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CONTENTS

VEGAN HOTELS: MAIN APPROACHES, INCENTIVES AND BENEFITS

CONSTANTINOS A. IACOVOU[*] and MARIOS CHARALAMBOUS[**]

ABSTRACT

Vegan hotels are hotels using non-animal by-products within their establishments, and their menus are exclusively plant-based. The number of people switching to vegan diets has been increasing over the years as awareness of the health benefits of vegan diets, the need to protect animal rights, and the environmental impacts of consuming animal-based diets increase. As a result, many vegan hotels have adopted strategies like diversifying their menus, social media marketing, and influencer marketing to create awareness of their products and services. This paper presents a detailed discussion of vegan hotels' main approaches, incentives, and benefits.

Keywords: Vegan Hotels, Veganism, Vegetarian, Vegan Diets, Incentives, Benefits, Main Approaches.

1. INTRODUCTION

Veganism has become an increasingly popular trend across the world. Those who practise veganism (commonly referred to as vegans) abstain from the use of animal products, including meat, eggs, and dairy products, among other animal-derived food substances. More and more people are switching to vegan diets owing to increasing scientific evidence of the diet's health benefits. An estimated 3 percent of the world's population are vegetarians, a number which is estimated to increase in the coming years (Wunsch, 2021). The transition to vegan diets has also been influenced by moral and ethical concerns, particularly on the increased recognition of animal rights and calls to end animal brutality, and environmental concerns about the impact of animal agriculture. This increase in the number of people adopting vegan diets has resulted in an increased demand for vegan food products in the hospitality industry. Several hotels and restaurants recognized this gap and exploited the opportunity by introducing vegan diets to their menus. Other vegan hotels exclusively offer vegan diets and do not use any animal by-products within their premises. This paper explores the main approaches, incentives, and benefits of vegan hotels and recommendations for future research on the sector.

[*] Assistant Professor, Hospitality and Tourism Department, American College, Nicosia, Cyprus
[**] Lecturer, Hospitality and Tourism Department, American College, Nicosia, Cyprus

2. LITERATURE REVIEW

Veganism and its impact on the hotel industry has been a topic of interest for many researchers over the past few decades. Some studies have focused on the factors contributing to the increasing preference and consumption of vegan diets. Pendergrast (2016), notes that one factor that has played a significant role in increasing the rising interest in veganism is the increased awareness of the environmental impacts of animal product consumption. Campaigns for animal rights and environmental activists have also played a role in creating greater visibility of veganism in mainstream media (Pendergrast, 2016). Another research by Petti et al. (2017) established that the switch to veganism had been supported by ethical, ecological, health, and pleasure motivations. The authors also note that family and cultural traditions play a crucial role in influencing people's decisions to adopt veganism (Petti et al., 2017). The increased incidence of lifestyle diseases such as type 2 diabetes, cerebrovascular disease, and cancer were also identified as key factors contributing to adopting vegan diets as healthier options to minimize the risk of developing the diseases (Petti et al., 2017). Kristina and Susanne (2020) note that plant-based diets positively impact health and longevity. The researchers found evidence that people who consume plant-based diets have lower mortality rates, longer health spans, and lower cardiovascular disease and cancer incidence. Similarly, Guha and Gupta (2020) established that cultural traditions such as those practices in India encourage people to adopt meat-free diets.In addition, Christopher et al. (2018) note that increasing scientific evidence of the health benefits of plant-based diets is the primary factor contributing to higher preferences for vegan diets among people in most societies.

Guha and Gupta (2020) examined the trend of veganism in metropolitan cities and found that more vegan hotels have been established to serve those who have adopted vegan diets. According to the authors, many vegan hotels have diversified their menus by introducing new vegan recipes and products that serve as alternatives to standard meat-based diets (Guha and Gupta, 2020). The success of vegan hotels can also be attributed to the increased production of plant-based food products in most countries, making it easier for the hotels to access supplies. Furthermore, Gomez et al. (2018) concluded that vegan hotels have increased in popularity due to tourists' increased demand for vegan foods. As a result, more hotels are either switching entirely to vegan diets or introducing more vegan recipes on their menus to cater to tourists' growing demand for vegan diets (Gomez et al., 2018).

Several researchers have explored the benefits of vegan hotels. Li et al. (2021) found that vegan diets have contributed to an increase in tourists visiting in China in what the researchers describe as "vegan tours." According to the researchers, the number of tourists visiting China to explore plant-based delicacies has been increasing in recent years. Most tourists consider personal vegan food preferences as the primary motivation for visiting local attractions in China (Li et al., 2021). A study by Iguacel

et al. (2020) also established that the increased availability of vegan diets has contributed to higher consumption and overall improvements in mental and cognitive health. This has reduced the economic burden associated with managing mental illnesses and cognitive disorders and was translated to improved quality of life for people in areas where vegan diets are consumed more compared to processed and animal-based diets (Iguacel et al., 2020).

Similarly, Neacsu and Tache (2021) note that vegetarian tourist destinations have become vital revenue earners for countries and restaurants that have taken advantage of the increasing trend to market their menus. An increasing number of tourists are choosing destinations that offer vegetarian diets for health, religious, and other reasons (Neacsu and Tache, 2021). Research conducted in Spain by Gomez et al. (2018) found that more tourists preferred destinations that offer vegetarian diets over destinations with limited diet options. Most tourists argued that while they wanted to have fun while visiting various destinations, they also wanted to remain healthy by consuming healthy food options.

The environmental impacts of meat and animal products have similarly contributed to the increased support for vegan hotels as solutions to conserve the environment (Garnett, 2011). Research findings by Garnett (2011) indicate that animal-based diets like meat and dairy foods contribute significantly to greenhouse gas emissions, and a shift in consumption patterns to reduce their demand can promote environmental conservation. What is more, vegan hotels have taken the initiative to encourage reduced reliance on animal products, including leather and wool, to attract more customers and reduce the environmental impact of animal products in the long run (Laban, 2022).

Many high-end hotels that have switched their menus to vegan diets have also taken the initiative to ditch other items made from animal products. Laban (2022) gives the example of the Mandarin Oriental Hotel Group's Emirates Palace in Abu Dhabi, which replaced all silk, feather, and wool materials with vegan linen. Additionally, similar changes have been made with toiletries where hotels have stocked vegan toiletries (Laban, 2022). Figure 1 below is a hotel bed with vegan linen at the Mandarin Oriental Hotel Group. This initiative has inspired other businesses like supermarkets and airlines to adopt vegan diets and leather-free products (Laban, 2022).

FIGURE 1: BED WITH VEGAN LINEN

Source: *Laban (2022)*

3. METHODOLOGY

This paper reviews existing literature on vegan hotels to obtain information on the incentives, benefits, and main approaches businesses use in the sector. A literature search was conducted on four databases: JSTOR – a web-based free access database for arts and sciences. Google Scholar – a web-based free access database for all disciplines, Web of Science – a web-based database with current and retrospective information from multiple disciplines, and Hospitality and Tourism Complete – a non-open access journal database for paid subscriptions. An initial search was done on all the databases using keywords such as vegan hotels, vegan diets, vegetarianism, vegan tours, benefits, and incentives. The first search yielded over 500 hits across all the databases. Next, the articles were isolated to identify the most relevant articles for the research topic. The first criteria were that all articles must be published in English, within the past ten years, published by a reputable journal, available in full text, and be peer-reviewed. These inclusion and exclusion criteria helped reduce the search results to 30 hits.

The articles were then analyzed to identify similar results from the databases, after which 15 articles were excluded, and 15 were identified as most relevant for this study. Another search was done for websites where five publications were identified and screened for authenticity, validity, and reliability. Only reliable publications on websites that provided full details of the authors were considered for this study.

Personal opinions, biased publications, and political publications were excluded from the search.

4. FINDINGS

4.1. Factors contributing to veganism

4.1.1. Health

In recent years, an increase in the incidence of lifestyle diseases such as obesity, diabetes, hypertension, and cancer has been reported in many nations. The majority of these diseases have been linked to people's dietary choices, mainly processed foods and animal products (Petti et al., 2017). In developed countries like the U.S., the high consumption of processed foods and animal products containing high calories and cholesterol have been directly associated with increased obesity and cardiovascular diseases. Health experts and public health organizations have increased campaigns to sensitize people on the importance of healthy diets, including switching to plant-based diets to reduce the risk of lifestyle diseases and maintain good health. Christopher et al. (2018) note that most people switch to vegan diets to help in reducing weight and/or managing chronic conditions like cancer. The findings made by Guha and Gupta (2020) that societies that have embraced plant-based diets have longer lifespans and low mortality rates also encourage people to switch to vegan diets.

Most vegan hotels are actively involved in scientific studies to identify alternative vegan products that can provide nutrients absent in plant-based diets. More studies on alternative sources of nutrients traditionally found in animal by-products have enabled vegan hotels to offer balanced diets to customers, making it easier for them to adopt strict vegan lifestyles. Iguacel et al., (2020) note that the increased discovery of plant-based and vegan sources of nutrients as alternatives to animal-based by-products has made it easier for many societies to transition entirely to vegan diets. The same can be replicated in societies that are predominant consumers of animal by-products as they will not have to fear not getting adequate nutrients like proteins and iron.

4.1.2. Family and cultural traditions

Veganism is not a new trend, as some traditions and cultures have been practicing it for centuries. While the majority of traditional vegan diets were not entirely exclusive to animal products, people were encouraged to consume more plant-based than animal-based foods. Neacsu and Tache (2021) note that traditions significantly impact people's diet choice, with some traditions like Romania being heavy consumers of meat and animal products, making it challenging to complete the transition to vegetarian diets within a short period. In such regions, vegan hotels have to offer

varied menus consisting of vegan diets and animal-based products to give consumers time to try vegan alternatives before they can fully transition to plant-based diets. Norman and Klaus (2020) state that cultural traditions and family values and practices are key contributors to people's decisions to adopt vegan diets.

4.1.3. Increased recognition of animal rights

Animal rights activists and environmental protection agencies have advocated for the recognition of animal rights, including an end to animal brutality. Increased campaigns through the mainstream media, conferences, and social media have raised more awareness among people of the brutality imposed on animals to produce animal-based products like meat and hives. Government efforts to encourage people to consume less animal-based food products and more plant-based food products have also contributed to the increased transition to vegan diets. In the U.S., the federal government and many state governments have been implementing policies to support the transition to more plant-based diets and encourage the general population to consume more unprocessed plant-based foods (Espinosa-Marron et al., 2022). Some federal programs include the Supplemental Nutrition Assistance Program and Dietary Guidelines for Americans, which focus on providing more information on the benefits of consuming unprocessed plant-based diets over processed animal-based food products (Espinosa-Marron et al., 2022). In addition, the campaigns increase awareness of the environmental impacts of animal-based food production and the brutality that most animals endure due to the processes involved in extracting animal products. The increased awareness of animal rights violations through most practices such as slaughtering livestock has played a significant role in shifting public opinion in support of increased recognition of animal rights and reduced brutality towards animals. Furthermore, more people are beginning to appreciate the critical role that vegan hotels play in providing access to healthy plant-based products.

The need for low-cost production of meat and dairy products led to farming practices that restricted animal behavior and compromised their health. In addition, scientific experiments and livestock breeding aimed at increasing meat supply for human consumption have also led to many complications for livestock.

4.1.4. Main approaches

The establishment and operation of vegan hotels require careful planning and significant resources. Entrepreneurs who have ventured into the vegan hotel businesses utilize different approaches to ensure their businesses succeed, grow and expand. One of the approaches used by vegan hotels to attract customers is providing a wide range of vegan and plant-based diets on their menus. Lupsha (2021), reports that Hong Kong-based Ovolo Group replaced all its menus with meatless options and

increased the number of vegan delicacies offered in their restaurants. The main objective was to provide customers with more vegan options and increase the chances that everyone would find a plant-based alternative to their favorite meat and dairy product. For instance, many hotels have developed delicacies like vegan burgers, vegan pizza, and other vegan alternatives to traditionally meat-based popular snacks. The diversification of vegan diets has been a critical strategy for increasing the consumption of vegan diets, unlike in the past when vegan diets only consisted of fruits and vegetables. The vegetarian spectrum includes six diets ranging from semi-vegetarian diets that are least strict and often combine vegan and non-vegan diets to strict vegan diets (Christopher et al., 2018). By offering menus that cater to the needs of everyone along the vegetarian spectrum, vegan hotels can satisfy customers and support them on their journey along the spectrum to become full vegans.

Another fundamental approach by vegan hotels is developing vegan alternatives that provide minerals and vitamins found in meat and dairy products. Only in the past has the consumption of vegan diets been associated with challenges where strict vegetarians could not get vitamins and minerals that are only found in meat and dairy products. Therefore, vegan hotels have been on the frontline exploring non-meat options such as developing food combinations and supplements to ensure vegetarians get all the nutrients, including proteins, in sufficient amounts. Additionally, some vegan hotels take the initiative to educate their customers on the variety of nutrients most people believe are only found in animal products. For instance, most people are only aware of red meat and egg yolk as the primary sources of iron and protein, while there are many plant-based alternatives like lentils, nutritional yeast, and chickpeas that are high in protein and tofu, dried fruits, and black-eyed peas which have high iron content (Rush, n.d.). The availability of this information to more people encourages the transition to vegan diets, subsequently improving the overall population health.

Aggressive marketing strategies by vegan hotels are also key approaches used to create awareness of the products and services offered by the hotels. Many vegan hotels utilize social media platforms like YouTube, Facebook, and Instagram to advertise their services and menus to customers. Other hotels sign partnership deals with influencers, celebrities, and social icons to advertise their products and encourage their followers to try out vegan diets. Christopher et al. (2018) note that many American celebrities have influenced their followers to adopt vegan lifestyles and consider trying out products offered by vegan hotels in their areas. By sharing videos and images of vegan diets through social media platforms, vegan hotels can capture the attention of curious customers and help demystify the beliefs that vegan diets are not delicious. For food, aesthetics is of great importance, and sharing food images can motivate people to try new diets.

4.1.5. Incentives

Governments and non-governmental agencies have mainly initiated incentives to boost vegan hotels to support the consumption of plant-based diets over animal-based food products. In the U.S., the federal and state governments have provided policy and financial support to increase the consumption of vegan diets, including supporting vegan hotels (Espinosa-Marron et al., 2022). In India, vegan hotels form an essential part of the tradition and culture of the people and receive support from locals and the government as part of the program to promote food security for the vast population. Jelski (2020) notes that multinational hotels like Hilton also incentivize their restaurants to offer plant-based and vegan menus. These incentives are meant to lower the cost of operation in regions with low availability of supplies for plant-based and vegan diets. Additionally, they can help the hotels to finance marketing campaigns to increase awareness of the benefits of vegan diets and available recipes to attract customers in new markets.

