciding which option is preferred for construction (Rauschnabel et al., 2012). By using the Metaverse to engage with potential travelers and obtain their input, a more consumer-centric design can be implemented, ultimately leading to co-creation of value.

Metaverse supports market intelligence and facilitates research and development. Just as users browse websites, write travel blogs and upload travel photos, they enter the metaverse and leave a digital footprint as they interact with others. This big data can enrich travel service providers' insights into

who their customers are and what they need. Travel service providers can actively use the metaverse to engage in conversations, drive sales, and turn data about their customers into business insights (Buhalis & Volchek, 2021). These insights enable suppliers to provide consumers with the right products, in the right place and at the right time (Stylos et al., 2021).

There are also significant challenges and threats to tourism management and marketing that are emerging through the metaverse. Analysts are concerned that the metaverse may increase confusion about what is real and what is not. This will lead to a reduction in critical thinking and imagination and undermine users' ability to reflect on their experiences. Many of these challenges relate to how successful innovation can emerge in uncharted territory (Buhalis, 2020). Given that the metaverse is still more conceptual than functional, perhaps the biggest concern is the technological challenges that arise. Platforms are gradually being developed and some organizations are taking infant steps to explore virtual entities. There are no blueprints or best practice examples and platforms and solutions are expensive and risky (Dwivedi et al., 2022; 2023).

3. Sample and methodology

3.1 Purpose and research questions

The research conducted in the current study was quantitative. The purpose of this research was to improve our understanding of the role of metatourism as a sustainable form of tourism development. Therefore, two sub-objectives were set 1) to examine attitudes towards metatourism 2) to examine the perceived impact of metatourism on sustainable development. Research questions of the study were formatted as follows:

1) What are the attitudes of the tourism industry stakeholders on metatourism and its impact on sustainable development?
2) What factors differentiate attitudes towards metatourism and its perceived impact on the sustainability of the tourism industry, according to the perception of tourism stakeholders?
3) What is the relationship between attitudes towards metatourism and the perceived impact of post-tourism on sustainable development among tourism industry stakeholders?

3.2 Sample

The criterion for participation in this study was the professional involvement of the potential participants in the creation of intense images. These images could be combined with book writing, film production, cultural discoveries (e.g. archaeology, caving), intense activities in nature (e.g. extreme sports). To fully understand the reason for the inclusion of the specific professional groups that participated in the research process of the present study, it is sufficient to mention the fact that for an archaeologist from Japan to be able to navigate even virtually from thousands of kilometers away

to the sacred rock of the Acropolis of Athens (recently in this field the application for android platform on smartphones called Chronos was released, which allows virtual tours of important cultural monuments of Greece) or to be able to see in live Similarly, a taster being able to enjoy a virtual experience of the entire cultivation and final winemaking process in a winery in Santorini or Tuscany, famous for growing unique wine varieties, even from miles away is a unique experience that can be combined with tactile capabilities through VR technology.

Following the data collected, a categorization into five sub-groups was then carried out, which were as follows:

1) Authors

2) Archaeologists or those involved in cultural studies

3) Filmmakers, Photographers or Scenographers

4) People involved in extreme sports

5) Anthropologists, Speleologists, Cave Archaeologists, Tasters, etc.

This sample could also be termed as a convenience sample as it included acquaintances of the writer who are working: a) at the Municipal Regional Theatre of Serres, b) at the State Theatre of Northern Greece, c) at the Thessaloniki Film Festival, d) authors of science fiction books through the author's research in related Facebook groups, e) clubs involved in extreme sports in the city of Serres, f) archaeologists and caveologists working at the Serres Antiquities Ephorate and finally g) tasters in similar groups on Facebook. Totally 50 persons have participated in the current research.

3.3 Methodology

The survey questionnaire was created in electronic form in Google Forms and then the relevant link was posted in Facebook groups, which were related to tourism. In this way, the likelihood of including participants who met the inclusion criteria in the study was increased. The inclusion criteria for the study and the nature and purpose of the study were explained to the participants in a written post. They were then given the necessary assurances about the anonymity and confidentiality of their data. The collection of the questionnaire responses took place in May 2023. After completing 50 completed responses, the measurements were entered into a statistical processing program (SPSS) for analysis.

