New Trends in Tourism II

Editors: Oğuz Çolak • Serdar Bülbül • Nuray Eker

ÖZGÜR PRESS

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Preface

Dear Readers,

The field of tourism is continuously being reshaped by global technological, social, and environmental transformations. The changing expectations of new generations, the rapid advancement of digitalization, the widespread adoption of artificial intelligence–based applications, and sustainability-oriented approaches have created significant turning points in both the academic and industry dimensions of tourism. This volume aims to address these transformation processes from a multidimensional perspective and to discuss the current dynamics of tourism as well as its future directions.

This book includes scholarly papers presented at the 4th International Congress of New Generations and New Trends in Tourism, which was held in Sapanca on 5 – 7 November 2025, hosted by the Faculty of Tourism at Sakarya University of Applied Sciences.

The primary contribution of this book lies in its systematic examination of issues that have become increasingly prominent in tourism literature, such as digitalization, sustainability, innovative business models, changing consumer profiles, and emerging experience-seeking behaviors. In this respect, the book seeks to bring together current trends that are often addressed in a fragmented manner in the literature, thereby providing conceptual clarity and establishing a solid reference point for future research. Furthermore, the studies included in this book are expected to offer valuable insights for policymakers and industry practitioners involved in tourism development.

Covering a wide range of subfields including tourism management, gastronomy, tourist guiding, recreation, digital tourism, and sustainable tourism, this volume serves as an up-to-date and high-quality reference source for academics, graduate students, and industry professionals. At the same time, by offering a critical perspective on the evolving structure of tourism, the book aims to contribute to the emergence of new lines of discussion within the academic literature.

We would like to express our sincere gratitude to all contributing authors for their scholarly efforts, as well as to the reviewers and everyone who supported the editorial process with their valuable contributions. We hope that this volume will make a meaningful contribution to the contemporary tourism literature, inspire future research, and provide its readers with diverse and insightful perspectives.

We wish you an enjoyable and enriching reading.

Editors

O. Çolak, S. Bülbül & N. Eker

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Chapter 1

AI-Supported Accessibility Solutions For Visually and Hearing-Impaired Tourists

Arife Mayuk Şanlı[1]

Şehnaz Demirkol[2]

Introduction

There are individuals with disabilities all over the world who face difficulties in both their daily lives and social activities. It is generally accepted that individuals with disabilities are deprived of the benefits of vacation enjoyment due to these difficulties in participating in tourist activities. Accessible tourism aims to enable their active participation in tourism by adopting universal design to create environments and products that eliminate these barriers (Darcy & Buhalis, 2011). Tourism is a tool that enables individuals' social, cultural, and economic participation. For this participation to occur under fair conditions and in accordance with the principle of inclusivity, all individuals must have equal access rights. Individuals with visual and hearing impairments, in particular, experience significant accessibility issues when participating in tourism activities. Artificial intelligence-supported technologies offer important solutions to address these accessibility issues. This enables individuals with disabilities to enjoy an independent, safe, and meaningful tourism experience (İşlek et al.,2024:239). In this context, the study addresses accessibility solutions for visually and hearing-impaired tourists, which have been subjected to thematic classification along with a literature review. This review synthesize current research on AI applications designed to enhance tourist experiences for these populations, highlighting areas where technological interventions can mitigate existing barriers (Stankov et al.,2024:1506). Despite the growing

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interest in smart tourism and the integration of Industry 5.0 technologies, there remains a notable gap in research specifically addressing how these advanced solutions can be effectively applied and integrated for disabled tourists (Topsakal,2018:3). This gap necessitates further investigation into how artificial intelligence and related smart technologies can bridge the accessibility divide, thereby more inclusive tourism experiences (Lin et al., 2022:1). However, studies in the literature that examine and summarize the application areas of artificial intelligence-supported technologies used in tourism for the visually and hearing impaired are also limited. Based on these considerations, the following research questions guide this study:

1) What are the current AI- supported accessibility solutions developed for visually and hearing impaired tourists and in which area of tourism is it applied?

2) How effectively do these AI-supported solutions adress the specific accesibility challenges faced by visually and hearing -impared individuals in tourism activities

2. Literature Review

The number of studies in the literature on the applications of AI in the field of accessibility is still limited. Nevertheless, there are studies that analyze different variables and examine different service areas. Işlek (2023) aims to evaluate future accessible museums; based on opinions of teacher candidates who have received museum education and instructors experienced in special education. In this qualitative research conducted using the phenomenological model and descriptive analysis method, participants emphasized the importance of technology use (mobile applications, virtual reality, and 3D figures) in increasing the accessibility of museums.