4.2. Benefits of vegan hotels

4.2.1. Environmental conservation

The high consumption of animal-based products has been directly linked to environmental degradation. In areas where meat and animal products are in high demand, large tracts of forested lands are often cleared to create space for animal raring and the construction of factory sheds (Tullo et al., 2019). This results in deforestation and an increased risk of soil erosion as the ground is bare, and animal movements also increase the dislodging of soil particles. Additionally, the processing of animal products often produces wastes that may be released into water bodies, causing pollution and harm to aquatic life. Vegan hotels help to reduce the demand for animal products by providing people with plant-based dietary alternatives to animal-based foods, which results in a reduced need to rare large numbers of animals or process large quantities of animal products.

Global food production significantly contributes to anthropogenic greenhouse emissions, accounting for at least 30 percent of total GHG emissions (Garnett, 2011). Vegan hotels can help reduce the demand for meat and dairy foods, significantly contributing to GHG emissions. Garnett (2011) notes that shifting consumption patterns away from animal-based products can lower the demand for meat and dairy products, thus reducing the GHG emissions associated with their production. Likewise, Espinosa-Marron et al. (2022) established that vegan hotels are viable solutions to increase the consumption of animal-based food production and encourage plant-based diets. Overall, reducing reliance on animal-based food production and increasing plant-based food production benefits the environment by reducing

greenhouse emissions, scarcity-weighted water use, and land degradation associated with large-scale livestock agriculture.

4.2.2. Employment opportunities

Vegan hotels offer direct and indirect employment opportunities to millions of people across the world. According to Caterer.com (2020), there was a 123% increase in vegan-specific hospitality jobs across the United Kingdom by 2019. The hotels employ chefs, waiters, and security officers, offering them direct employment in the hotel sector and enabling them to earn a living. Indirect employees of the vegan hotels include farmers and suppliers who produce and deliver plant-based food products to the vegan hotels. For instance, the increased demand for vegan foods also results in higher sales and expansion of vegan hotel businesses resulting in more job opportunities. What is more, training institutions specializing in vegan diets have been established in regions with high demand for vegan diets. These institutions employ more people while also supplying the hotel industry with trained and skilled chefs who can prepare a wide range of vegan diets.

4.2.3. Increased revenues

Vegan hotels are likely to generate higher revenues as more people switch to plant-based diets. A report by Lupsha (2021) about Hong Kong-based Ovolo Group reporting higher revenues and sales after switching to vegan delicacies is evidence that vegan hotels are a profitable venture. Additionally, most vegan foods cost slightly more than processed foods, and customers are in most willing to pay more for the foods because of their benefits and natural taste. Vegan hotels are gaining popularity as tourist destinations, with more tourists choosing destinations that offer plant-based diets. This has made vegan hotels a vital part of tourism, especially in countries expanding their tourism sectors to offer more attractions (Gomez et al., 2018). The increase in vegan tours in countries like China translates to higher revenues for the tourism industry in China as the government benefits from the fees paid by the tourists and the taxes paid by vegan hotels (Li et al., 2020). The vegan tours also ensure a high demand for vegan foods, providing farmers with a ready market for their produce. As a result, the agriculture sector is boosted by the high sales and revenues obtained from the increased consumption of plant-based meals by tourists.

Most high-end vegan hotels have switched other products like linen and toiletries to plant-based ones, providing a market for plant-based toiletries and leather-free products. For instance, Emirates Palace switched all wool, silk, leather, and animal-based products with plant-based products in all their hotels, encouraging supermarkets and airlines to adopt leather-free interiors (Laban, 2022). Consequently, these shifts in

other industries translate to higher revenues for companies producing the leather-free materials that have been adopted as replacements.

4.2.4. Improved health

Vegan hotels are essential in improving public health by increasing access to healthy food options. There is adequate scientific evidence supporting the health benefits of plant-based diets, including reduced mortality rates (Guha and Gupta, 2020) and reduced risk of cardiovascular disease and cancer (Christopher et al., 2018). Vegan hotels offer a variety of plant-based diets, increasing the availability of vegan meal selections for more people to try out. According to Garnett et al. (2019), the increased availability of various vegan meal options makes it easier for more people to find a suitable plant-based alternative. The overall outcome is more people shifting to plant-based diets resulting in improved population health as fewer people develop lifestyle diseases (Garnett et al., 2019). In countries like the U.S., obesity has been flagged as a significant public health problem contributing to high mortality rates. These conditions are largely linked to people's lifestyles, particularly the consumption of processed food and animal products with high cholesterol and calories. Most vegan and plant-based diets have low calories and cholesterol, and there is adequate scientific evidence on their efficacy in reducing the risk of becoming overweight and obese, among other lifestyle diseases. One reason most people consumed processed foods like meat and dairy was the high availability and relatively low costs. Vegan hotels can be a solution to the problem by providing consumers with more plant-based diets and vegan diets that are delicious and nutritious alternatives to meat and dairy products. Davis and Melina (2011) note that less than 20 percent of vegetarians are overweight compared to over 50 percent of adults who consume meat and dairy foods and are overweight or obese. Thus, by providing vegan diets, vegan hotels play an essential role in promoting consumers' health.

4.2.5. Sustainable food source

Unlike animal-based food products, whose production is unsustainable in fast-growing populations, plant-based and vegan diets provide a more reliable and sustainable food source. Vegan hotels can provide food to more people without putting pressure on the environment as the production of plant-based and vegan diets is environmentally friendly, unlike the production of animal-based food products that negatively impacts the environment. Additionally, significant plant-based food products can be produced economically and with technology in almost every region, making them an excellent alternative to animal-based foods. In countries like India with large populations, vegan hotels play a crucial role in ensuring food security and access to good nutrition for the public. Countries like the U.S. have been investing in

healthy and proper nutrition for the population, especially in schools and low-income areas where people consume unhealthy processed foods due to their high availability (Davis and Melina, 2011). With increased production and availability of plant-based foods, vegan hotels can be essential in improving people's health as it will become easier to offer vegan diets at lower prices than processed foods, encouraging more people to consume plant-based food products. Overall, vegan hotels can contribute to the large-scale adoption of sustainable plant-based and vegan diets with the increasing global population and demand for healthy diets.

5. CONCLUSIONS AND RECOMMENDATIONS

Vegan hotels are becoming more popular worldwide as more people switch to vegan and plant-based diets. The reasons for transitioning to vegan diets include increased awareness of the health benefits of vegan diets and the need to avoid processed meat and dairy products linked to cardiovascular diseases, diabetes, and cancer, among other lifestyle diseases (Davis and Melina, 2011; Guha and Gupta, 2020; Petti et al., 2020). In addition, scientific evidence associating vegan lifestyles with low mortality rates and longer lifespans has inspired more people to switch to vegan diets. Other reasons include increased activism on the need to recognize and protect animal rights and government campaigns to increase awareness and provide people with accurate information on veganism (Espinosa-Marrón et al., 2022). Vegan hotels have also taken several approaches to succeed in the industry, which is becoming increasingly competitive. Some hotels have opted to exclusively offer vegan and plant-based diets while some offer vegan and non-vegan food options (Lupsha, 2021). Other hotels adopt a complete vegan outlook in addition to the menus. This includes furnishing the premises with plant-based or non-animal-based products to demonstrate their commitment to reducing the environmental impact of large-scale animal farming for consumption (Molina-Gomez et al., 2018). However, there is a need for more research to be done on the role of technology in supporting vegan hotels, especially in increasing production. Additionally, more research is needed on how vegan hotels can cater to the nutritional needs of particular groups like pregnant women, elderly people, and children who have high requirements for nutrients that are not often present in typical plant-based diets.

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VIRTUAL REALITY IN THE HOSPITALITY AND TOURISM INDUSTRY

CONSTANTINOS A. IACOVOU[*] and MARIOS CHARALAMBOUS[**]

ABSTRACT

Virtual reality (VR) is one of the emerging technologies that is gaining significant attention in the tourism and hospitality industry. VR technology can play a crucial role in influencing tourist experience and visit intention. The interaction with a virtual environment can create a visual appeal that triggers a cognitive response and desire to visit a destination. Similarly, VR provides a more effective product presentation strategy for businesses in the sector since most of the products offered are intangible and difficult to evaluate before purchase. This paper examines how VR is used in the tourism and hospitality industry.

Keywords: Virtual Reality, Tourism, Marketing, Tourism and Hospitality Industry, Tourism Education, Consumer Behavior and Virtual Reality Experience.

1. INTRODUCTION

Technological advancements have revolutionized many sectors, including the tourism and hospitality industry, where many businesses exploit new technologies to gain competitive advantage, enhance productivity, efficiency, and profitability. One such advancement is Virtual Reality (VR), a three-dimensional computer-generated environment that emulates reality and provides users with real life-like experiences (Nair and Antony, 2018). VR technology has three key elements: visualization, which allows users to explore an entire scene, usually with the use of head-mounted display devices, immersion which involves the suspension of belief and the actual physical depiction of objects; and interactivity that provides users with a higher degree of control over the experience (Yung and Khoo-Lattimore, 2019). Recent innovations like VR platforms, content production tools, and devices such as VR goggles have expanded the use of VR in the tourism industry enabling businesses to offer mass virtual visitations to natural tourism destinations (Pestek and Sarvan, 2020). The increased infiltration of internet connection and increased number of individuals with smart devices is also an opportunity for businesses to reach a larger audience using VR technology in marketing their services and products. The virtual experiences that individuals get when using VR devices such as headsets create a perceived visual appeal enabling them to interact with a natural, life-like environment. This feature of

[*] Assistant Professor, Hospitality and Tourism Department, American College, Nicosia, Cyprus
[**] Lecturer, Hospitality and Tourism Department, American College, Nicosia, Cyprus

VR creates a positive visual appeal that can have a strong positive influence on the individuals' visit intentions and increase their desire to visit the destinations for more exciting experiences. With the recent outbreak of the COVID-19 pandemic that has nearly crippled the global tourism and hospitality industry, VR technology can be explored as an effective strategy for promoting the industry's recovery and helping businesses overcome the challenges caused by the pandemic. Travel agencies can give customers a virtual experience of the services offered, including packages that can be a more effective product presentation strategy for the services offered. This paper explores the various studies on virtual reality in the tourism and hospitality sector and identifies ways that the technology can be used to improve the sector.

2. LITERATURE REVIEW

The use of virtual reality in the tourism and hospitality sector has been a topic of interest for several researchers. Pestek and Sarvan (2020), studied recent trends in virtual reality and how they have revolutionized the tourism and hospitality industry and established that VR enabled businesses to communicate their services and products to customers effectively. The researchers conducted a systematic literature review on articles discussing the future of management and planning in the tourism industry and new technologies to improve marketing in the industry. The study points out that the successful utilization of VR technology requires joint efforts from stakeholders in the industry, including suppliers and marketers. Similarly, Nair and Antony (2018) explored how virtual reality can be used as a creative marketing strategy in the tourism industry and found out that the technology has many unexploited benefits that could help businesses in the sector. The researchers also show improvement in business operations and profitability reported by businesses that adopted virtual reality. The role of VR in tourism marketing has also been explored by Huang et al. (2016) who notes that VR provides organizations in the tourism sector with an effective tool for marketing destinations. The researchers state that most of the target customers have access to the internet and devices to explore potential destinations across the world (Huang et al., 2016). However, the study also notes that there is little understanding of VR technology among stakeholders in the business industry, resulting in low exploitation of the technology as an intelligent marketing tool (Huang et al., 2016).

Jung et al. (2017) trace the application of VR in tourism to previous studies involving the use of computer-generated simulations of 3D images to influence tourists' intentions to visit different destinations. The authors also note that current applications may be hindered by the level of complexity that may make it difficult for some customers to use various devices (Jung et al., 2017). The observation by Jung et al. (2017) sheds light on some of the missing links and challenges in VR in tourism and provides recommendations for future research. Subawa et al. (2021) analyzed the

use of VR marketing in the tourism industry in Indonesia and established that VR can be a more effective tourism marketing tool and can be used to convince more potential customers to visit different destinations. The researchers sought to develop a guide to be used by tourism marketers seeking to integrate VR as a marketing tool (Subawa et al., 2021).

Additionally, the researchers do not think VR is a creative marketing tool that can enhance tourism marketing, especially during uncertainty, like during the COVID-19 pandemic when many businesses struggle to attract customers (Subawa et al., 2021). Lo and Cheng (2020) conducted an experimental study on the effectiveness of VR in influencing consumer response to tourism promotion and established that VR is an effective tool for promoting consumption in the tourism industry. The study, which involved 203 college students in Hong Kong, revealed that the virtual depiction of a real-world environment through VR can influence the consumption intentions of individuals (Lo and Cheng, 2020). Israel et al. (2019) found out that many customers find it challenging to evaluate the quality of the products and services offered in the tourism industry before purchasing. Since most of the products offered are intangible, businesses also struggle to present their products effectively to consumers (Israel et al., 2019). The study argues that VR can help address this marketing challenge by enabling businesses to present their products so that customers can evaluate the quality of different products before making a decision (Israel et al., 2019). These findings are significant as they provide evidence of VR as an effective product presentation tool that can be explored by businesses in the tourism industry that offers intangible or invisible goods that may be difficult to market to clients.

Nayyar et al. (2018) examined various VR technologies that have significant potential to improve the tourism and hospitality industry. The researchers identified areas like planning, marketing, education, and tourism sport preservation as potential areas where integration of VR could benefit the sector (Nayyar et al., 2018). Moreover, the article also notes that it is now easier for businesses to utilize VR technology to reach a larger audience because of the significant proliferation of the internet (Nayyar et al., 2018). The study, which involved 186 participants, found that VR technology can be utilized by effectively constructing informative and interactive virtual worlds that offer users a real-life-like experience of the various destinations (Nayyar et al., 2018). These findings provide valuable insights for businesses to use when making marketing strategies or adopting virtual reality technology to ensure the technology is used correctly to achieve the desired outcomes. Chiao, Chen, and Huang (2018) conducted a study involving 391 university students to examine how online virtual tour-guiding platforms can promote cultural tourism education and found out that the interaction between individuals and a virtual tour environment can increase their desire to visit the destinations and experience the environment they visualized. These findings can be used to support the applicability of VR technology in planning,

especially among customers, since the virtual experience promotes visit intentions and the need for exciting experiences in the real world.