The surveys were measured using a self-report questionnaire developed for the purpose of the study. The Self Reporting Questionnaire (SRQ) is a tool that allows the participant in a research process to answer the questions asked in the absence of extraneous influence from third parties (either participants or the researcher). The method used in self-report questionnaires consists of the inclusion of questions that are primarily concerned with feelings, attitudes and perceptions (Jupp, 2006). This relevant questionnaire consisted of three parts, which were the following: a) sociodemographic data

and b) Main body of the questionnaire consisted of two scales. The first scale explored the attitudes of the participants in the research process regarding metatourism through the inclusion of 6 relevant questions in a 5 point Likert scale format with values ranging from Strongly Disagree to Strongly Agree. All questions had a positive utterance, i.e. higher values meant more positive attitudes towards post-tourism. The second scale explored participants' attitudes towards the link between metatourism and sustainable development by also including 6 relevant questions in a 5 point Likert scale format with values ranging from Strongly Disagree to Strongly Agree. All questions were positively worded, i.e. higher values meant a stronger perceived impact of metatourism on sustainable development.

Data analysis was carried out using the SPSS program for Windows. In the first phase, a descriptive analysis was performed on the socio-demographic characteristics of the examined sample using mean values and standard deviations, in the case of quantitative variables, and the use of absolute values and percentages, in the case of categorical variables. Subsequently, a study of the normality of the distribution was carried out, in order to decide the use of parametric or non-parametric methods of analysis. Since the normality of the distribution was violated, non-parametric tests were used. The study of the relationship of two-valued categorical variables with quantitative ones was carried out through the Mann-Whitney U test, the study of the relationship of categorical variables with more than two values with quantitative ones using the Kolmogorov-Smirnov test and the study of the relationship between quantitative variables using the correlation coefficient Spearman. The significance level was set at 0.05 for all analyses.

4 Results

As far as it concerns sociodemographic data the results were presented in Table 1.

Table 1: Sociodemographic data

Characteristics	**Percentage**
Sex	
Men	48%
Women	52%
Age	
18-28	16%
29-38	22%
39-48	42%
49-58	20%
Family Status	
Single	32%
Married / Civil Partnership Agreement	52%
Divorced	14%
Widow	2%
Knowledge Status	
Elementary Schools	0%
Junior High School or High School	10%
Institute of Vocational Training (IEK)	8%

Undergraduate Title	16%
Postgraduate Title	42%
PhD Title	24%
Working Status	
Unemployed	0%
University Student	8%
Private Sector Employee	18%
Public Sector Employee	22%
Pensioner	0%
Freelancer	52%
Other	0%
Profession that interacts with tourism industry	
Writer	8%
Archaeologists or people involved with culture	24%
Filmmakers, Photographers, Directors, Cinematographers	36%
Extreme Sports Professionals	20%
Anthropologists, Speleologists, Gourmets	12%
On what purpose do you often travel?	
Leisure	54%
Business	46%
How are you informed about your travel destination?	
Printed Advertisements	0%
Toursim Agents	12%
TV	14%
Radio	0%
Internet	74%

The individual correlations of the 6 questions of the scale that investigated the participants' attitude towards metatourism in general were, as can be seen from the Table below, positive, thus allowing the sum of the individual questions to derive a total score. The Cronbach α for the entire scale was 0.73.

Table 2: The adjusted correlations between the individual questions of attitudes towards metatourism

Corrected Item-Total Correlation	
The digital experience of visiting a place is equivalent to physically visiting it	,599
Metatourism will make tourism more accessible to more people	,299
Metatourism can lead to additional income for the tourism industry	,600
Metatourism is a more resilient form of tourism against crises, such as the pandemic and inflation	,195
Metatourism offers certain experiences, which the traditional form of tourism is unable to offer	,550

In the future metatourism will be a dominant trend in the tourism industry	,755

The individual correlations of the 6 questions through which the impact of metatourism on sustainable development was investigated were, as can be seen from the Table below, positive, thus allowing the sum of the individual questions to derive a total score. The Cronbach α for the entire scale was 0.89.