Domingues Vila et al. (2024) analyzed the accessibility elements of digital tourism platforms. The study aims to identify current patterns by examining both the technical accessibility and accessibility and disability-related content information of the official websites of leading global tourist destinations. The research aims to lay the groundwork for developing strategies to eliminate barriers faced by persons with disabilities in accessing tourism information and emphasizes the need to standardize variables related to technical access and accessibility content to enhance the effectiveness of Big Data inputs. It is stated that this standardization will increase the functionality of critical algorithms for the Internet of Things and artificial intelligence technologies. In this context, the article emphasizes the importance of improving the accessibility of digital platforms to create more inclusive and equitable tourism experiences.

Diaz-Parra et al. (2023) introduced navigation tools for visually impaired tourists. This study examines the concept of "smart tourism," emphasizing the adaptation of information and communication technologies to tourism. The article explains how this smart cane, which increases auditory recreation opportunities, particularly for visually impaired tourists, is enhanced with components such as Electronic Travel Assistants, Electronic Guidance Assistants, and Positioning Devices. Overall, this research aims to facilitate the participation of visually impaired tourists in sports, cultural, and scientific activities offered by smart cities and to highlight the role of technology in the smart tourism ecosystem.

Mills et al. (2008) examined the accessibility of websites in the hospitality and tourism sector, focusing particularly on the difficulties visually impaired individuals encounter when using these sites. The research analyzed twenty different websites in the sector, revealing numerous accessibility issues that prevent visually impaired individuals from effectively using these websites. This study emphasizes the importance of digital accessibility in the tourism sector, demonstrating the need to ensure equal access to information for tourists with disabilities.

In their study, Jensen et al. (2023) examines the existing body of knowledge in the field of hearing-impaired tourism and proposes an interdisciplinary research agenda. The article highlights that accessibility studies in tourism for individuals with disabilities generally focus on physical and visual impairments, but emphasize the lack of research on hearing-impaired tourists. The authors note that most existing studies have a manager-focused perspective and treat disabled tourists as a homogeneous group, while drawing attention to the importance of a post-phenomenological approach in understanding the experiences of hearing-impaired tourists. The study also proposes the new development of new methodological approaches in collaboration with fields such as sound studies and audiology to gain a deeper understanding of deaf tourists` social, cultural and emotional lives and tourism experiences. Within this framework, the research aims to achieve a more inclusive and nuanced understanding by re-conceptualization deaf tourism.

Rassiova's (2017) study examines the service experiences of visually impaired travelers in the hospitality industry areas using time-space approach. This study reveals that visually impaired individuals move more slowly in these areas, have more limited time-space prisms, and consequently receive fewer services. In his study (2025), Mohammed addressed the difficulties visually impaired individuals encounter while traveling through qualitative interviews. He emphasized that applications such as Seeing AI, Be My Eyes, Soundscape, and AllAbroad were used in his study, but due to connectivity issues and limited awareness, they were not always effective.

González-Mora et al. (2025) conducted a study proposes a Web Augmentation Framework for Accessibility (WAFRA4Tourism), which enhances the accessibility of tourism destination websites, particularly for visually impaired users. The framework integrates voice-based interaction and conversational user interfaces to provide easier access to information on content-rich tourism websites. The authors emphasize that this system is designed to be more helpful and user-friendly than traditional screen readers, enabling visually impaired users to browse and understand website content more easily and thus assisting with trip organization. While the study primarily focuses on visual impairment, it also considers other accessibility needs.

In the study by Teixeira et al., titled a road map is presented for developing information systems aimed at enhancing accessible tourism. This research focuses on improving tourism experiences for individuals with disabilities, emphasizing the development of solutions that cater to the specific needs of visually and hearing-impaired tourists. The study analyzes existing platforms and discusses the future integration of emerging technologies like artificial intelligence, highlighting the potential of information systems to create personalized and efficient tourism programs.

Chan et al. (2025) study focuses on how visually impaired individuals experience destinations within the scope of accessible tourism. It highlights that these individuals rely on non-visual senses (auditory and tactile) during their travels and emphasizes the role these senses play in enriching their tourism experiences. The article highlights the importance of destination managers offering multi-sensory experiences for visually impaired visitors, supporting these approaches with examples such as multi-sensory guidebooks for the visually impaired in Florence, which include special visual presentations, audio commentary, and portable tactile maps.