Ugur and Akbryik (2020) note that VR technology could be an effective solution to the quick recovery of the tourism and hospitality industry following the outbreak of the COVID-19 pandemic. The authors analyzed how businesses can utilize VR technologies such as VR videos and photography to aggressively market the products and services offered in the industry and allow users to get virtual experiences of the different destinations and packages (Ugur and Akbryik, 2020). These findings are in line with the recommendations by Nayyar et al. (2018) that businesses in the tourism industry should exploit the numerous opportunities for improving the industry using VR technology, including creative marketing strategies and better product presentation in a more convincing manner. According to Marr (2021), VR technology can be used effectively by businesses like airlines, travel agencies, and hotels to convince customers and evoke a desire to explore the services offered by prospective businesses. For a business like airlines, VR technology makes it easier for airlines to advertise services like meals served and the different packages, including economy and business class (Marr, 2021). This can also increase confidence among consumers, especially when seeking to book the services online. In the past, many customers have fallen victim to misleading advertisements where hotels or travel agencies advertise using edited pictures and videos only for customers to pay online and receive services that do not meet their expectations. With VR, businesses will represent the services, enabling customers to sense and feel what they can expect to experience (Marr, 2021). Similar findings are also presented in an empirical study by Tussyadiah et al. (2018), who established that the consumption of VR tourism content has rapidly increased over the past few years due to the development of advanced VR devices like headsets and mobile apps. The study also found that VR technology creates a sense of presence that can evoke positive attitude change towards destinations among consumers (Tussyadiah et al., 2018).

Similar findings were also made by Marasco et al. (2018), who concluded that virtual experiences effectively influence intentions to visit destinations. Furthermore, the study notes that VR creates visual appeal among the users, positively impacting their visit intentions and increasing their likelihood of visiting the advertised destinations. This can be useful for new businesses or businesses seeking to expand their consumer base by conducting advertisements in countries with a high number of potential customers who are less likely to be aware of the destination or may have been misinformed about the destination are reluctant to visit.

Kim, Lee, and Jung (2020) studied the various factors influencing consumers' decisions to visit destinations and developed a theoretical framework based on a stimulus-organism-response (SOR) to examine how VR can influence consumer behavior and visit intentions. The study found that VR stimulates cognitive and affective responses, promoting visitor intentions and creating attachment among

consumers (Kim, Lee, and Jung, 2020). The findings from this study illustrate that in addition to influencing consumers' intentions to visit destinations, VR can also be used to promote customer retention by promoting attachment to destinations. Furthermore, the study notes that cognitive responses have the most significant influence on individuals' visit intentions, and by influencing the consumers' cognitive responses, VR has a more substantial effect on customers' visit intentions (Kim, Lee, and Jung, 2020). The goal of conducting advertisement campaigns is often to influence consumer behavior, including their attitudes towards a product or service; thus, by enabling businesses to influence the behaviors of tourism consumers, businesses can attract more customers who will be more willing to purchase the products. Wei (2019) reviewed publications on the use on the progress made in the tourism and hospitality industry in adapting virtual reality and augmented reality and established that despite the limited research on the topic, there is significant evidence to support the effectiveness of VR in influencing user behavior. The researcher recommended that stakeholders in the industry adopt VR technology due to its effectiveness in influencing consumer behavior, making them essential marketing tools.

3. METHODOLOGY

This study uses a systematic literature review design to explore the application, impacts, and consequences of using virtual reality technology in the tourism and hospitality industry. First, a literature search was done on three primary databases: Google Scholar – a web-based free access database. Emerald Insight is a subscription-based database, and JSTOR is a web-based database with both free access and subscription-based access options. The initial search was done using virtual reality, tourism and hospitality, tourism marketing, virtual reality experience, and consumer behavior. The initial search yielded over 1,000 hits across the three databases. Inclusion and exclusion criteria were then used to identify articles relevant to the research. The inclusion criteria included filters such as year of publication (must be less than ten years old), language (must be published in English), authenticity (must have an author and be published on a reputable journal), full-text (article must be available in full text), and peer-reviewed (except for websites). These filters reduced the number of articles to less than 50. The next exclusion strategy was the identification of duplicate results since the majority of the articles from the three databases were identical. The final sample consisted of 17 articles that were identified to be most relevant to the research objective.

4. FINDINGS

The application of VR in the tourism and hospitality industry is gaining momentum gradually, with more businesses demonstrating a willingness to exploit the

technology. This increase in use of VR can also be linked to increasing evidence to support the use of VR technology in the industry. Reports of success from businesses that have already implemented the technology were evident. This research reveals several vital areas that VR can be used in the tourism and hospitality industry.

4.1. Tourism Marketing

The use of VR in consumer marketing has increasingly demonstrated success in different sectors, with many business analysts agreeing that the tool can be effective in nearly all sectors (Lo and Cheng, 2020). Currently, VR is widely used in consumer marketing in the entertainment industry and has also been used in the education and healthcare sectors (Lo and Cheng, 2020). According to Pestek and Sarvan (2020), VR technology is the future of intelligent marketing in the tourism industry, and businesses should strive to integrate the technology into their organizational structures. The technology allows businesses to advertise their packages by giving clients a virtual experience of the tour packages. However, product presentation can be challenging for businesses in the tourism and hospitality industry as it is difficult for customers to evaluate and compare the types of services offered before purchase (Israel et al., 2019). VR presents travel agencies and hotels with an alternative and more creative marketing strategy by offering prospective clients virtual travel experiences of what they can expect when they visit the hotels or use the services of travel agencies. Thus, VR provides better product presentations than traditional marketing strategies involving brochures or computer screens. The leading VR technologies being used in tourism marketing are VR videos and VR photography. The VR videos are shared by businesses in the tourism industry through social media and websites and include videos captured using omnidirectional cameras that enable viewers to explore the entire scene as the video plays. The videos can be viewed on devices like smartphones or computers if they are monoscopic or using VR headsets if the videos are stereoscopic (Immersion VR, 2022). The two types of videos can be used to target different customers, including those who do not use VR headsets.

Additionally, VR technology can reduce bias in tourism marketing, ensuring customers make independent decisions rather than being coerced by agents to accept certain offers. Travel agencies and hotels can give potential customers a chance to take self-guided tours and explore the physical surroundings of various destinations or rooms before they can decide which one suits them. For instance, VR mobile apps such as National Geographic VR and Google Earth VR can offer clients on-screen information about different places or destinations (Marr, 2021). Many companies have already started adopting VR technologies. For instance, First Airlines has developed immersive VR travel "trips" for its customers to explore places like Rome, Paris, and Hawaii (Marr, 2021). The airline offers customers virtual trips, including four-course meals and other services (Marr, 2021). This enables the customers to review the

services and decide whether or not they are worth the amount charged. In addition, the technology has made it easier for customers to utilize online booking services, unlike in the past when most services would be advertised on brochures that are often edited only for clients to be disappointed upon receiving the actual services. With VR technology, customers get the real experience they can expect when they visit or use the services offered. Marr's (2021) argument supports the findings made by Huang et al. (2016) that suggested that VR can positively influence how customers perceive consumer services and products offered in the tourism industry. Tussyadiah et al. (2018) note that the sense of presence created through VR virtual worlds can significantly influence the customers' attitudes towards a destination and increase their willingness and likelihood of selecting the destinations. Thus, VR creates awareness about destinations and is also more persuasive and likely to influence the intentions of potential customers to visit a destination. However, the lack of sufficient information to support decision-making by businesses in the sector on the use VR technology remains a major hindrance to many businesses' integration of the technology.

4.2. Tourism Education

VR technology can be used to educate potential consumers on the various destinations, scenes, or events. For instance, virtual experiences can influence the consumers' understanding and perception of a destination by providing them with factual information so that they can have first-hand experience. The sense of presence achieved through the visual appeal gives potential customers a chance to learn and explore what they expect at the destination; thus, VR has a more significant impact on behavioral intentions and can be more effective in promoting visit intentions (Marasco et al., 2018; Tussyadiah et al., 2018). The change in attitude is closely linked with a better understanding of the destinations and increased confidence when booking or planning to visit destinations since customers already have a clear picture of what to expect compared to when learning about a destination through brochures. Virtual reality tour-guiding platforms can effectively promote tourism education through increased interaction between the users and a virtual environment (Chiao, Chen, and Huang, 2018). The impact of VR on cognitive responses is perhaps an essential element of the technology that makes it a powerful tool for influencing consumers' intentions to visit destinations (Kim, Lee, and Jung, 2020). When individuals experience and interact with the virtual environment, they develop a strong urge to visit the destination and interact more physically with the environment (Kim, Lee, and Jung, 2020). The influence on cognitive response can primarily be linked to VR's ability to create a sense of presence, making it easier for customers to understand and evaluate the services more accurately. Thus, by providing education through a method that engages the customer's senses, VR is a more effective tool for educating

customers on the destinations and services offered by businesses in the tourism and hospitality industry.

The use of VR videos and photographs can decrease the time taken by consumers to research various destinations and packages. Most hotels and travel companies often print booklets or posters with lengthy descriptions to advertise all the services and products offered. As a result, customers spend too much time reading through the descriptions while identifying the most suitable package. The descriptions may also be vague or difficult to understand, making it difficult for the customers to determine if the package is worth the amount they will be paying (Pestek and Sarvan, 2020). This challenge can solve using VR videos where hotels and travel agencies can provide videos of the actual destinations that can be viewed in 3D by the customers enabling them to experience the services and destinations in a real-life-like environment (Moro et al., 2019). Thus, rather than spending hours researching and reading descriptions on different destinations, customers can spend a few minutes in a virtual environment, experience what they can expect, and then decide which destination they would like to visit.

4.3. Virtual Reality - Potential Solutions to Challenges of COVID-19 Pandemic

The tourism and hospitality industry is among the most adversely affected sectors by the COVID-19 pandemic. Since the outbreak, many governments have established movement restrictions, including lock-downs and curfews, to limit or prevent movements within domestic and international boundaries. People were also advised to stay at home and avoid traveling or interacting with people in public places. As a result of these measures, airlines worldwide reported mass cancellation of flights while hotels reported mass reservation cancelations and a sharp decline in occupancy rates (Ugur and Akbryik, 2020). Many businesses have since scaled down operations or entirely closed due to a lack of customers. Two years down the line, no permanent solution has been found, and the virus continues to disrupt businesses worldwide. The uncertainty surrounding the COVID-19 situation reveals the need for businesses in the hotel and hospitality industry to be creative and identify ways of remaining sustainable and profitable during such situations. VR technology might be the answer to the problems experienced in the industry. As the industry struggles to recover from the impacts of the pandemic, travel agencies, hotels, and businesses in the tourism and hospitality industry can utilize VR technology to aggressively market their products and services and inspire customers to travel. Using VR, travel agencies can take customers through a virtual tour of the packages offered in a real-life-like experience that will leave customers yearning to experience more and travel to the destinations (Rogers, 2020). As more people spend time indoors, they are more likely to use devices like VR headsets as entertainment; thus, during this period, travel agencies can reach more customers and increase awareness of their products and services. The

pandemic has also created negative attitudes among consumers towards specific destinations, especially those found in areas that previously reported high infection rates. Travel agencies and hotels operating in such destinations can utilize VR technology to promote positive attitude change towards the destinations by taking advantage of the technology's ability to establish a strong sense of presence (Tussyadiah et al., 2018). The sense of presence and its effect on enjoyment can be a powerful tool for influencing customers' intentions to visit destinations (Tussyadiah et al., 2018), enabling a business to dismiss any misinformation that may have promoted negative attitudes towards destinations.

4.4. Concerns

One of the major concerns that critics of VR have raised is the possibility of the technology replacing real-life experiences. The critics argue that consumers prefer virtual experiences due to their inexpensive and user-friendly platform over actual real-life experiences that may require extra costs. Based on these arguments, VR may negatively impact the tourism and hospitality sector, resulting in a significant decline in demand and even unemployment (Nair and Antony, 2018). However, these concerns do not provide a true reflection of the actual situation in the tourism industry and are primarily based on assumptions. According to Nair and Antony (2018), VR cannot replace real-world experiences and does not pose any significant threat to the careers of tour operators. Instead, VR technologies can help enhance the consumption of services and products offered in the industry by enabling tour operators and hotels to market their packages through a virtual experience that gives consumers a real-life-like experience of what they can expect from their visit to the destinations. The findings by Nayyar et al. (2018) also dispute the arguments by pointing out how VR can revolutionize many tourism and hospitality industry sectors, including planning, marketing, and education, resulting in increased operations and subsequent expansion of business in increased job opportunities in the sector. However, many businesses will have to train the majority of their staff on using VR technology to ensure its integration in different sectors is successful. Finally, VR can make it challenging for businesses to package the authenticity and diversity of different cultures using virtual technology (Subawa et al., 2021).

5. CONCLUSIONS AND RECOMMENDATIONS

The development of virtual reality (VR) technology presents an opportunity for businesses in the tourism and hospitality industry to market and increase consumption in the sector. The virtual environment created using VR gives users real life-like experiences and the visual appeal in addition to the sense of presence created by the virtual environment have significant impacts on the user’s attitude and perception of

destinations. VR can also be an alternative solution to businesses seeking to enhance product presentation since the virtual environment provides users with a better chance of exploring and evaluating the different destinations and packages offered before making purchase decision (Israel et al., 2019). Product presentation is key challenge in the tourism and hospitality sector since most of the products offered are intangible and difficult for customers to assess before purchase. VR can also be used to promote tourism education among consumers especially when creating awareness about new destinations or destinations that have been negatively portrayed due to misinformation or stereotypes (Nayyar et al., 2018). Travel agencies, hotels, and other businesses can use VR technology to create awareness among users from distant geographical location who may be willing to explore new destinations but are unsure of what to expect. The virtual experience gives them more confidence on what to expect and also helps them in making decisions on which packages to purchase. Overall, the ability of VR to stimulate different senses among consumers and influence their cognitive response makes it a key marketing tool that can be used to influence consumer behavior and promote consumption in the sector (Tussyadiah et al., 2018).

There is a need for more research on the effectiveness of VR in influencing consumer behavior, specifically on how to induce more positive attitudes and increase visit intentions. While there is evidence supporting VR's ability to influence the behavior including attitudes towards destinations and intentions to visit, there is limited data to support a comprehensive understanding of how to specifically use VR to achieve positive change in behavior. Another important area of research should be on the development of user friendly and aesthetically pleasing VR devices. Some customers find it difficult to use the VR devices that require technical knowledge, or connection to high-speed internet, while others find the devices too expensive or lacking aesthetics.

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SURVEILLANCE INFRASTRUCTURE AND ARTIFICIAL INTELLIGENCE: CHALLENGING DEMOCRACY AND HUMAN RIGHTS IN CHINA

DIMITRIOS VAGIANOS[*] and GLYKERIA STAVROU[**]

ABSTRACT

This paper focuses on the use of Artificial Technology surveillance and on the challenges that Artificial Intelligence (AI) implementation introduces related to Personal Data Privacy and democratic rights' issues. In this research, we analyze a wide field of Artificial Technology surveillance implementations and a number of policies in use by the Chinese government. The Chinese case demonstrates AI's use in implementing a variety of applications and incidents such as the "Great Firewall", the CCTV usage, the impact of the Social Credit System, and the repression in Xinjiang. Eventually, the democratic violations and Human Right issues of the Covid-19 pandemic response strategy using AI techniques in China are outlined. Conclusively, the need for an appropriate regulation context when it comes to AI technologies handling Personal Data in Public Services, even adopting the Chinese perspective, is highlighted.

Keywords: Artificial Intelligence, Data Surveillance, Democracy, Data Privacy, Great Firewall of China.