Table 3: The adjusted correlations between the individual questions on the impact of metatourism on sustainable development

Corrected Item-Total Correlation	
Through metatourism the overall environmental footprint of the tourism industry will be reduced	,847
Metatourism will significantly contribute to tackling climate change	,588
Metatourism will reduce hypertourism in major urban centers	,783
The use of aircraft for the needs of the tourist industry will be limited	,752
The amount of waste for which the tourism industry is responsible will be reduced	,619
Metatourism is an environmentally friendly form of tourism	,707

In the metatourism attitude scale, the answer with the highest mean value was the one related to the resilience of metatourism (mean 4.94, standard deviation 0.240). The lowest mean value was the one related to the equivalence of metatourism to physically visiting a place (mean value 3.00, standard deviation 1.498). In general, particularly positive attitudes towards post-tourism emerged. In the context of the impact of metatourism on sustainable development, the question with the highest mean value was the following: "The amount of waste for which the tourism industry is responsible will be reduced" (mean value 4.86, standard deviation 0.351) and the lowest was the following "Metatourism will contribute significantly to tackling climate of change' (mean value 4.32, standard deviation 0.551) In general, there were particularly positive attitudes towards the impact of metatourism on sustainable development. Table 4 presents the relevant analysis for attitudes towards post-tourism and the impact of post-tourism on sustainable development. In both cases, high average values were found, as the highest value for each scale was 30, with the lowest being 6.

Table 4: The descriptive characteristics of the total scores of the measurement tools

	Attitudes towards metatourism	**Impact of metatourism on sustainable development**
Mean Value	24,560	27,940
N	50	50
Standard Deviation	3,476	2,262

Figure 1 shows the analysis of the normality of the distribution for metatourism attitudes. As revealed by the Kolmogorov-Smirnov test, the normality of the distribution was violated (p = 0.017).

Figure 1: Analysis of normality of the distribution for metatourism attitudes

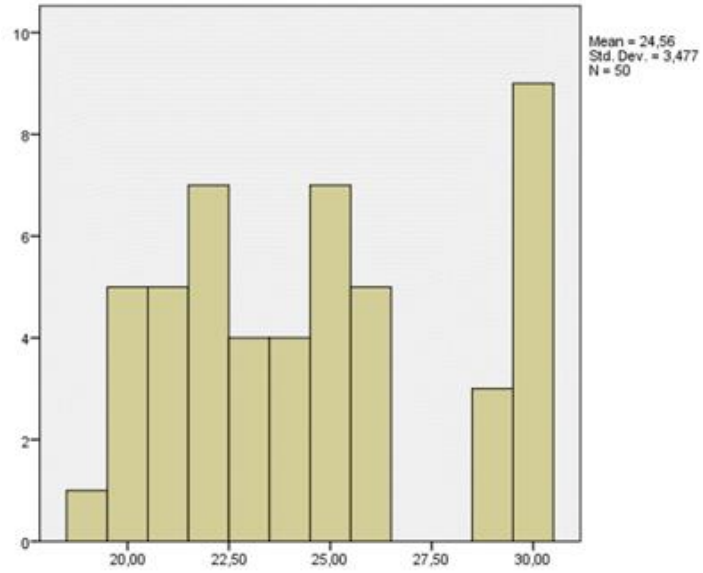
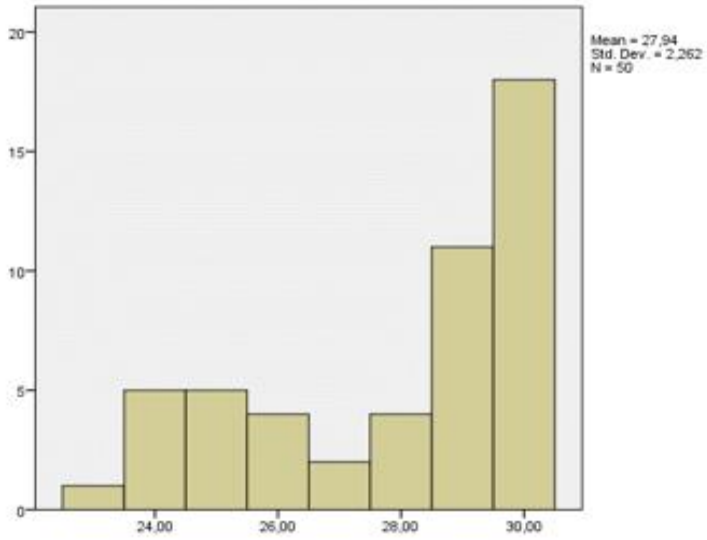