As understood from the literature review, within the scope of accessible tourism, studies targeting people with physical disabilities have taken precedence over other disabilities, and it is understood that studies related to hearing impairments are relatively less common than those related to visual impairments. Although the use of artificial intelligence has increased in all areas with advancing technology, its use in the participation of visually and hearing impaired individuals in tourism activities and the applications used in this field are limited.

3. Methodology

This study employed qualitative research methods. A systematic literature review based on secondary data sources was conducted. First, brief information was provided on accessible tourism and types of artificial intelligence. A search using the terms "Accessible Tourism" and "Visually Impaired" or 'Blind' and "Hearing Impaired" or "Deaf" in the Web of Science database yielded 855 articles. "Physical Disability" was excluded, and when the keyword "AI-Supported Solutions" was added, 438 studies were obtained. The titles of these articles were examined, and it was determined that the titles of 95 studies were directly related to the subject. When searching Google Scholar for "accessible tourism for the visually and hearing impaired," 134 sources were obtained when 3,000 sources were ranked by relevance. The studies cover the period 2018-2025. As a result of the title and introduction analyses, 23 sources were used to categorize AI-supported solutions used for visually and hearing impaired tourists. At the end of the scans, AI-supported solutions used for visually and hearing impaired tourists have been divided into five main themes using the inductive manual analysis method. The themes were developed taking into account the areas where tourist activities take place.

3.1. Definition and Types of Accessible Tourism

Accessible tourism is a type of tourism that enables individuals with physical, mental, or sensory disabilities to participate in travel and vacation activities on equal terms. This type of tourism is based on a broad accessibility perspective that encompasses not only individuals with disabilities but also disadvantaged groups such as the elderly, pregnant women, and families with children. Engelli turizmi bireylerin bağımsız hareket edebilmesini ve turistik deneyimlere engelsiz bir şekilde katılımını hedefler (Buhalis ve Darcy, 2011:10). Accessible tourism divided into three categories:

Tourism for people with physical disabilities encompasses planned, inclusive, and sustainable practices aimed at ensuring individuals with limited mobility have barrier-free access to tourism activities such as travel, accommodation, and entertainment. This type of tourism aims to enable wheelchair users, individuals who use crutches or walkers, people with muscular disorders, and others with similar physical limitations to benefit from tourism services independently, safely, and comfortably. Furthermore, the ability of staff to communicate effectively with disabled tourists and provide services that are sensitive to their needs is an integral part of this process (Darcy, 2010:519).

Tourism for the visually and hearing-impaired represents an inclusive and sensory accessibility-focused approach to tourism that facilitates these individuals' access to information, places, and experiences through appropriate arrangements. For the visually impaired, spatial differentiation is provided through audio guidance systems, Braille maps, tactile surfaces, and guide dog applications; while for the hearing-impaired, applications such as sign language-speaking staff, subtitled videos, visual warning systems (e.g., lighted fire alarms), and written communication support have been developed. These applications are indicators of the principle of inclusivity in tourism and are also a requirement of human rights along with individual freedoms. Therefore, the expansion of tourism services for people with sensory disabilities is of great importance in terms of implementing the principles of diversity, inclusivity, and social equality in the tourism sector (Darcy and Buhalis, 2011:51; Small, Darcy, and Packer, 2012: 944).

Tourism for individuals with cognitive or neurological disabilities; aims to enable individuals with cognitive, behavioral, or neurological differences to participate in travel and vacation experiences in a safe, understandable, and supportive environment. Tourism services developed for these individuals include calm environments where sensory stimuli are controlled, visually supported communication materials, simplified guidance systems, trained staff support, and programs planned with family or caregivers. This approach ensures that not only the individual but also their family can enjoy tourism activities and have an experience free from social exclusion (Buhalis and Darcy, 2011:276).