1. INTRODUCTION

Nowadays cameras exist everywhere. In the supermarket, on the streets or in the shopping malls. But who controls them? Who is the one behind them? That is the question. The answer is simple: a person, a human. However, humans have their limits, and they can't focus 24/7 in watching camera footages. That is the point where the AI technology intervenes providing effective surveillance on a 24/7 basis. The AI technology could be defined as an integrated system that incorporates information acquisition objectives, logical reasoning principles, and self-correction capacities (Feldstein, 2019). In other words, it's a system of artificial intelligence, which humans created to facilitate their everyday lives.

It is stated that at least seventy-five out of 176 countries globally are actively using AI technologies for surveillance purposes (Feldstein, 2019). This indicates the speed by which technology spreads around the world, more specifically the AI, with its use in the surveillance sector being one of the most debated. Feldstein argues that liberal democracies are the major users of AI technology, mostly, as a tool to police borders,

[*] Laboratory Teaching Personnel, Department of International and European Studies, University of Macedonia, Thessaloniki, Greece

[**] Graduate Student, Department of International and European Studies, University of Macedonia, Thessaloniki, Greece

apprehend potential criminals, monitor illegal behavior and pull out suspected terrorists from crowds (Feldstein, 2019). The vast impact of AI surveillance is rooted in its self-learning attribute. It detects the objects in the real world, matches the results with the correct annotations (provided by humans) and tries to improve further, resulting in constant learning and improvement (Nouri, 2020a). Consequently, AI surveillance technologies consist a powerful weapon with vast monitoring tools and intelligence potential.

In the U.S.-Mexico border of Arizona, Israeli defense contractor Elbit Systems has built towers that detect people from 7.5 miles away. In the French city Marseille, a partnership with ZTE in 2016 stated that will establish around one thousand AI CCTV cameras for public security reasons. China, continues to impress the world with a number of leading firms in the field, such as Huawei, Hikvision, Dahua, and ZTE.

Nouri states that AI surveillance systems have also been used in the pandemic era to assure social distancing, in the retail sector with Amazon Go stores having systems that detect your purchase preferences to parking occupancy with fee entrance control and statistical analysis about how many vehicles entered, how long they stayed and much more (Nouri, 2020).

In brief, AI surveillance technologies can be used over a range of varying techniques. Feldstein mentions three of them Smart Cities, Facial Recognition systems and Smart Policing, which are presented in Table 1 (Feldstein, 2019).

TABLE 1: AI SURVEILLANCE TECHNIQUES AND THEIR GLOBAL PROLIFERATION

AI Surveillance techniques	Description	Global Proliferation (out of 75 countries)
Smart Cities/Safe Cities	Cities with sensors that transmit real-time data to facilitate service delivery, city management and public safety. Often referred to as "safe cities," they incorporate sensors, facial recognition cameras and police body cameras connected to intelligent command centers to prevent crime, ensure public safety and respond to emergencies. Only platforms with a clear public safety focus are incorporated in the index.	56 countries
Facial Recognition Systems	Biometric technology that uses cameras (still images or video) to match stored or live footage of individuals with images from databases. Not all systems focus on database matching; some systems	64 countries

	assess aggregate demographic trends or conduct broader sentiment analysis via facial recognition crowd scanning.	
Smart Policing	Data driven analytic technology used to facilitate investigations and police response; some systems incorporate algorithmic analysis to make predictions about future crimes.	53 countries

Source: *(Feldstein, 2019)*

Therefore, the AI concept seems surprisingly comfortable for human safety, as everyday practices are developed in an extremely innovative approach without, really, having immense costs. How about the humanitarian aspect though? How about people's opinions and beliefs? How about freedom and privacy, in this kind of setting? AI manages to direct personal data to third parties, and the way they will be used remains unknown, resulting in loss of trust and thus, spreading mistrust.

To understand how AI works coupled with the democratic values, we fist have to state the quality characteristics of a "good" AI surveillance system. Democracy, after all, isn't only about a state's political system or government, or exclusively about elections and political leaders. The core element of democracy can be found in people, the ones who rule themselves. Manheim and Kaplan use the term autonomy to support the importance of one's right to take freely decisions about own life, naming it "decisional privacy" (Manheim and Kaplan, 2019). Self-liberty rights, privacy, individual choice, liberty to follow one's will, causing one's own behavior, and being one's own person is also included in their sense of autonomy, correlating with free will, dignity and individuality. The seven guidelines of the European Commission's for the AI systems are the following:

1. Human agency and oversight
2. Technical robustness and safety
3. Privacy and Data governance
4. Transparency
5. Diversity, non-discrimination and fairness
6. Societal and environmental well-being
7. Accountability

It is obvious that those guidelines are not that familiar to us to the extent we would want them to be. Privacy is being trampled on and data collection happens constantly and sometimes even without us being aware of it. Transparent procedures are detained and the public remains in the dark. The AI programs often mirror society discriminations such as skin color, sexuality, style of clothing etc. Lastly, the lack of

information makes the accountability requirement difficult to judge. The cohesive powers of surveillance can be interpreted in a manner as the power to homogenize behaviors in order for them to become acceptable. That technology also degrades democratic practices and enhances the potential of repressive governments by manipulating available information and spreading disinformation using hyper-personalized messages directed at – or against – specific people or groups (Feldstein, 2019).

In China specifically, the democratic issue is far greater. The government has used AI in wide-scale crackdowns in regions that are home to ethnic minorities like Xinjiang and Tibet, which are characterized as "Orwellian" (Feldstein, 2019). China, makes the world dependent on its advanced AI surveillance technology and gains an immense amount of money in the process, but also, influence. All those, while people lose their sense of self-respect and the so-called individuality and dignity, with a deteriorated free will.

In simpler words, a question arises: is democracy, seen as a constitutional necessity, preserved and supported? This paper focused on the Chinese context aiming to assess the impact of Artificial Technology surveillance on Personal Data Privacy and Security as well as on Democratic values, through the "superpower" of nontraditional data control and to highlight the necessity of an appropriate Regulation Context that aims in supporting the Citizen Liberties in cases the AI technology is used in the name of the Public or National Security.

2. LITERATURE REVIEW

There is substantial research on the impact that Artificial Intelligence technologies along with the surveillance techniques have on democracy and its relationship with political decision making. This paper surveys previous literature on the topic, and uses the Chinese case as a characteristic example that proves our assumption: AI surveillance technologies facilitate the decision-making procedure in politics using the collected data, a fact which increases the power of non-traditional stakeholders.

Feldstein, published in 2019 two research articles investigating the use of AI surveillance technologies around the world, their impact in democracy and the companies employed. This leads us to the conclusion that China is a pioneer in this sector with Huawei being a major stakeholder, while his research argues that "autocratic" states are more likely to employ these technologies, compared to liberal democracies, enhancing our argument about the transition from traditional political power to superpower. Feldstein tried to show the extended use of AI surveillance systems around the world, and stated that the more a country spends in the military field, the more likely it is to apply the AI surveillance systems, with a wide range of uses (Feldstein, 2019). His findings, together with Nouri's (2020) definition assisted our research with accurate and rich data.

In order to shape an opinion about the use of AI surveillance mechanisms and politics, we surveyed bibliography that analyses the Chinese case. Sharma (2020) attempts to point out how China's exports in the field could be an example of neo-colonialism, focusing on the influence these exports hold, and the intensity of power competition with the US. Aho and Duffield's (2020) research further enhances our belief about the strategic use of this technology, but differentiates itself with the insertion of the capitalistic element, a result of the involvement of big corporations in the data collection procedure that AI equals to. This research, convinces us about the importance of the stakeholders involved, as now the power of data, traditionally accumulated by the authoritarian state, is also shared with the corporations employed.

Ahmed et al. (2018) have already informed us in an extensive manner about the potential of AI technologies, giving a crucial insight in the matter, with viewpoints of various specialists in the field investigating its functions in a wide range.

Our study, continues its focus on the Chinese case, and sources are used to analyze the impact of AI when it comes to country minorities, social media, internet censorship, privacy, politics and social order. It is found that China, through the Great Firewall, controls the web and the search results, banning many popular western media and sensitive information, and specifically the political ones (Chandel et al., 2019; Huang, 2019), justifying this by bringing up the socialist core values of the system (Li, 2017). This practice is also encouraged by the government when it comes to social media, Qiang describes the manner in which WeChat interferes in the daily life of the citizens, and assumes control of their information, something which is known to other countries, resulting in the apps blacklisting.

In this context, data control is investigated using a broad range of resources, but when it comes to the Chinese case, few know what actually happens there in a precise and formal style. Notably, researches have pointed out the Xinjiang example as the archetype of the Chinese approach, resulting in an invasive handling of data (Leibold, 2019; Gorman and Schrader, 2019). Nonetheless, in a general approach, the Social Credit System, is the most well-known project that involves a massive number of data required for it to function. In our case Aho and Duffield (2020), Wright (2018), Liebowitz (2020) and Liang et al., (2018) cover the project's set-up and the stakeholders that are known to be involved, with a lack in findings on the local elite's reaction in addition to the people's ones. This system, by which the citizens are assigned points for positive or negative reasons, and thus labelled as model citizens, or not, is bound to divide society and transform it in an unforeseen manner.

Finally, the research gap, when it comes to the Chinese case, can be covered through the data collection during the pandemic period. Our research, analyzes the democratic infringement and the transition to non-traditional political control, proved by China's policy in the country's most unstable period in modern history, the pandemic age.

3. METHODOLOGY

This research attempt focuses mainly on two types of policies: privacy and data-sharing regulations, and the use of surveillance technologies for policing. The investigation was deployed over both types of policies in China, a country whose aim is to become the world leader in AI by 2030 according to the 'New Generation Artificial Intelligence Development Plan' (新一代人工智能发展规划), to monetize AI into a trillion-yuan (ca. 150 billion dollars) industry, and to emerge as the driving force in defining ethical norms and standards for AI (Roberts et al, 2021). It is also a leading nation in the artificial intelligence research field in terms of the number of publications and the most influential papers (Zhang, 2012) and also a place of origin of large-scale datasets that have been obtained through a variety of techniques of governmental surveillance.

Moreover, COVID-19 virus has been and remains a threat to the entire world. AI has been a potential alternative to conventional methods to limit its spread and facilitate its treatment not only in China but also in the rest of the world. Rapid screening and diagnosis of the disease, surveilling the efficacy of the treatment, keeping record and depicting active cases and mortality, inventions of medications and vaccines discovery, relieving the workload of healthcare workers and extinguishing the spread of the disease has been among the results of successful AI implementation in these strategies. However, the personal data acquired during these processes without the citizens' consent raised great concerns regarding the legality of AI methods with regard to the Human Rights and the supporting regulations context that should exist during AI surveillance methods as a response to the pandemic not only in China but in much broader context.

Several reports have analyzed specific aspects of China's AI policies or have assessed the country's technical capabilities. The findings are retrieved and listed from such previous analysis attempts found in relevant literature in an attempt to highlight good practices along with unethical or illegal use of AI technologies in China, aiming to add a contemporary qualitative overview of these techniques applied there. The processes of specific information acquisition that this literature review collects can be viewed as a data collection tool—that is, as a means of collecting a body of information pertinent to a topic of interest. As a data collection tool, the literature review involves activities such as identifying, understanding and meaning-making recording. Indeed, the literature review represents in its optimal form, a formal data collection process wherein qualitative information is gathered in a comprehensive way.

During this methodology approach, a perspective on China's strategic situation regarding AI is built, including its comparative capabilities, the opportunities offered, and the potential risks. Following a technology-first approach, an attempt is made to focus on the stated capabilities of AI, to gain an insight into the types of technologies

in which China is investing highlighting the concerns about data privacy invasions and the resulting democratic deficit.

4. FINDINGS

In the next paragraphs, the implications of the AI over several aspects of Chinese public life are highlighted, including China's Digital Authoritarianism, the Great Firewall, the CCTV applications known as the Big Brother, the Social Credit System, the repression in the "autonomous" Xinjiang, and Social Media as a mass surveillance mechanism.

4.1. China's Digital Authoritarianism

As already mentioned, China's State Council has declared that it will become the world leader in Artificial Intelligence by 2030 thus, underlining the need for stability and security in the world (Sharma, 2020). The general aim is to transfer the power of data surveillance from the private sector to the public sector, repurposing existing surveillance infrastructures and technologies to advance state agenda (Aho and Duffield, 2020). The character of the new AI-related technologies (in particular enhanced perception) best suits the augmentation of the surveillance, filtering and prediction in digital authoritarianism (Ahmed et. al, 2018). AI therefore supports authoritarianism by building structured databases, images and text for sophisticated censorship (Ahmed et. al, 2018).

4.2. The Great Firewall

China has managed to impress the international community with its internet censorship, a fact that has given rise to arguments about hindering the democratic value and restricting the freedom of speech. The Great Firewall is the digital border that divides China from the rest of the world (Huang, 2019). This censorship has been first set up in 1996, and in 2004 the service of keyword screening and sensitive words masking was introduced by Cisco. From 2004 to 2014 Wikipedia, YouTube, Facebook, Twitter, Instagram and major domains have been blocked and Chinese versions of these platforms have replaced them (Chandel et al., 2019). The country under the socialist centralization, its understanding towards political stand and public opinions are determined upon traditional Chinese political culture and Marxism-Leninism (Huang, 2019). The internal logic of this system asserts that the ruling party has already represented the interests of the people and the socialist core value system is guiding ideology of Chinese legislation (Li, 2017). Social media including the public opinion platforms are a plain mouthpiece of the ruling party with the voices outside of this system being relatively untrustworthy (Huang, 2019).

Furthermore, Chandel et. al., (2019), stated that the Great Firewall aims to eliminate criticism and prevent people from being infiltrated by the information that the government decides to be harmful to the peace and harmony of the people in China. According to them, there are two main camps about the views of internet censorship. The one refers to those who view it as a prominent example of China's "lack of Internet freedom." and the second one, refers to those who couldn't care any less, as the ban of certain sites or apps has left them unaffected (Chandel et. al, 2019). In the end, the whole project, as a huge IT one, has gathered countless information, and its build is quite compatible to surveillance methods, making the users information easily accessed from government programs using AI.

4.3. CCTV, the "Big Brother"

China is by far the country with the most CCTV cameras in the world, counting to 176 million in 2017 (Liebowitz, 2020). The human-centric observation needs, reached China to the point of being the global leader in developing AI-centered surveillance systems, with facial recognition. While in 2018, only 5% of cameras were equipped with data analytics capabilities, by 2025, over 70% of surveillance cameras worldwide are projected to possess the capacity to interpret behavior in real time (Sharma, 2020).