Figure 2 shows the normality of the distribution for the impact of metatourism on sustainable development. As can be seen from the relevant Graph, the normality of the distribution was violated, which was also established through the Kolmogorov-Smirnov test (p=0.000).

Figure 2: Analysis of normality of the distribution for the impact of metatourism on sustainable development



No statistically significant differences were found between men and women in terms of metatourism attitudes (p = 0.353) nor in the impact of metatourism on sustainable development (p = 0.904). Neither age has a statistically significant effect on metatourism attitudes (p = 0.488) nor on the impact

of metatourism on sustainable development (p = 0.603). The same picture continues with regard to the family status factor as no statistically significant differences were presented either in terms of metatourism attitudes (p = 0.353) or in terms of the impact of metatourism on sustainable development (p = 0.904). However, statistically significant is the difference that emerged depending on the educational level regarding metatourism attitudes (p = 0.016), while a non-statistically significant difference was observed depending on the educational level regarding the impact of metatourism on sustainable development (p = 0.075) . Since metatourism attitudes differed significantly based on educational level, a post-hoc analysis was performed to examine the relationship of educational level with this variable. At the same time, professional status significantly differentiated metatourism attitudes (p=0.015) while not statistically significantly differentiating the impact of metatourism on sustainable development (p =0.132).

Post-hoc testing revealed differences in metatourism attitudes based on occupational status. As it turns out, the attitudes were more positive in the students compared to all the other groups in the study. Among the remaining variables, no statistically significant relationships were found. The way of dealing with the tourism industry differentiated to a statistically significant degree the attitudes towards metatourism (p = 0.018) while it did not differentiate to a statistically significant degree the effect of post-tourism on sustainable development (p=0.710). The post-hoc test for the relationship of the way of dealing with the tourism industry to the prices of the measurement tools showed that Cinematographers, Photographers and Set Designers had higher prices than those involved in extreme sports (p=0.019). The reason why the research participants travel did not show statistically significant differences neither in terms of attitudes towards metatourism (p = 0.906) nor in terms of the impact of metatourism on sustainable development (p = 0.904). Finally, the way in which the participants are informed about the travel destination of their choice also did not reveal statistically significant differences neither in terms of attitudes towards metatourism (p = 0.509) nor in terms of the impact of metatourism on sustainable development (p = 0.289).

Table 5 presents the correlation coefficient analysis for attitudes towards metatourism and its impact on sustainable development. As can be seen from the relevant table, this correlation was positive and statistically significant (r=0.494, p=0.000).

Table 5: The correlation of attitudes towards metatourism and its impact on sustainable development

		Attitudes on metatourism
Impact of metatourism on sustainable development	R	0,494
	P	0,000
	N	50

Table 6 presents the correlation coefficient analysis for metatourism attitudes and the individual questions that addressed the impact of metatourism on sustainable development. As can be seen from the table, in all the individual questions there was a positive and statistically significant correlation, with the exception of the correlation with the statement that "Metatourism will reduce hypertourism in large urban centers". And in this case, however, the correlation found was borderline non-statistically significant (r=0.251, p=0.079).