3.2. Artificial Intelligence: Definition, Development Process, and Applications in Tourism

Artificial intelligence (AI) is the science of developing computer systems capable of performing human-like cognitive functions (learning, reasoning, problem solving). The foundations of AI were laid in the 1950s with Alan Turing's question, "Can machines think?" The 1956 Dartmouth Conference marked the birth of this field (Russell and Norvig, 2010:17). Starting with symbolic logic and rule-based systems, AI has made significant progress in areas such as deep learning, big data, and natural language processing (Goodfellow et al., 2016:3). The use of AI technologies in the tourism sector has gained momentum since the 2010s. Artificial intelligence is actively used in many areas such as smart destination management, visitor behavior prediction, personalized recommendation systems, accessibility solutions, and automation in customer service. For example, algorithms used in hotel reservation systems can make recommendations based on customers' previous preferences, while chat-bot applications improve the customer experience by offering 24/7 language support (Xiang et al., 2017:52, Tussyadiyah and Park, 2017:3). Another area of AI application in tourism is accessibility. Solutions such as audio description systems developed for visually and hearing-impaired tourists, automatic subtitle generation, sign language translation, route guidance applications, and smart canes with object recognition support are AI-based. These technologies facilitate independent and safe access to tourist sites for individuals with disabilities, strengthening the digital foundations of universal tourism rights (İşlek et al., 2024: 239).

4. Findings

In the systematic literature review conducted, scientific articles published between 2018 and 2025 were examined, and prominent themes were identified through content analysis. These themes can be grouped under five main headings:

Use of AI for Visually and hearing-impaired Tourists in Museums

Visually Impaired	Augmented reality applications with AI-powered navigation,object recognition algorithms and audio description systems (Suiçmez et al.,2025:6)
Visually Impaired	Museum experiences that transcend time and geographical boundaries through virtual reality (Işlek,2023, Suiçmez et al., 2025:6)
Visually Impaired	Touch galleries, tactile artworks, and replicas (Zhang et.al.,2024:341)
Visually Impaired	Audio guides and dramatized audio tours (Obigesan et al., 2023: 1877)
Visually Impaired **Hearing-Impaired**	Speech recognition and natural language processing solutions that convert spoken language into written text (Krishnan &Manickam ,2024:4)
Hearing- Impaired	Access to web content via sign language videos and QR codes (Namatame et al.,2019:292)

Artificial intelligence applications in museums are used to increase mobility for the visually and hearing impaired. However, there are some limitations to the event. Current efforts "fall short of ensuring truly independent discovery." It has been noted that there is a lack of information regarding independent experiences for individuals with disabilities and that accessibility is generally provided through pre-planned visits and intermediaries which restricts visitor` freedom (Nasser et al., 2025:2). The complexity of some applications or systems frustrates users. In the long term, in order for these technologies to reach their full potential, it is necessary to focus on precise, user centered design and balancing the practical usability of technology(Nasser et al.,2025:5).

Use of AI in Hotels for Visually and hearing-impaired Tourists

Visually Impaired	Voice-controlled environmental systems (e.g., elevators, air conditioning, TV) and automatic lighting (Liu et al.,2023: 284, Marino-Romero et al.,2025:2175)
Visually Imapired	Smart hotel rooms with artificial intelligence-driven design (Wang, 2024: 530)
Visually Impaired	The use of technologies such as voice control and screen reading software (Liu et al.,2023:284)
Visually Impaired	In-room navigation via smart navigation cards, Bluetooth headphones, and mobile applications (Li,2020:444) Smart touch maps to identify items in hotel rooms (Li,2020:445)
Hearing- Impaired	Virtual Assistants and Chat-bots

AI-based solutions are not commonly found in hotels for visually impaired tourists, in-room control systems, smart navigation systems, and voice-controlled elevators implemented for customer convenience are seen as applications that support visually impaired guests. However, since these applications are not designed with visually impaired guests in mind, they do not provide the necessary benefits (Liu et al., 2023:284). Unfortunately, artificial intelligence solutions used or designed for individuals with hearing impairments have not been found in the literature. However, virtual assistants and chat-boots used in smart hotel technologies can be used for this purpose.

Use of AI for Visually and hearing-impaired Tourists in Air Travel

Visually Impaired Hearing-Impaired	Smart devices integrated with robotic assistance and navigation systems (reporting accessible elements such as ramps or elevators) (Marino-Romero,2025: 2175)
Visually Impaired	Indoor navigation systems operating via smart telephone using a Bluetooth Low Energy (BLE) beacon network (Gotti et al.,2024:9).
Visually Impaired	Applications that enable real-time communication with assistants via videoconferencing, such as the Aira app (Gotti et al.,9: 2024)
Visually Impaired	Voice guidance with GPS navigation systems (Gotti et al., 2024:2).
Visually Impaired	Assistance with luggage control and collection processes using smart Bluetooth wristbands (Li,2020:446)
Hearing-Impaired	Text-based call systems and symbol-based signs Large-font display panels and real-time digital updates (Danful et al., 2025:8)
Hearing-Impaired	Access important information about flight details and airport status via hearing loops, teletypewriter telephones and video relay services (Gotti et al., 2024:9).
Visually Impaired	NavCog: Smartphone-based navigation assistant system (Guerreiro et al.,2019:2)
Hearing-Impaired	The translation of announcements into sign language (Kumar et al.,2020:3738)