The quantity of data those intelligent devices handle is immense and training sessions will definitely be necessary for them to be able to function accurately. For instance, the ability to discriminate an adult's face from a child's one, requires a dataset of images or videos for each category and labelled as such (e.g. Child Faces vs. Adult Faces) in order for it to be trained (Sharma, 2020). Though, as Sharma argues, those labelling data processes, have been proven "laborious and expensive" though they provide ground truth data for the operation of the AI surveillance technologies (Sharma, 2020). An identifiable issue presented here is the handing of government data, such as property records, birthdates, and medical records of citizens, which are going to be accessible from private technology companies (Sharma, 2020). Considering the importance of the matter, the companies that will handle personal data are going to have equal intelligence with the government's relative departments, a crucial evolvement that stretches the traditional belief of "power in the hands of few".

According to Sharma, the Integrated Joint Operations Platform operates at the data intersection of "CCTV cameras, facial recognition devices, and Wi-Fi sniffers" (devices that eavesdrop on activities-communications within wireless networks) and procures extra data from license plates, identification cards scanned at checkpoints, health, banking, and legal records (Sharma, 2020).

4.4. The Social Credit System

China had launched "Social Credit System" (SCS) since 2014 as "*one of the most substantial social and economic reform projects in national history*" which is going to shape China's development in the information age (Aho and Duffield, 2020). As Aho and Duffield describe, this has its roots in the digitalization of the Chinese economy and the "side effect" which is the huge collection of data from e-commerce (40% of the globe's) and the 731 million Chinese internet users. They describe the SCS as a procedure which assigns credit scores to each "economic actor operating within the national market, from giant conglomerates and state-owned enterprises down to small businesses and individuals" (Aho and Duffield, 2020). The assigned scores come from series of algorithms which are managed by the central government. Their purpose is either encouraging desirable social and economic behaviors with rewards or discouraging them with punishments. Apps, like WeChat, become central factors for the continuation of everyday social and economic life giving more and more control and power to the government.

Wright states that AI and big data will allow predictive control of potential dissenters, making the majority of the society acting like a "responsible member of society" in order not to attract the systems bad side which will target them (Wright, 2018). That way, the social control and homogenization of the population is guaranteed. China's 2017 AI Development Plan describes how the ability to predict and "grasp group cognition" means "AI brings new opportunities for social construction." (Wright, 2018). Liebowitz argues that the SCS's surveillance capabilities violate norms about privacy that many countries hold for their citizens, with the immense data collection and especially the one without a given consent, being the protagonists in the Chinese private sphere, that now appears to becoming a public one (Liebowitz, 2020). "The government has employed a variety of methods and policies, like Hukou (household registration) and Dang'an (personal archives), to conduct state surveillance" (Liang et al., 2018).

Tech titans like Alibaba, share information, specifically about negative credit firms, with the National Development and Reform Commission (NDRC), which is oriented towards the building of such platforms. Baidu, another tech-giant provides technical support to NDRC in order to build the NCS platform (Liang et al., 2018). Liang et al. mentions that technical firms build their own credit platform such as Alibaba's Sesame Credit, Tencent Credit, and Kaola Credit, with now two parallel systems, the government's SCS and the commercial credit system (Liang et al., 2018).

4.5. Repression in the "autonomous" Xinjiang

Leibold argues that *Xinjiang* has witnessed periodic but cyclical violence since 1949, the year in which the area was incorporated into People's Republic of China

(PCR) (2019). Since then, the indigenous Turkic population is being forced to align with the Han-defined norms. Unrest in the form of rioting, bombings and knife attacks have left hundreds dead and scores more injured since 2009, with the Uyghur majority south of Xinjiang now labelled the 'main battlefield' in China's fight against the 'three evil forces' (三股势力) of terrorism, extremism, and splittism (Leibold, 2019). Xi Jinping argues that the build of a mass surveillance network in the area will achieve 'social stability and enduring peace' (Leibold, 2019). In a manner similar to the Social Credit one, it separates citizens to normal and abnormal ones, making Xinjiang the SCS's testing ground.

AI technology is widely applied in the area with facial recognition software being the core of the surveillance system. This helps the CCP' s (Chinese Communist Party) efforts in collectivizing the Uyghur population by re-educating it. According to Foreign Policy's, Gorman and Schrader, a Chinese security contractor with the name "SenseNets" has a facial recognition database tracking the movements of the Uighur people and exposing "coordinates on a 24-hour basis, national ID numbers, home addresses, personal photographs, and places of employment". It is also stated, that since 2017, 2 million Uyghurs have been sent to "re-education" camps, in order to discard their Islamic religious and cultural identity, through torturing and harsh living conditions (2019).

Artificial Intelligence technology enhances their efforts drastically through a variety of control software that target the so-called unfavorable behavior. Leibold mentions that since 2017, the authorities in Xinjiang have built 7,300 'convenience police stations' (便民警务站) that cost over $2.6 billion RMB (USD390 million) and are equipped with the latest anti-riot and surveillance equipment that could construct profiles of possible troublemakers and track them. The high- definition cameras that exists all over the place are now the ears and eyes of the party- state, making sure that information about any undesirable movement, spreads in no time. This intrusive technology is strictly encouraged in the PRC and its use is extended systematically year after year with accelerated speed. In 2016, Ürümqi's new train station in Xinjiang installed one of the first fully automated, face- recognition entrance gates in China that compare ID's personal information with the scanned image in order to verify its validity but they also compare them with police blacklists with 98% reliability (Leibold, 2019).

4.6. Social Media: A mass surveillance mechanism

As stated above, the PRC, is considered to be the world's leading country in AI technologies, and especially the surveillance ones. Alibaba, Baidu (China's Google) and Tencent (the owner of China's most popular messaging-payment app, WeChat) lead the internet scene in the Mainland China but also tend to provide services in a global level.

According to Qiang (2019), WeChat payments are now offered in 15 countries with the first one to adopt it being. Chinese citizens, carry the Great Firewall's restrictions out of China as they are a built-in content and they make use as information collectors. India, enlisted WeChat in the "blacklisted apps" for its people in December 2017, while Germany has accused the Chinese government of stealing its officials' data in LinkedIn the same period (Qiang, 2019). This is particularly dangerous as it shows the widespread mechanisms China uses to collect information and spy on citizens worldwide.

5. DEMOCRACY ABD HUMAN RIGHTS IN POST COVID-19 CHINA

As it is widely known the Covid19 pandemic first started in China. Back then, the country developed an organized response to fight the pandemic. AI surveillance then, took an even wider role, that for the promotion of public health, with even less reactions. Greitens argues that "the pandemic has contributed to violations of democratic standards and human rights in a number of countries" with the apparent example being the illiberal autocracy called China (Greitens, 2020). Alibaba and Tencent, for once more, cooperated with the government in order to create a health code app that gathered data on individuals' movements, contacts and biometric data such as body temperature and assigned them a code related to their movements and access to public spaces (Greitens, 2020). Those data were shared with the police and the local authorities. This approach has allowed citizens to regain mobility and resume daily activities, but at the cost of embedding them further into the CCP's intensive and open-ended surveillance regime (Greitens, 2020). Those intrusive surveillance technologies have enforced the one-party policy through demoting competitiveness and promoting the merge of security with public health and other sectors. Thus, the motto was "prevention and control" (fangkong, 防控) and has been originated from the realm of policing and social stability maintenance.

Chhabra states that the objective of the CCP is "the automation of society through tuning, herding, and conditioning" and that its social control experiment through AI and big data will likely outstrip Mao's wildest dreams (Chhabra, 2019). What confirms the theory of "Digital Authoritarianism", more than anything else, is the situation in Xinjiang, with the invasive technology opening the Pandora box. Civil liberty infringement during the coronavirus pandemic was a repeated happening across the world, however in China, this only strengthened the CCP's position in tight control over its citizens. Using the outbreak as everyone's "common enemy", the citizens themselves, lowered their "democratic" spirits for the sake of public health and remained in their majority silenced with the AI surveillance technologies "peeping" on their smallest move and reporting it to the authorities.

The Covid19 pandemic demonstrated another significant area impacted by the Chinese approach to AI ethics: Medical Ethics. Understanding this area helps us

understand the implications to Democracy of the AI use in responding to the pandemic. China's National Health Guiding Principles have been central to the strategic development and governance of its national healthcare system for the past 60 years. The last re-write of the Guiding Principles was in 1996 and the following principles still stand (Zhang and Liang 2018):

1. *People in rural areas are the top priority.*
2. *Disease prevention must be placed first.*
3. *Chinese traditional medicine and Western medicine must work together.*
4. *Health affairs must depend on science and education.*
5. *Society as a whole should be mobilized to participate in health affairs, thus contributing to the people's health and the country's overall development.*

All five principles are relevant for understanding China's healthcare system as a whole but, from the perspective of analyzing the ethics of China's use of AI in the medical domain, principles (1), (2), and (5) are the most important. They highlight that, in contrast to the West, where electronic healthcare data are predominantly focused on individual health, and thus AI techniques are considered crucial to unlock 'personalized medicine' (Nittas et al. 2018), In China, healthcare is predominantly focused on the health of the population. Therefore, the encouragement of the open sharing of public data between government bodies (Outline for the Promotion of Big Data Development, 2015), promotes the collection and aggregation of health data without the need for individual consent, by positioning group beneficence above individual autonomy.

However, the Chinese logic above does not imply that China's approach to the use of AI in healthcare is acceptable or raises no ethical or Democratic or Human Rights concerns (Roberts et al., 2021). The opposite seems actually true. In particular, the Chinese approach is still undermined by the risks of profiling, discrimination, invasion of privacy, interference in the exercise of freedoms and the violation of the security of individuals or the integrity of data systems. Public authorities still need to appoint an institution to provide national leadership in AI in general and that Human Rights should be addressed in all dimensions of AI.

6. CONCLUSIONS

China is a central actor on the development and governance of AI (Roberts et al., 2021). It is always crucial to comprehend China's internal needs, ambitions in the international arena, and ethical concerns, areas that shape the development of China's AI policies. It is also important to understand all this not just externally, from a Western perspective, but also internally, from a Chinese perspective (Roberts et al., 2021). However, some ethical safeguards, constraints and desiderata are universal and

are universally accepted and cherished, such as the nature and scope of human rights (Chan, 1999). This knowledge always helps to comprehend China's approach to the development of AI, along with the structural, cultural and political factors that ground China's stance on AI.

In this article it has been highlighted where ethical problems remain, arise, or are likely exacerbated. They should be addressed as early as it is contextually possible. It has become clear that AI technology in the surveillance context should be especially regulated from legitimate institutions. This must happen in order for the people's rights to be safeguarded, no matter the perspective. Diversity and freedom of speech and privacy need to always be maintained for a healthy and democratic society. When the surveillance technology remains strictly for the use of authorities, and thus, the protection of the civilians from malicious forces, the public audience is most likely going to feel less violated and more protected. When the surveillance technologies are being used from private corporations for lucrative purposes, or, in an extremely extended way such as the Chinese model, then the democratic infringement is inevitable. Such practices are associated with the struggle for preserving and increasing the power of the already existing authoritarian regime. After all, AI technologies should always act as assistance to human intelligence and not as its substitute.

An emphasis should be placed on the legal regulation of artificial intelligence systems used in the creation of social credit systems (Kuteynikov, et al., 2021). Modern states have formed several approaches to the creation of such systems: some of them completely prohibit these systems, while others develop a technological and regulatory framework for the creation of national systems. In the UK, it is allowed to use real-time face recognition systems in public spaces but the set of scenarios and situations for their use is significantly limited by legislation and law enforcement. The legal regulation of these systems in each state is based on a constant dialogue between state and civil society.

This paper outlined the dangers in Chinese modern society in the light of the development of AI in the fourth industrial revolution. The areas of Human Rights that are threatened by these advances in science and technology have been highlighted in cases where they are not properly monitored and regulated through legal advances (Angjeli and Luli, (2021). The historical and regional aspects of legislative regulation of the use of AI units and robotics should carefully be further investigated. The prospects of collision of AI units with interests of mankind, as well as the possible legal mechanisms of the resolution of the conflicts arising between them should also be an object of further analysis.

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EFFECT OF GEO-BOARD ON PRE-SERVICE TEACHERS' ACHIEVEMENT IN INTRODUCTION TO COMPUTER SCIENCE IN TERTIARY INSTITUTIONS IN NIGERIA

JOHNBOSCO O.C. OKEKEOKOSISI[*] and ADAUZOH C. JOE-OBASI[**]

ABSTRACT

The study investigated the effect of Geo-board on Pre-service Teachers' Achievement in Introduction to Computer Science in Tertiary Institutions in Nigeria. The sample comprised 161 per-service teachers and the pre-test, post-test non-equivalent control group design was employed. Per-service teachers in the experimental group were taught the concept of flowcharts using geo-board as an instructional material while those in the control group were taught the same concepts not using instructional materials. Flowchart Achievement Test in Introduction to Computer Science (FATITCS) with reliability index of 0.95 was used for data collection. Research questions were answered using means and standard deviations while the hypotheses were tested using Analysis of Covariance at 0.05 level of significance. Per-service teachers in the experimental group recorded better and significant achievement in introduction to computer science than their counterparts in the control group. Gender was found to have a significant effect on the introduction to computer science achievement of per-service teachers exposed to the use of geo-board as an instructional material in instructional delivery. It was recommended that lecturers should adopt the use of as an instructional material like geo-board in teaching-learning process to enhance pre-service teachers' achievement in introduction to computer science.

Keywords: Geo-board, Pre-service Teachers, Achievement, gender.

1. INTRODUCTION

In recent times, the desire to improve pre-service teachers' academic achievement through more effective use of instructional materials – learning resources that is learner-centered and activity oriented has called attention of researchers, parents and educational specialists. The attention is drawn towards ensuring how learners learn, how they perceive learning and how to help them learn concepts easily. Hence, the use of geo-board as an instructional material in teaching flowcharts as a topic to pre-service teachers (PST) in tertiary institutions in Nigeria.

[*] Lecturer II, Computer Education Department, Federal College of Education Technical Asaba, Delta State, Nigeria

[**] Principal Lecturer, Computer / Robotics Education Department, Nwafor Orizu College of Education, Nsugbe, Anambra State, Nigeria

Instructional materials – learning resources (IM / LR) have been defined by various authors in various ways as; didactic material things which supposed to make learning and teaching possible and meaningful (Obanya in Oladejo, Olosunde, Ojebisi and Isola, 2011). It can be locally made tools / materials or imported that could make tremendous enhancement of lesson impact if intelligently used. As for Olayinka (2019), IM are learning resources that help the teachers to communicate clearly and effectively to learners during instruction. The use of IM / LR for teaching and learning by teachers could stimulate self-activity, easy learning, motivation, improve achievement and retention on the part of pre-service teachers. Furthermore, Kalu-uche and Duru (2018) stated that IM are grouped into various classes such as audio, visual, audio-visual and so on, depending on the sense to which they appeal. Other classes include projected, non-projected, simulation and real things. The assortment of instructional materials, abound. However, for instructional materials to be useful, it ought to be carefully selected to align with the instructional objective. Using suitable instructional materials could enable the teachers / lecturers to effectively illustrate concepts to communicate with learners as well as to stimulate, promote learners' academic achievement, sustain learners' interest and enthusiasm to learn.