Table 6: The correlation of post-tourism attitudes with the sub-questions on the impact of post-tourism on sustainable development

		Attitudes on metatourism
Through metatourism the overall environmental footprint of the tourism industry will be reduced	R	,367
	P	**,009**
	N	50
Metatourism will significantly contribute to tackling climate change	R	,456
	P	**,001**
	N	50
Metatourism will reduce hypertourism in major urban centers	R	,251
	P	,079
	N	50
The use of aircraft for the needs of the tourist industry will be limited	R	,371
	P	**,008**
	N	50
The amount of waste for which the tourism industry is responsible will be reduced	R	,326
	P	**,021**
	N	50
Metatourism is an environmentally friendly form of tourism	R	,354
	P	**,012**
	N	50

Finally, Table 7 shows the corresponding analysis for the correlation of the effect of metatourism on sustainable development with individual metatourism attitudes. As can be seen from the Table 7, there was only one question that did not show statistically significant correlations with the effect of metatourism on sustainable development, namely the first of the six related questions. In all other cases, positive and statistically significant correlations were found.

Table 7: The correlation of the effect of metatourism on sustainable development with the sub-questions of attitudes towards metatourism

		Attitudes of metatourism on sustainable development
The digital experience of visiting a place is equivalent to physically visiting it	R	,206
	P	,152
	N	50
Metatourism will make tourism more accessible to more people	R	,547
	P	**,000**
	N	50
Metatourism can lead to additional income for the tourism industry	R	,534
	P	**,000**
	N	50
Metatourism is a more resilient form of tourism against crises, such as the pandemic and inflation	R	,313
	P	**,027**
	N	50
Metatourism offers certain experiences, which the traditional form of tourism is unable to offer	R	,421
	P	**,002**
	N	50
In the future metatourism will be a dominant trend in the tourism industry	R	,457
	P	**,001**
	N	50

5. Conclusion

The purpose of this study was to explore tourism sector employees' attitudes towards metatourism and their perception of its impact on sustainable development. The findings reveal particularly positive attitudes towards metatourism among the participants, suggesting a broad acceptance and optimism regarding its potential benefits. However, there was less enthusiasm about the equivalence of digitally visiting a place compared to physical visits and the notion that metatourism will become the dominant trend in the tourism industry. These results align with the theoretical assumptions of Schwab &Malleret (2020), who discussed significant changes in lifestyle and work dynamics with the advent of the Third Industrial Revolution. Nevertheless, there remains a concern about whether these changes will completely replace traditional forms of life and work, implying that while metatourism will grow, traditional tourism will persist.

The study also found strong positive attitudes towards the impact of metatourism on sustainable development. Participants believed that metatourism could reduce the environmental footprint of tourism, contribute to tackling climate change, and lessen hypertourism in major urban centers. These

findings are consistent with recent literature highlighting the environmental benefits of virtual reality tools in tourism (Fan et al., 2022). A significant positive correlation was observed between attitudes towards metatourism and its perceived impact on sustainable development. This suggests that the more positively stakeholders view metatourism, the more they believe it can contribute to sustainable development. This perception underscores the importance of sustainability in shaping attitudes towards new tourism technologies.

Interestingly, the study found no significant differences in attitudes based on most socio-demographic characteristics, except for students who exhibited more positive attitudes towards metatourism. This might be attributed to greater awareness and concern about climate change among younger populations, as suggested by Wachholz et al. (2014). However, these differences did not extend to perceptions of metatourism's impact on sustainable development, indicating that other factors might influence these perceptions.

The findings suggest that policymakers should promote metatourism within Greece's broader tourism strategy, emphasizing its sustainability benefits. The positive reception among various professional groups, especially students, highlights an opportunity to target younger audiences and leverage their intrinsic interest in new technologies.

With regard to limitations, the study's sample size was relatively small and convenience-based, which may limit the generalizability of the findings. Future research should aim to include a larger and more diverse sample to validate these results. Further studies should investigate the long-term impacts of metatourism on the tourism industry and explore how different demographic groups adapt to and adopt this technology. Additionally, examining the specific technological advancements that could enhance the metatourism experience and its integration with traditional tourism practices would be valuable.

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