The use of AI in aviation provides real-time transcription/subtitling of announcements or sign language interpretation for hearing-impaired passengers, and indoor navigation and independent mobility for visually impaired passengers. For visually impaired passengers, indoor navigation systems operating via smart telephone using a Bluetooth Low Energy (BLE) beacon network within the airport significantly support independent mobility. Fieldwork conducted at Pittsburgh International Airport showed that an AI-supported navigation application based on NavCog enabled most participants to complete their routes without error and made it possible to reach targets such as restrooms/shops within minutes (Guerreiro et al., 2019: 2). For hearing-impaired passengers, the translation of announcements into sign language has been demonstrated by early systems, which showed that terminal announcements could be converted into sign language (Kumar et al., 2020:1-2). The ACRP (Airport Cooperative Research Program) application lists also emphasize that real-time captioning and VRI (Video Remote Interpreting) enhance accessible communication at information desks and help desks (ACRP, 2019:25,41,48). Artificial intelligence has made significant progress particularly in navigation and obstacle detection for the visually impaired. However the existing solutions typically require users to switch between multiple applications and tools for different tasks such as image recognition, navigation and obstacle detection, which hinders a seamless and efficient user experience(Zahng et al., 2024:8). Although solutions are offered at airports, due to high volume traffic and activities in these areas, visually and hearing-impaired passengers have face difficulties(Gotti et al., 2024:1).

Use of AI in Restaurants for Visually and Hearing-Impaired Tourists

Visually Impaired	Menus that offer an audio option or optimized electronic menus (Liu et al., 2023:24).
Visually Impaired	Voice-controlled technologies (especially in restaurants with a self-cooking concept) (Liu et al.,2023:287)
Visually Impaired	Personalized restaurant recommendation systems with voice recognition and touch navigation features (Daya &Aslam, 2024:1-2)
Visually Impaired	Food Talk App: An app that allows orders to be placed using voice commands (De Silva & Godapitiya, 2024: 3)

AI-based applications in restaurants increase accessibility and satisfaction for visually and hearing-impaired customers. Liu et al. (2023) state that audio menus, smart-phone applications, and guidance systems in particular support the independence of visually impaired individuals in their experiences, and that these technologies increase customer satisfaction. Similarly, Daya and Aslam (2024) found that customized restaurant recommendation systems can be developed to filter venues suitable for the needs of disabled customers using artificial intelligence, and that voice commands and accessible interfaces provide ease of use (Daya and Aslam, 2024:3). Compared to the hotels, artificial intelligence applications for visually and hearing-impaired are limited in restaurants(Liu et al., 2023:284). Long-term success depends on restaurants adopting AI-driven solutions more widely, optimizing electronic menus and offering designs that address physical and sensory barriers.

Use of AI for Visually and hearing-impaired Tourists in General Tourism Areas

Visually Impaired	AI Powered Navigation (Rane et al., 2023)
Hearing-Impaired	Real-time translation applications offering sign language support (Ribeiro et al.,2018:53)
Hearing -Impaired	Smart devices integrated with robotic assistance and navigation systems (reporting accessible elements such as ramps or elevators in complex environments) (Rane et al.,2023)
Visually Impaired	Smart Cane, equipped with navigation technologies and special features (Diaz- Parra et al.,2023:6, Liu et al., 2023:15)
Visually Impaired **Hearing-Impaired**	Artificial intelligence algorithms that offer personalized travel experiences based on user preferences (Marino-Romero et al.,2025:2175)
Visually Impaired	Mobile applications, uses audio descriptions and sounds for spatial orientation and urban navigation (Ceccarini &Prandi, 2019:39)
Visually Impaired	Reading content and facilitating navigation through voice commands on tourism websites such as WAFRA4Tourism (Gonzalez-Mora et al.,2025:98162)
Visually Impaired	Mobile assistive technologies that convert visual information into tactile and audio formats via smart phones (Lam et al.,2020:1)
Hearing-Impaired	Sign language translation systems (Izuafa, 2025:1111)
Visually Impaired	Gamified navigation apps (Huang and Lau, 2020:23)