Hence, the backdrop of pre-service teachers' unimpressive academic achievement in internal examinations in introduction to computer science in various tertiary institutions of learning in Nigeria could be attributed to large enrolment of pre-service teachers, pre-service teachers' poor communication skills and lecturers' / teachers' pedagogical difficulties in teaching some concepts like flow chart in introduction to computer science. Therefore, there is need to determine an effective IM that could facilitate pre-service teachers' understanding of computer concepts like flow charts through the use of geo-board as an instructional material (IM) in teaching flow charts as a topic in introduction to computer studies.

1.1. Statement of the problem

Per-service teachers' poor performance in computer science, particularly in flowcharts, is a big concern to parents, computer science lecturers – teachers, computer science department and examination bodies. Experience shows that often the problem is related to the way teachers teach computer science in classrooms. Okekeokosisi and Okigbo (2021) argue that some teachers tend to teach computer science - computer studies in abstract terms which prevent learners from seeing the connection between real life problems and computer science. Our experience reveals that most learners are unable to prove theorems in conjunction with previously learned concepts. It seems that most learners answer flowcharts questions with no real understanding of it.

1.2. Purpose of the study

The purpose of the study is to investigate the effect of geo-board on per-service teachers' academic achievement in computer science. Specifically, this study will investigate the effect of geo-board on the:

1. Per-service teachers' achievement in introduction to computer science
2. Achievement of male and female Per-service teachers in introduction to computer science
3. Interaction effect of gender and instructional method on JSS students' achievement geometry.

1.3. Research questions

The following research questions were formulated to guide the study:

1. What is the effect of geo-board on Per-service teachers' mean achievement scores in Introduction to Computer Science?
2. What is the effect of geo-board on male and female mean achievement scores of Per -service teachers, in Introduction to Computer Science?

1.4. Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significant.

$H0_1$: There is no significant difference in the mean achievement scores of Per-service teachers' taught Introduction to Computer Science using geo-board as an instructional material and those taught Introduction to Computer Science without the use of geo-board.

$H0_2$: There is no significant difference in the mean achievement scores of male and female of Per-service teachers' taught introduction to computer science using geo-board as an instructional material.

2. LITERATURE REVIEW

Geo-board is a short form for geometrical board which is currently called pegboards or pinboards. It can be use by children / adults to experiment with shapes by simply stretching rubber bands around a grid of nails. Geo-board was invented and popularized in the 1950's by the English Mathematician named Celeb Gattegno. It is seen as a versatile instructional material for teaching and learning of mathematics and

geometry (Scandrett, 2008). Similarly, Abonyi and Eze (2007) defined geo-board as a rectangular board with nails nailed into its surface that provide practical experience for learners during instructional process. It has an attribute of illustrating the given concept from its components which may provide enough activities for the learners. In addition, Russel in Saidu and Bunyamin (2016) described a geo-board as an instructional material that can be manipulated during teaching-learning process in other to learn geometry, measurement, numeracy, properties of plane shapes, area and perimeter of plane shapes. Finally, Olajide, Ekwueme and Ndioho (2020), summarized what geo-board is as an innovative, purposeful and learner-centered technique that make use of rubber bands or threads which are connected with nails for illustration of shapes, planes and they like. Hence, since geo-board involves the use of local made instructional materials to teach shapes, such can be applied in teaching of flowcharts in introduction to computer science.

Flowcharts are visual representation aids that emerged in our recent times. Such visual representation aids as include; charts, concept maps and so on (Almulla & Alamri, 2021). It is one of the instructional resources that have the potential to address the problems of effective teaching-learning. Udoh and Ekon (2018) defined flowcharts as diagrams, pictures or graphs which are intended to make information easier to understand. Such information can come in form of symbols, shapes, pictures, graphical representation of concepts that centers on the major steps of work in process. Also, Chaudhuri (2020) added that flowcharts are pictorial representations of the logic of a program. It is an appropriate and easier instructional material that improves students understanding of concepts. Afifi, Logeswari, Rahim, Norma, Hazwani, and Syaubari (2022) stressed that flowcharts help learners focus on information that guides them to interpret the solution of verse problems more clearly. Thus, the following are set of rules governing the creation of a flowchart as enumerated by Chaudhuri (2020):

- Only the standard symbols should be used in program flowcharts.
- The program logic should depict the flow from top to bottom and from left to right.
- Each symbol used in a program flowchart should contain only one entry point and one exit point, with the exception of the decision symbol. This is known as the single rule.
- The operations shown within a symbol of a program flowchart should be expressed independently of any particular programming language.
- All decision branches should be well-labeled.

Furthermore, flowchart is one of the topics taught under introduction to computer science. It deals with the ways of representing objects through the use of symbols-pictures and also the processes of an algorithm. It is important to identify each symbol by its name and its purpose as Onyesolu and Okide (2006) identified them as seen in figure 1.

FIGURE 1: SYMBOLS OF FLOWCHART CONTAINING ITS NAME AND PURPOSE

Symbol	Symbol Name	Purpose
	Start/Stop	Used at the beginning and end of the algorithm to show start and end of the program.
	Process	Indicates processes like mathematical operations.
	Input/ Output	Used for denoting program inputs and outputs.
	Decision	Stands for decision statements in a program, where answer is usually Yes or No.
	Arrow	Shows relationships between different shapes.
	On-page Connector	Connects two or more parts of a flowchart, which are on the same page.

	Off-page Connector	Connects two parts of a flowchart which are spread over different pages.

Source: *Extraction from textbook written by Onyesolu and Okide (2006)*

Symbols of flowchart containing its name and purpose are taught in tertiary institutions, secondary schools both in junior and senior secondary schools, likewise in upper basic as a topic in introduction to computer science or as a topic in basic science and technology or as a topic in computer studies or in data processing respectively. This shows great value and indispensable tool that aids human in detecting errors or omission in both writing programs and explaining the program to others.

Generally, flowcharts are useful towards effective communication, effective analysis and for easy debugging and efficient testing. Flowcharts have been useful to humans in diverse ways. Okafor and Odiliobi (2021) views its usefulness as a baseline to construct an effective teaching strategy premised on images and illustrations. Such a chart-driven technique allows teachers-instructors to connect learners with deep silos of extant information, while empowering students to retain the transmitted knowledge through methodical means.

Thus, the significance of flowcharts to learners-programmers and to the society at large has been emphasized as a diagram that depicts a process, a system or a computer algorithm. It is a diagrammatic representation of the solution to a given problem but more importantly, it provides a breakdown of the essential steps to solving the problem. Therefore, when designing and planning a process, flowcharts can help the user identify its essential steps and simultaneously offer the bigger picture of the process. It organizes the tasks in chronological order and identify them by type, e.g., process, decision, data, etc. Each step is independent of implementation as the flowchart only describes what should happen at that step, what input is needed and what the output of the step is but it says nothing about how to implement the step. Once a flowchart is in place, it can help find less obvious features of the process that can then be refined to improve its efficiency, i.e., bottlenecks, flaws, unnecessary steps. It should be seen as an evolving diagram. Thus, the following are guideline in developing a flowchart as highlighted by Onyesolu and Okide (2006):

- Flowchart can have only one start and one stop symbol;
- On-page connectors are referenced using numbers;
- Off-page connectors are referenced using alphabets;
- General flow of processes is top to bottom or left to right; and
- Arrows should not cross each other.

The highlighted guideline for developing of flowchart by Onyesolu et al points that flowcharts are essential tools for representation, communication, reasoning and development of skills. Furthermore, flowcharts and geo-board could be said to possess the similar features as they can be used as means of dissemination of information – communication. Notwithstanding that geo-board and flowcharts possess the same features but still, pre-service teachers find it difficult to identify symbol names of some flowcharts as indicated by Departmental Examiners Reviewers Report of 2018-2021. Such symbol names are start / stop, process, input / output, decision and Off-page Connector. It is based on this that researchers believe that there is need to research on pre-service teachers' academic achievement through the use of geo-board as an instructional material in teaching flowchart in introduction to computer science.

Lecture method is an oral and traditional method of teaching that involves one-way process of transmission of knowledge with the lecturer and teacher being active while the learners are passive. It is a talk and chalk approach in teaching and teachers are seen as the custodian of knowledge and thus dominate the lesson (Nwoji, Nonyelum & Attah, 2019). Under this method therefore, students often try to capture what is being said at the instant the speaker says it. They cannot stop to reflect upon what is being said and they may miss significant point because they are trying to ascribe the instructor's words (Noel, Daniels & Martins, 2015). By contrasts, the use of flowchart such as symbols and arrows put lecture under the control of students. Lectures could be understood, retention, learners interest sustained and learners can as well acquire creative skills for human development and sustainability.

In addition, another variable that may interfere with pre service teachers' achievement is gender. Gender refers to the amount of masculinity and feminists found in human beings, the normal man has preponderance of feminist (Onah & Onwubuariri, 2018). Gender is a social term that is set to differentiate males and females in terms of their different roles and responsibilities. Gender difference in learners' achievement – performance in computer science has been a long-debated issue and so, few researchers have focused on gender differences in the use of geo-boards as an instructional material to teach so as to examine the possible differential effect on male and female per service teachers' academic achievement in computer science.

Academic achievement is the totality of what an individual (a student) is able to learn on particular subject contents over a specified period of time. Eze and Onyenwe (2018) defined academic achievement as the overall information and skills acquired by students through experience or education. When the students – pre service teachers become active in the teaching-learning process, greater academic achievement is bound to take place. This advocates why researchers are calling for the use of appropriate leaner-centered instructional materials during instructional process for per service teachers' academic achievement. The quest for appropriate leaner-centered instructional materials that could enhance per service teachers' academic achievement

necessitated the present study which investigated the effect of geo-board on per-service teachers' academic achievement in computer science.

3. METHODOLOGY

The study employed the non-randomized, pre-test, post-test, non-equivalent control group design. The population for this study consisted of all direct entry part-time year two-degree students that had obtained National Certificate of Education (NCE) in any Federal Colleges of Education in Nigeria and had enrolled as part-time degree student in any Federal Colleges of Education in Nigeria. These direct-entry part-time year two-degree students are teachers teaching in any approved private or government owned schools that desire to upgrade themselves in academics. Thus, they are addressed in this study as Pre-service Teachers'. The institutions made use of the same self-study form and academic calendar. The choice of direct entry year two degree per-service teachers was because they were believed to have had passed through NCE program, had previous knowledge of computer studies during NCE program, previous knowledge of computer studies or data processing depending on the subject they offered in upper basic, previous knowledge through basic science and technology and are still under studies. Thus, purposive sampling technique was used to select only Federal Government owned Colleges of Education in Nigeria that is established in the South-South region. The essence of choosing federal government owned institutions is because they are being funded by stated government, they all have the same admission policy, they have same school fees range, same promotion policy and staffing. Hence, the sample for the study is hundred and sixty- one (161) undergraduate direct entry part-time degree pre-service teachers in federal colleges education in the country. Multi-stage random sampling and simple random sampling techniques were applied. Three federal colleges of education had been established in the south-south region of Nigeria and they had been accredited, admit undergraduate pre-service teachers into part-time degree programme offered in Federal colleges education in affiliation with Federal-established Nigerian universities were selected out of twenty-two (22) federal colleges of education in the country. Two federal colleges of education in the south-south region of Nigeria were used and purposeful assigned to two groups of experimental and control group. Therefore, sampling of subjects was not involved since intact class was used. Hence, two federal colleges of education in south-south region of Nigeria generated eighty-two (82) undergraduate pre-service teachers that were assigned to experimental group and seventy-nine (79) undergraduate pre-service teachers assigned to control group was used for the study.

The instrument used for data collection was the Flowchart Achievement Test in Introduction to Computer Science (FATITCS). FATITCS consisted of two sections namely, section A and section B. Section A was on undergraduate pre-service teachers' personal data consisting of items on the name of the institution, class and

gender while section B consisted of 30 multiple choice items with four options, A, B, C and D each. Each of the items in the FATITCS carried one mark, giving a total of 30marks for the 30 items adapted from past questions on introduction to computer science set by computer science education department. The selected questions from past questions were adopted for the study. The items were constructed by researchers and validated by experts. The reliability index of FATITCS was established as 0.95 using the Kuder Richardson Formula (KR 21).

The experimental group was taught the concepts of flowchart using geo-board as an instructional material. The experimental group was taught for six weeks while the control group was taught the same concepts for the same number of weeks without using geo-board as an instructional material. The researchers coordinated two research assistants in each of the schools used for the study who were lectures in the schools, two times in one week, on how to teach the identified concepts for the study using the lesson notes prepared by the researchers. One of the research assistants taught both the experimental and control groups to guard against instrumentation bias while the other research assistant stood on stand-by. In teaching the experimental group, the lecturer after introducing the particular concept to be taught and highlighting the objectives for the lesson, geo-board materials and explained the processes involved. Undergraduate pre-service teachers were actively engaged in hands on activities, observing, taking notes and asking questions to the lectures as the lesson progressed. The lecturers in turn answered the questions posed by undergraduate pre-service teachers. The lecturer summarized the lesson and finally evaluated it by posing questions to the undergraduate pre-service teachers on the concept taught to find out to what extent the objectives were achieved and if there was any need for further teaching. The control group was taught the same content as the experimental group for the same length of time but without the use of geo-board as an instructional material.

A pre-test was administered to the experimental and control groups before exposure of the groups to different conditions of teaching. A post-test was administered after six weeks of teaching to determine the effect of geo-board on pre-service teachers' achievement in introduction to computer science in tertiary institutions in Nigeria. Means and standard deviations were used to answer research questions while ANOVA was used to test hypotheses at 0.05 level of significance.

4. FINDINGS

Research Question 1: What is the effect of geo-board on Per-service teachers' mean achievement scores in introduction to computer science?

TABLE 1: MEAN AND STANDARD DEVIATION ON ACHIEVEMENT OF PER-SERVICE TEACHERS' TAUGHT INTRODUCTION TO COMPUTER SCIENCE USING GEO-BOARD AS AN INSTRUCTIONAL MATERIALS

Group	N	Ẍ	SD	Ẍ gain
Experimental	82	69.32	8.05	40.02
Control	79	42.35	10.90	12.75
Total	161			

Source: *Data collected from experiment*

The result in Table 1 revealed that the mean gain scores of Per-service teachers exposed to geo-board as instructional materials and those per-service teachers not exposed were 40.02 and 12.75 respectively. This indicates that the experimental group had higher mean gain in FATITCS than the control group.

Research Question 2: What is the effect of geo-board on male and female mean achievement scores of per-service teachers, in introduction to computer science?

TABLE 2: MEAN AND STANDARD DEVIATION ON ACHIEVEMENT OF PER-SERVICE TEACHERS, BASED ON GENDER

Gender	N	Ẍ	SD
Male	40	64.50	9.31
Female	42	73.91	6.82
Total	82		

Source: *Data collected from experiment*

Date from Table 2 reveals that the FATITCS post-test mean scores of male and female Per-service teachers exposed to the use of instructional materials (geo-board) were 64.50 and 73.91. The result indicates that female Per-service teachers appear to achieve better than male Per-service teachers in FATITCS.

4.1. Hypotheses

Hypotheses were tested at 0.05 level of significance.

$H0_1$: There is no significant difference in the mean achievement scores of Per-service teachers' taught Introduction to Computer Science using geo-board as an

instructional material and those taught Introduction to Computer Science without the use of geo-board.

TABLE 3: ANALYSIS OF COVARIANCE (ANCOVA) RESULTS OF PER-SERVICE TEACHERS', TAUGHT INTRODUCTION TO COMPUTER SCIENCE USING GEO-BOARD AS AN INSTRUCTIONAL MATERIAL, AND THEIR COUNTERPARTS WHO WERE NOT TAUGHT INTRODUCTION TO COMPUTER SCIENCE USING GEO-BOARD AS AN INSTRUCTIONAL MATERIAL

Source of variation	Type III Sum of squares	d.f.	Mean square	F	Sig	Partial Eta Squared
Corrected Model	29250.951[a]	1	29250.951	317.905	.000	.667
Intercept	501764.342	1	501764.342	5453.277	.000	.972
Groups	29250.951	1	29250.951	317.905	.000	.667
Error	14629.832	159	92.012			
Total	550346.000	161			.000	
Corrected Total	43880.783	160				

R Squared = .667 (Adjusted R Squared = .665)

Table 3 shows that F (1,159) = 317.905, p = 0.000. The effect of geo-board is statistically significant and very strong as indicated by partial eta square of 0.667. Therefore, the null hypothesis was rejected. This means that there was a significant difference between the mean score of per-service teachers taught using geo-board as an instructional material and that of per-service teachers taught without the use of instructional materials (geo-board) in favour of the per-service teachers exposed to geo-board as an instructional material as confirmed by the higher mean gains returned by the per-service teachers in the experimental group.

$H0_2$: There is no significant difference in the mean achievement scores of male and female Per-service teachers' taught Introduction to Computer Science using geo-board as an instructional material.

TABLE 4: ANCOVA RESULTS OF MALE AND FEMALE PER-SERVICE TEACHERS' TAUGHT INTRODUCTION TO COMPUTER SCIENCE USING GEO-BOARD AS AN INSTRUCTIONAL MATERIAL

Source of variation	Type III Sum of squares	d.f.	Mean square	F	Sig	Partial Eta Squared
Corrected Model	1812.137[a]	1	1812.137	18.673	.000	.189
Intercept	392461.893	1	392461.893	4044.113	.000	.981
Groups	1812.137	1	1812.137	18.673	.000	.189
Error	7763.619	80	97.045			
Total	403574.000	82				
Corrected Total	9575.756	81				

R Squared = .189 (Adjusted R Squared = .179)

In Table 4, it shows that F (1,80) = 18.673, p = 0.000. Therefore, the null hypothesis was rejected. This means that there was a significant difference between the mean scores of male and female per-service teachers exposed to geo-board as an instructional in teaching and learning of flowchart as a topic in introduction to computer science.

5. CONCLUSIONS, DISCUSSION, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEACH

This study has shown that geo-board as an instructional material in teaching and learning improves Per-service teachers' achievement in introduction to computer science. The result is in conformity with other findings not only in computer science but in other subjects. The use of instructional materials in the teaching and learning of computer science reduces the abstract nature of computer science but rather makes learning of computer science more meaningful and more interactive and interesting.

5.1. Discussion

The purpose of this study was to find out the effect of geo-board on per-service teachers' academic achievement in computer science. The results of the study showed that the use of geo-board as an instructional material in teaching led to improvement of Per-service teachers' achievement in computer science. Gender was also shown to have significant influence on Per-service teachers' achievement when geo-board is used as an instructional material in computer science instruction. The result presented in the Table 2 reveals that male and female Per-service teachers exposed to the use of geo-board as an instructional material in teaching computer science had post-test mean scores of 64.50 and 73.91 respectively. The result further revealed that female Per-

service teachers achieved better than male Per-service teachers in Flowchart Achievement Test in Introduction to Computer Science.

The findings in Table 3 reveals a significant difference between the mean achievement scores of Per-service teachers taught with geo-board as an instructional material in teaching and those of Per-service teachers not exposed. This implies that geo-board as an instructional material facilitated Per-service teachers understanding of introduction to computer science concept better. This result agrees with the findings of the study carried out by Mohd, Logeswari, Rahim, Anis and Syaza (2022) which indicated that geo-board as an instructional material in teaching proved to be more effective in learning flowchart in introduction to computer science. The finding is also in agreement with Olajide, Ekwueme and Ndioho (2020) which showed that geo-board promotes higher achievement of students.

The results of the experimental group based on gender showed that female Per-service teachers achieve better than their male counterparts taught flowchart as a topic in introduction to computer science. This result is at variance with Sani and Salahudeen (2016) which did not show any significant difference in gender when students were exposed to the same environmental condition. This indicates that the use of geo-board as an instructional material is gender friendly.

The superiority geo-board as an instructional material in teaching and learning engages learners in practical oriented activities and promotes meaningful learning.

5.2. Recommendations

Based on the findings above, the following recommendations are given:

- Computer science lecturers in tertiary institutions should use instructional materials (geo-board in teaching of computer science concepts.
- Computer science lecturers should use gender-friendly instructional materials that would improve male and female Per-service teachers' achievement in computer science.

5.3. Suggestions for further research

The findings of this study have generated some areas for further study.

1. A replication study should be carried out with larger sample than the one used in this study in other education zones or in other states of the federation so that the findings could be compared.
2. Research should be carried out on effect of Geo-board on Pre-service Teachers' retention
   in Introduction to Computer Science in Tertiary Institutions in Nigeria.

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VIDEO PRODUCTION AS A CITY-BRANDING TOOL

DIMITRIOS SIDIROPOULOS*

ABSTRACT

City branding is based on the idea that cities can also be branded. Place branding has been established as a valid space management function. By creating a strong and positive brand image, cities can position themselves as attractive destinations for residents, visitors, and businesses. Video, like a powerful tool, can convey complex issues in an engaging and easily understandable way. The paper examines how video production can be standardized as a tool for creating successful city branding. The text begins by discussing brand concepts. It then deals more specifically with the concepts of city branding and the relationship between video and geographical space. In the end, the results of the research are presented, which concerns the creation of a standardized video production method, which allows the branding team to express its requirements through the possibilities and peculiarities of the project.

Keywords: Branding, City Branding, City, Video, Video production.

1. INTRODUCTION

Branding is a part of marketing. City branding is one of the marketing processes that has been extended to cities and aims to transform a city into a desirable destination. Globalization has made cities a competitive product to be marketed and survive in the market.

1.1. Objective of the paper

The main question of the study is to explore how an audiovisual production (video) can be an effective, systematic tool in a process of creating and promoting a strong brand for cities. The aim of the research is to try to create a standardized production tool, which will be able to codify the process in a friendly, clear and valid way.

Initially, the paper approaches basic concepts, versions, and scales of branding in general, focusing on city branding, and presents notable examples of city branding implementation. Finally, a methodological grid is formulated that combines the basic technical requirements of video and the requirements for marketing products, specifically the specific product, which in our case is the city.

* PhD candidate, Department of Geography, University of the Aegean

2. LITERATURE REVIEW

2.1. From marketing to branding

Place branding has been established as a valid space management function, complementary to planning. In the context of place marketing, which has broader place management objectives, regions around the world are shifting their focus towards branding, increasingly introducing the concept and techniques of branding products and companies. The emergence of the branding-design relationship is an effort that contributes to the introduction of a new factor in urban design, that of branding.

This is a trend that has flourished in recent years, under the influence of the increasing role of image-based strategies and the growing importance of the cultural and entertainment industries in the modern economy, both for visitors and the local population. Research on city branding is still in its early stages, hence there is great scope for further research in this area (Kasapi, Cela, 2017).

The field of research, the Greek town, although it is the main reservoir of processes of evolution of national urban systems, has not received the appropriate attention, especially from the central administration, which bears the responsibility of planning. The more general research quest is to explore answers to key questions related to the characteristics and the role that semi-urban centers are called upon to assume in the wider development process. Semiurban centers cannot compete with metropolitan areas. They do not have the potential and centrality of geographical location to claim this role. Their development planning is mainly directed towards maintaining their population size, attracting some of the internal movements from the countryside, so that they can survive against the growth of metropolitan areas (Asprogerakas, 2003).

However, the logic of the modern production process and the needs of the new economy make urban growth largely independent of the size of the region. It is allowed and required for semi-urban centers to claim a share in the urban network or even a remarkable position in it, by developing an intermediate functional category; this can be a general guiding objective for a balanced distribution of population and economy in the area. Semi-urban centers have difficulty in developing economies of scale. Their targeting focuses mainly on the choice of specialization in terms of the distribution and marketing of goods and services at the production level. This is the point of intervention of the brand. Urban branding should contribute not only to regional development and identity but also to sustainable economic prosperity and public happiness (Hemelryk-Donald, Gammack, 2007).

Nowadays, the boundary of the distinction between the projection of space and its production in terms of design is increasingly blurred (Porter, 2016). The third research direction is firstly the emergence of audiovisual art as a dominant tool and secondly

the standardization of the terms of image use as the element of analysis for the creation of urban branding. Audiovisual arts attempt to replace a function that until now has been held by the text. This is a cultural revolution which goes by the name of the age of the image. The current era tends to displace the text, and this means that today's society evaluates the world differently than in the past (Flusser, 2008).

In a more general context, this research proposal aims to provide a "road map" in the process of audiovisual product production, i.e., to create the framework of regulation of operation for the creation of urban branding for Greek semi-urban centers; to identify the parameters that should be used initially for branding and then the selection of specific technical parameters depending on the form and type of the city. In other words, to create a tool selection grid to optimize the methodology and techniques for urban branding.

2.2. Branding

Branding is an area of marketing that aims to create and manage the brand name of a product, company, or place. In marketing, brand management consists of analyzing and designing how the brand is perceived in the market. Developing an appropriate relationship with the target-market is essential for brand management. The visible elements of brand management include the product itself, its appearance, its 'packaging', etc. The intangible elements are the experience and the relationship that the consumer has with a particular brand. The brand must be a source of promise to the consumer.

Defining the brand creates the basis for all other components to be leveraged. Defining the brand is the necessary and essential condition that serves as a tool for evaluating all the material for the marketing strategy. Branding is strategy and marketing is tactical.

2.2.1 The image of the place (Figure 1)

In marketing, branding is broadly defined as the set of impressions that consumers have in their minds about a brand (Aaker, 1991). In the field of tourism, however, a distinction between the image evoked, the organic image, and the image created because of the visitors' own stay in a place, comes into play.

The organic image is the result of the consumer's perception of non-tourist sources of information such as newspapers, magazine articles, television reports, films, and the opinions of acquaintances. Therefore, a person who has not been to a place may consider it as a possible choice and may of course have formed an image of it.

This image is deliberately created by tourism agents (through advertisements, brochures, tourist guides, travel agents' advice) aimed at 'selling' the destination. This image can alter the organic image initially formed by the consumer, confusing the

consumer as to the nature of the destination's tourist product. Finally, the image created because of the visit to the place transforms the two previous ones into a new composite image (Frochot et Legoherel, 2010).

There are often large differences between the image created before the visit and the one created after it. This is the result of a lack of knowledge that makes it difficult to perceive the identity of the place. Visitors generally have a simplified image, where it is difficult to understand what the destination really offers, which can only be understood by staying in the place in question.

For the selection of a destination, branding is a decisive factor (Baloglu and McCleary, 1999). Selection is based on the ability of the place to create a positive image, mainly by communicating about the beneficial and special features of the destination (Gartner, 1989). As a result, when different places compete, the strongest and most distinctive image, which occupies a dominant position in the minds of the visitors, is rewarded.

2.2.2 The necessity of branding

Before visiting a place, the visitor has a limited amount of information about it, especially when it is the first time. Thus, the visitor seeks information before, during and after his visit to the place. For travel, one of the main sources of information is word of mouth (Maunier, 2008). In the face of the variety of options offered and the distance that separates the visitor from the destination, the importance of positive recommendation for the visitor is very important. Consequently, since travelling to a destination constitutes a complex decision, making it not only justifies but requires the use of intermediaries.

In other words, the existence of strong and positive associations in the mind of the consumer influences his positive attitude towards the brand. Only those associations that are perceived by the consumer as positive, strong, unique, and coherent build the image dynamic (Keller, 1993); they influence, for example, both the preference for the brand as a whole and the prospect of revisiting it. That is, it is expected that a visitor with a strong and positive view of a destination's brand is more likely to visit and recommend it to others.

2.3. Place branding

Place branding is a governance strategy aimed at projecting images and managing perceptions of a place. It is a process that is based on a system of relationships aimed at consumer perception, which is based on the visual, verbal, and behavioral expression of a place and those who make it up. These relationships differ in terms of consumer influence and response. Place branding seeks to influence perceptions of a place and position it favorably in the minds of targeted groups.

Place branding can be understood as a toolbox of methodological tools, techniques and practices that enable a geographical destination to enhance its attractiveness. Targeting a region's branding means that places, cities, regions, or entire countries can be considered as brand names. Place branding has roots in marketing but also in disciplines such as regional development and spatial planning.

2.3.1 The potential recipients place branding

The space branding strategy highlights several objectives which are clearly distinguishable although they are interlinked and interact with each other. The geographical area gives meaning to the development actions by targeting the visiting public, the staff working in the area and the geographical area itself. Improving the quality of services aims to increase visitor satisfaction. Visitors are the initial main target. The first function of a brand is to guard it both externally and internally; it is a guarantee for creating a relationship of trust both with visitors and internally, by achieving objectives such as improving the quality of services to satisfy the visitor-customer. The image of a poor brand reinforces dissatisfaction, whereas a strong brand encourages the visitor to develop a sense of belonging to the geographical area. The branding of a place helps to create a new relationship with the visitor and is therefore a lever for the modernization of the area.

In addition to the management of the brand, there is also the management by those responsible for its promotion strategy working based on a common plan, namely the staff. The people who make up the staff make it possible to clearly articulate the objectives, mission and specificity of the brand and can be the true ambassadors of the branded area. But vice versa, the mission to promote the brand can be an inspiring common ground that resonates with the very staff working for this purpose (Chassillan, 2018).

A place branding strategy provides the guiding logic for a place to grow in a cohesive way. The logic of a specific place branding logic pushes the geographic whole to work in respect of the defined strategy and makes it possible to differentiate the identity of the place to make it more attractive to a variety of different audiences. In addition, a strong place brand can generate additional economic resources by developing derivative products related to the place brand, as well as attracting the interest of partners, funders and sponsors who would like to support an effective and strong brand.