AI applications in general areas of tourism play a critical role in both accessing information and diversifying experiences. Gamified tourism applications developed for the visually impaired make finding directions fun while also strengthening spatial awareness (Huang and Lau, 2020:23). AI-powered applications in public areas have great potential to enable individuals with disabilities to move more independently and interact with their surroundings. AI-powered tools such as virtual environments and smart navigation devices increase independence and confidence in travel planning (Marino-Romero et al., 2025:2181). Real-time translation devices and augmented reality applications can enhance communication and provide essential information in user friendly formats (Marino-Romero et al., 2025:2175). Nevertheless, the effectiveness of these technologies is subject to certain limitations. Visually impaired individuals, despite adopting AI devices in their daily lives have state that when traveling, they seek `face to face conversation and social integration rather than AI` (Li,2020:438). Current navigation software only assists with “word recognition or walking” does not contribute to individuals integrating better into society (Liu et al., 2023:288).

Examples From Around The World

USA: The Smithsonian Institution uses augmented reality-supported audio descriptions, tactile models, and navigation systems for visually impaired visitors (Smithsonian Institution, 2022, p. 4). Additionally, the National Park Service offers audio guidance and sign language videos (Paul and Chauhan, 2023:5). Smithsonian Institution with Aira Mobile App. The Smithsonian Institution has launched a mobile app called Aira to enrich the museum experience for visually impaired visitors. This app allows users to connect live with Aira representatives via their smart-phones. Representatives analyze the image from the user's camera and describe the surrounding objects and environment verbally. This allows visually impaired tourists to navigate the museum independently and obtain information about the exhibited works (https://www.si.edu/visit/accessibility).

Italy: The Uffizi Gallery offers various digital solutions to ensure accessibility for visually impaired and low-vision individuals. Among these solutions, the Uffizi Gallery mobile app works seamlessly with screen readers, magnifiers, and other assistive technologies thanks to its user-friendly interface, providing audio descriptions of artworks. In addition, the gallery provides visitors with audio guide devices available for rent in Italian, English, French, German, Spanish, and Japanese. These devices allow visitors to experience the exhibitions at their own pace and tailor their museum visit to their personal preferences (Uffizi Galleries, 2024:1)

Japan: Developed in collaboration between IBM Japan and Carnegie Mellon University, NavCog functions as an indoor navigation system for visually impaired individuals. The system, which operates using Bluetooth-based iBeacon technology, provides users with audio feedback about nearby objects and directions. It has been implemented in museums and shopping centers in Tokyo and Yokohama.(Guerreiro et al.,2019:3). Thanks to QR code systems installed in many public areas throughout Japan as part of the Uni-voice project, users can access audio information by scanning the QR code with their mobile devices. Developed for visually impaired individuals, this system is used particularly in hotels, museums, and restaurants (Uni-Voice Committee, 2020:4).

China: Chinese cities like Hangzhou and Beijing are leveraging advanced technologies such as 5G, AI, and big data to offer personalized travel experiences. Platforms like WeChat and Alipay, which are widely used, integrate various services that can potentially incorporate accessibility features (Alsharif et al., 2024:89).

Turkiye: In Turkiye there isn`t any AI-supported solutions for visually and hearing-impaired individuals. The Istanbul Dialogue Museum hosts interactive exhibitions that aim to convey the experiences of visually and hearing-impaired individuals to visitors. The “Dialogue in the Dark” exhibition offers an experience conducted in a completely dark environment accompanied by visually impaired guides. “Dialogue in Silence” provides a silent communication experience aimed at understanding the world of hearing-impaired individuals. These exhibitions aim to encourage visitors to empathize and understand the challenges faced by individuals with disabilities (TRT World, 2023:1).

According to the World Health Organization, approximately 2.2 billion people worldwide have visual impairments, 1.5 billion people have some degree of hearing loss, and 430 million people live with disabling hearing loss (WHO, 2023, p. 1). Among the motivations for these individuals to participate in tourism are independence, social interaction, and the search for new experiences. Zhang and Liu (2022), in their study examining the travel behaviors of visually impaired tourists, state that when appropriate digital solutions and physical accommodations are provided, these individuals participate more in travel (Zhang and Liu, 2022: 8).