FIGURE 1: PLACE BRANDING: LES CHATEAUX DE LA LOIRE

2.4. The city branding (Figure 2)

Cities are major centers of commerce, trade, finance, and culture. They are home to many of the world's largest and most influential businesses and organizations, and they play a key role in shaping the global economy. They are home to many of the world's largest and most influential businesses and organizations, and they play a key role in shaping the global economy.

Branding can be especially important for cities because it helps to create a unique and recognizable identity, which can be used to attract new businesses, investment, and talent. Cities can use branding to showcase their strengths, such as their diverse cultures, world-class infrastructure, and rich history, and to position themselves as hubs for innovation, creativity, and economic growth.

In short, branding can be a powerful tool for global cities to differentiate themselves from other business cities, increase their visibility, and create a competitive advantage. By creating a strong brand, global cities can attract new businesses, investment, and talent, which can help to drive economic growth and boost their global standing.

Within the context of place branding, the research will focus on city branding. City branding can be seen as a variant of the concept of place branding. Urban branding is a visual that uses marketing techniques to promote and exploit a city. The growing

importance of urban space in the context of globalization consists of attracting human and capital resources to improve their development. In this context of competition between cities, techniques used in the economic world, such as marketing, are also developing and have been adopted by decision-makers at the urban level.

City branding is comparable to product branding. It is known that products and services with strong branding can be sold more easily - attracting people and investment - compared to other poorer brands (Schoja, 2016). City branding has emerged as a fast-growing internationally recognized research field, characterized by a high degree of interdisciplinarity between different fields of science. In this context, it should be a component of the image of the core competencies and characteristics of the product in the market. In other words, it is appropriate to motivate customers to use the product in question. The brand name is the guide to understanding the purpose of the city's business objectives, allows for the harmonization of objectives and the fulfillment of the dominant strategy.

City branding refers to all activities aimed at transforming a city from an anonymous geographic location to a desirable destination. City branding refers to the application of branding techniques to geographical locations. However, as city branding is often confused with marketing, it is appropriate to highlight the difference between the two. The difference is that marketing uses consumer wants and needs as a guiding principle, whereas in the case of branding the basic direction is a chosen vision for the mission and identity of a city or region, which may not be identical to the needs of the consumer audience.

Therefore, city branding creates a single brand for the city and extends to everything it offers and its interactions. This creates a unique image of the city to the customer. A good city brand is a worthy promise, a promise that must be kept. Good branding can make a city desirable, just as creating a "bad name" can be devastating and difficult to reverse for a city's reputation. Successful city brands can be based on history, quality and lifestyle, culture, etc. Equally important is the creation of a clear and distinctive place in the space where the city wants to play a role.

Of particular interest is the fact that field data, press interest and theoretical contributions on this topic show that culture and entertainment play an important role in local economic development. Furthermore, the transformation of derelict industrial sites into culture and leisure areas that has been observed across Europe is seen as an important practice in revitalizing the local economy. The creation and enhancement of place branding can be achieved through the promotion of promotional material for new cultural areas, with the promise of 'exciting' entertainment opportunities, with an emphasis on cultural events, festivals, and major cultural projects. Particularly effective in enhancing the branding of the area is the organization of small or large-scale art events, sporting and other types of events and festivals.

So far, the literature on place branding has mainly addressed the possibility and conditions for utilizing knowledge from the field of marketing products in the specific

business environment of places and notes a clear shift and preference for place branding. In the following we will explore some typical examples of urban branding.

FIGURE 2: CITY BRANDING: DAVOS

2.5. Geographical space and audiovisual production

The image, which was introduced into our everyday life at the end of the 19th century and became widespread thereafter, today plays a dominant role in media and entertainment as well as in the spread of science. A key question that arises is whether the demands of the entertainment industry in general and recent digital developments can be reconciled with the complex process of the scientific approach to urban space, so that the image can be transferred to the screens while respecting the conditions of proper documentation and respect for reality.

2.5.1 Geographical space and audiovisual production.

In recent decades, issues relating to the media have found fertile ground in geography. In economic geography in particular, issues relating to the production and distribution of media and to consumption are being studied. This is related to the development on the part of the digital media economy and cultural industries. Media have created an environment of information and ideas as communication technologies include a wide range of activities such as book publishing, radio, cinema, television, audiovisual media.

Cinema has been used by geography since its beginnings as evidence of the presence of people and places. Films are behavioral maps through which the modern world can be navigated. Audiovisual production is one of the most important institutions in the construction of an increasingly visualized and theatricalized world (Gilian, 2009). In particular, the relationship between audiovisual production and the city is increasingly recognized as the key background for the study of visual and aesthetic experience, form and style, perception, knowledge and meaning of the cinematic image and text.

The image itself is a spatial experience. Part of the viewer's satisfaction is to imagine that he or she inhabits a virtual space, different from the real one. It allows the viewer to experience something different from their own reality. Although this dynamic may be limited, either by the skill of the creator or the viewer's cognitive background, it plays an important role in accepting a geographical place or challenging it (Corbin, 2014).

When geographers are interested in a production as a cultural good, as an object of symbolic value within the globalized economy, they choose to follow the approach: production - product - distribution - consumption (Lukinbeal and Sharp, 2014). The significance of audiovisual products must necessarily be considered in relation to the economic conditions of production and consumption. Research can focus on a range of issues, from the film production, distribution, and consumption industry to the transnational practices of film industries.

There is sufficient literature that provides the general guidelines for the study of geography in relation to film. We can say that in the relevant literature two schools can be distinguished: The American school, which emphasizes the cognitive response of individuals to the media, and the European school, which is mainly based on social theory and emphasizes the role of media in society.

3. METHODOLOGY

This research has as its main background geography, both economic geography, which is related to the status of branding as a marketing sector, and urban geography, within which the audiovisual production of the city's image is embedded. For the final objective, that is the creation of a standardized audiovisual production tool, in which group decision making is required between a set of variables (**market cycle**: pre-sale, resale; **stages of purchase decision**: awareness, desire, prestige, maintenance, support; **production costs**: low, medium, high; **competitive advantages**: creation, maintenance, reintroduction of advantages), multiple trade-offs between alternatives must be taken into account.

Multi-criteria analysis (MCA) was used. MCA allows each internal team to argue its point of view, instead of having an exclusive synthesis of the data of a problem, to make the necessary synthesis of the problem, based on the rules that the decision-

maker(s) wants to follow, considering all the different aspects of the problem that arise during the decision-making process.

The MCA allows each group to support its point of view, and to put forward the values that each one considers important so that, rather than having an exclusive linear synthesis of the data of a problem, the necessary synthesis of the problem can be made, based on the rules that the decision-maker(s) wants to follow, taking into account all the different aspects of the problem that arise in the decision-making process (Belton and Stewart, 2002), (Triantaphyllou, 2000).

During the Multi-Criteria Decision Analysis process, first the different options were identified and immediately afterwards an evaluative comparison was made between them which involved the results, performance, impacts and trade-offs between them.

To create the standardized audiovisual production tool, a series of questions (the variables) were posed progressively, each of which yielded multiple responses. New questions were asked, and new answers were given. A cycle of questions and answers was created that was deemed to respond satisfactorily to the objective, i.e., the creation of a standardized production tool.

More specifically, the first question concerns decision making on the buying cycle (answers: pre-sale, post-sale. The second question concerns the stages of purchase decision (answers: awareness, desire, prestige, maintenance, support. The third question is about production costs (answers: low, medium, high. The fourth question is the competitive advantages (answers: creation, maintenance, re-introduction of advantages).

Finally, the "customer" creates his own scheme by considering multiple trade-offs between alternatives from the answers. The above logic is concretized in the formula of Table 2.

4. FINDINGS

4.1. Video as an instrument

Video can be a powerful tool for creating a successful branding for cities. Cities can use videos to showcase their unique features, culture, attractions, and overall identity. A well-produced video can help to create a positive image and perception of the city in the minds of potential visitors, residents, and investors. Here are different ways that video can help create successful branding for cities:

Showcasing the city's unique identity, can help to convey a city's unique identity and culture to potential visitors and residents: city's history, architecture, landmarks, festivals, and local businesses, and showcase the people who call the city home.

Creating emotional connection by showcasing the city's beauty, attractions, and people, a video can help to create a sense of excitement and emotional attachment to the city.

Highlighting economic opportunities. Videos can be used to showcase the city's economic opportunities, such as its thriving business sectors, innovative startups, or emerging industries.

A well-produced video can help to create a consistent brand message for the city across all marketing channels. By showcasing the city's unique identity, attractions, and opportunities, a video can help to reinforce the city's brand message and create a strong, positive image in the minds of potential visitors, residents, and investors.

4.2. The procedure

How can and should a small city choose video production to build a strong brand? Which small cities and with what features can choose between a range of options and categorizations of video branding productions? They are questions that the study tries to answer.

City branding has a creative part and a technical part. The technical part, the production, concerns the financial part. The question has two main parts, the first concerns the product (video production) and the second the potential customer (cities). The technical aspects of city branding through video, such as production costs, production cycle, supply and demand, focus (direct or indirect), dissemination method (digital or non-digital), and the competitive landscape, can serve as a framework or guide for the creation of a successful video that contributes to the success of city branding. The question has two main parts, the first concerns the product (video production) and the second the potential customer (cities).

A method to arrive at a tool that can cover all questions is multicriteria analysis. Multicriteria analysis can contribute to the creation of a successful city branding video production tool. Multicriteria analysis involves evaluating a set of criteria and criteria weights to make informed decisions.

This approach can help prioritize and weigh the various technical aspects of video production, such as production costs, production cycle, supply and demand, focus, dissemination method, and market presence, to ensure that they align with the overall goals and objectives of the city branding campaign.

For example, by considering criteria such as production costs, production cycle, supply and demand, focus, dissemination method, and market presence, cities can weigh the trade-offs and make informed decisions about their video production. This can help them create a video production tool that balances the various criteria and aligns with their branding goals and available resources.

Furthermore, through this tool, can also help cities identify their strengths and weaknesses and prioritize areas for improvement, leading to a more effective and efficient video production process.

To conclude, by using that, cities can ensure that their video production tool effectively supports their branding goals and contributes to the success of their city branding efforts.

4.3. The video production framework

Initially, the type of branding should be selected from several different types. This type can initially be categorized into two main groups, depending on whether the videos promote a brand implicitly or explicitly. The category of videos with implicit brand focus includes three subcategories, while the category of videos with explicit brand focus has thirteen different subdivisions. These two categories (videos with explicit vs implicit brand focus) are followed by three others (customer videos, customer support videos, corporate marketing videos), with less dynamics but only at a rhetorical level. All three categories can prove to be equally effective in promoting the brand in practice (Table1).

TABLE 1: GENERAL TYPES OF BRANDING VIDEOS

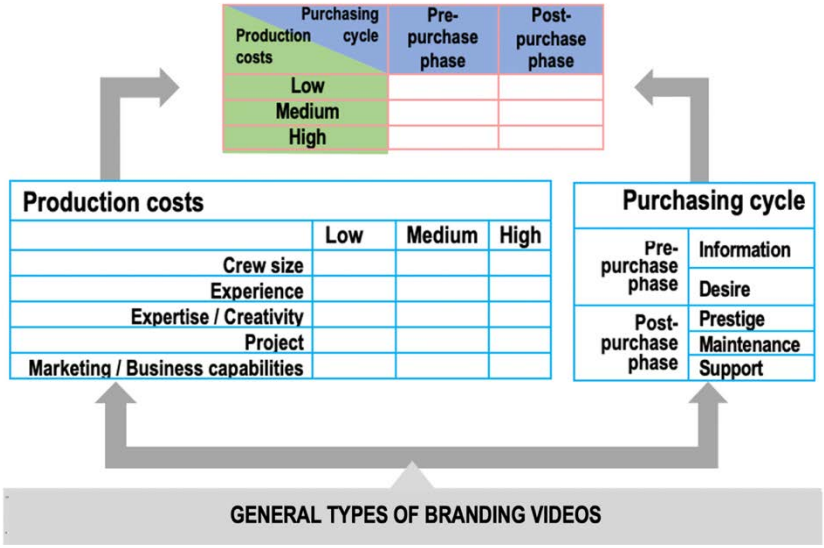
Videos with explicit brand focus. Informational branding videos. Product placement. Branded entertainment
Videos with implicit brand focus. Product marketing videos. Product demonstrations. Launch videos. Crowdfunding/Kickstarter videos. Explainer videos. Live videos. User generated video campaigns. Stunt videos. Event videos. Infomercials. Digital signage and billboards. 3D projection mapping. In-Store/Lobby/Office videos
Customer support. Customer support videos. FAQ videos. Company overview videos. Recruitment videos. Corporate marketing videos. Corporate event promo video. Behind-the-scenes video
Public relations. Corporate social responsibility videos. Community relations. Investor relations. Video press release. Public Services announcements

Source: *(Vidyard 2022), (Hill 2022) and (King 2023)*

The different options, of video production finally, is in a dual-input panel that the customer-city must combine according to the needs of the purchasing cycle and its production cost (Sidiropoulos 2022) (Table 2). The first parameter, the purchasing cycle stage, is a matter of relatively free choice. If this is the first time the city is interested in its brand, it has three different options: information, desire, prestige; if it has already created a brand name, it has two options: maintenance and support. The second parameter, the cost of production, although seemingly a matter of financial

status and available budget of a city or region, in fact leads to solutions related to the final quality.

TABLE 2: VIDEO PRODUCTION OPTION, STANDARDIZATION TOOL



Source: *Sidiropoulos, D. (2022)*

5. CONCLUSION

Video can be a powerful tool for creating a successful branding strategy. By showcasing the city's identity, attractions, and opportunities, video can help to create a positive image of the city and attract visitors, residents, and investors.

The findings are the outcomes of research, which has formed the Table 2. Each potential customer responds according to his own visions, etc. This gives him the possibility to create a new video production project each time, according to their own requirements.

This may involve creating a guide for video content, establishing guidelines for video length, format, and quality, and creating a content strategy that aligns with the cities overall branding goals. Standard setting production can help streamline the production process, reduce costs, and improve efficiency, allowing for more consistent video content creation. This can be especially important for city branding efforts, which often require engagement and communication with residents, visitors, and other stakeholders. While video production is just one aspect of successful city branding, standardizing process can help ensure that video content effectively communicates the city's message, strengthens its brand identity, and engages its target audience. This

approach involved one part of video city branding, production, a next stage of further research that emerged is the creative part that completes the process of a successful branding.

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The Cyprus Journal of Sciences

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AMERICAN COLLEGE

2 & 3 Omirou Avenue, eleftheria Square, P.O Box 22425, 1521 Nicosia, Cyprus
Tel: +357 22 368000, Fax: +357 22368001, Email: info@ac.ac.cy
www.ac.ac.cy