5.Conclusion

This systematic review confirms the growing importance of AI in transforming accessible tourism for visually and hearing-impaired individuals, aligning with the imperative need for universal accessibility in an increasingly technology driven travel landscape (Stankov et al,2024:1504). Our findings indicate that AI supported solutions are actively being developed and implemented across various tourism domains- including museums, hotels, restaurants and general public spaces, primarily focusing on enhancing mobility safety and informational access. For visually impaired tourists, AI offers significant promise through advanced navigation,obstacle detection, and natural language processing (Chennad and Othman,2024; Liu et al.,2023). These innovations contribute to greater independence and a meaningful engagement with travel experiences. However, despite these advancements, the study reveals significant challenges and research gaps. A critical disparity exist in the development and investigation of AI solutions for hearing-impaired tourists compared to their counterparts (Chemnad and Othman,2024:14). In line with other studies in the literature, it is observed that very few studies have been conducted on hearing-impaired individuals, and consequently, there is a lack of research in tourism and artificial intelligence solutions in this regard. Many existing applications are fragmented and do not consistently provide the holistic, integrated support required for truly independent and fulfilling travel, sometimes even falling short of user expectations for social integration during travel (Li,2020:438).

In conclusion, while AI holds immense potential to bridge the accessibility divide in tourism, its full realization hinges on addressing the identified research gaps, ensuring equitable development for both visual and hearing impairments and prioritizing adherence to universal design principals and accessibility standards. Future research should focus on integrated, user-eccentric AI solutions that not only overcome functional barriers but also enhance social inclusion and emotional well-being, paving the way for truly inclusive and sustainable tourism for all.

At this point, it would be worth developing some recommendations for studies and applications related to some visually and hearing impaired individuals. The findings and applications in the study show that sufficient infrastructure and technology are available for the use of artificial intelligence technologies, but awareness and support need to be created (Guerreiro et al, 2019:11). For this reason, there is a need for impact educational, instructional, and awareness programs that focus specifically on accessibility standards (Singh et al.,2021:276). The participation of individuals with visual and hearing impairments must be ensured in the design of AI solutions. The barriers encountered by individuals with visual and hearing impairments in participating in tourist activities should be identified, taking into account their individual experiences, and their involvement in the solution processes should be prioritized.

The active participation (co-creation) of individuals with visual and hearing impairments must be ensured in the design and development processes of artificial intelligence solution, because otherwise the fundamental value of Tourism 5.0 will be ignored (Teixera et al.,2025:223, Hodžič et al.,2025:531). Furthermore, it should be a priority that the solutions developed address the well-being of individuals with visual and hearing impairments not only technologically but also holistically. In other words, how they affect individuals' emotions and their happiness is also very important (Marino- Romero et al., 20182).

To prevent connectivity issues, web and mobile applications should be adapted to international accessibility standards (Signh et al.,2024: 305). Accessibility criteria should be prioritized in smart city and destination planning. Solutions such as smart maps and audio warning systems for the hearing-impaired should be increased.

The most important aspect of tourism is people. Human interaction plays a vital role in accessible tourism as well. The behavior of those working in the sector is very important in this regard (Obigesan et al., 2023:1880). Tourism sector employees should be supported through education and awareness campaigns. Awareness initiatives should be conducted regarding AI-supported applications in use. Empathy training should be provided to those working in the tourism sector to enable them to empathize with visually and hearing-impaired tourists.

Policy makers, civil society organizations, academics, and businesses should utilize studies conducted for more inclusive practices and work together (Mohammed,2025:78). Public-private partnerships should be encouraged to support innovative accessibility solutions. Collaboration should be developed with countries that are leaders in AI systems.

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Chapter 2

The Role of Consumer Environmental Consicousness in the Effect of Electronic Word of Mouth Marketing (EWOM) for Green Hotels on Customers' Hotel Preferences

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1. Introduction

Global warming is undoubtedly one of the most significant global problems of our century. The natural disasters brought on by climate change, along with the negative effects of seasonal changes such as drought and excessive rainfall, have become a common concern worldwide. Consumers' increasing concern about environmental issues such as global warming and the ozone layer is also reflected in their consumption behavior (Lee et al., 2010). These consumers, who are becoming more sensitive and aware of the deterioration of environmental degradation, may prefer to stay in hotels that operate green and sustainable (Han, 2015). Therefore, it is crucial for hotels to adopt green practices in their operations to gain a competitive advantage in the market. Electronic word of mouth (eWOM) is known to influence green hotel preferences by 35%. However, positive reviews increase bookings, while false environmental claims decrease consumer trust by 20% (Kumar et al., 2023). The impact of electronic consumer reviews (eWOM) is particularly crucial in the tourism sector because tourism services are intangible and cannot be evaluated prior to use. Paying for intangible products carries high risks for customers, leading them to rely more on eWOM for accommodation services (Albarq, 2014). Hence, the goal of this study is to survey the role of participant environmental consicousness in the impact of electronic reviews (eWOM) of environmentally sensitive green hotels on hotel preference and intention to overpay. In this context, two hotel images featuring green hotels from Tripadvisor.com, a website

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hosting real online hotel companies, were displayed, along with five green hotel reviews directly below them. The other image also featured two non-green (normal) hotel images from the same website, along with five normal hotel reviews directly below them. Reals hotel images from Tripadvisor.com were used for both experimental designs. User reviews were obtained from real reviews whenever possible, using the necessary manipulation checks. Individuals were categorized into two groups: high/low environmental awareness, using cluster analysis. The study found that as individuals' environmental awareness increases, they are more willing to stay in green hotels and pay more. While the study is important for green marketing and eWom literature, accommodation companies can diversify their promotional activities to target individuals with high environmental sensitivity.

2. Literature Review

Şahin et al. (2019) investigated the effects of green (environmentally friendly) hotel advertising visuals on consumers. They employed an experimental method, employing a 2 (ad type: green/non-green) × 2 (hotel type: luxury/economic) factorial design. The study concluded that green advertising (green and green combination ads, including green text, a green certification logo, and visual cues) was more effective than non-green advertising in relation to attitude toward the advertising, attitude toward the brand, and purchase intention. Furthermore, the study revealed that the effectiveness of green hotel advertising may differ between budget and luxury hotels.

Filieri et al. (2020) used a two factor experimental design (positive and negative reviews x 2 for high and low environmentally harmful products) to examine the effects of positive and negative consumer reviews on perceived review usefulness, product attitude, and purchase intention on products with low and high environmental impacts on Italian and French consumers. The study concluded that products perceived to have a high environmental impact have a strong influence on positive or negative reviews carrying environmental messages. Furthermore, It's construct to level of environmental impact of products has a partially moderating role.

Galati et al. (2021) survey the impact of environmentally friendly physical images and green hotel features published on e-WOM and digital platforms on Italian tourists and concluded that sustainable transportation services offered within the hotel service (e.g., charging stations for electric cars and rental of sustainable transportation vehicles such as e-bikes or hybrid vehicles) positively affect tourists' intention to pay more to stay in such green hotels.

In a study conducted in India, Kumari and Sangeetha (2021) examined the moderating effects of positive online reviews (eWOM) on green hotel booking intentions based on high and low levels of consumer environmental concern. The study revealed that eWOM value, source credibility, and consumer ratings all play a significant role in consumers' green hotel booking intentions. The number of reviews was found to have no significant impact on green hotel booking intentions. The researchers attributed this to the fact that the concept of green hotels is relatively new in India, and many consumers may not have experienced this service.

Berezan et al. (2014) examined customer satisfaction with a green hotel in Mexico. The study concluded that environmentally friendly activities such as recycling, energy, lighting, and water conservation at the green hotel generated high customer satisfaction. Furthermore, the study noted that while American tourists prioritized practical sustainability measures such as energy conservation, Mexican visitors emphasized emotional aspects such as comfort and peace.

A different study evaluating an eco-label award-winning hotel in Italy revealed that green initiatives and environmental commitments such as energy and water saving, waste reduction and use of environmentally friendly materials significantly increased customer satisfaction and credibilty (Merli et al., 2019).

2.1. Green Hotel

A green hotel is an environmentally sustainable accommodation or accommodation facility that, through its developed practices, causes minimal or no environmental damage (Kumaria & Sangeethab, 2022). A green hotel is defined as "an environmentally friendly accommodation establishment that proactively reduces its environmental impact and provides guests with a healthy environment, facilities, and accommodations" (Han, 2015). Green hotels are also referred to as friendly eco hotels, ecologically friendly hotels, or environmentally conscious hotels and are defined in various ways (Millar & Baloğlu, 2008).

It's known that tourists' emotions, as well as their cognitive processes, play a important role in designate a green hotel's image, stemming from concerns about future generations being endangered by climate change (Lee et al., 2010). Therefore, considering the rapid growth of the world's population, the future could face significant, even irreparable, damage.

Consumers who are aware of this are more conscious in their consumption behaviors, thus enabling companies to take action accordingly. Studies show that hotel companies implement sustainability strategies that include reuse programs for towels and linens in order to draw attention to environmental behaviors such as saving water and electricity among their customers (Şahin et al., 2019).

2.2. Electronic Word of mouth marketing (Ewom)

Online consumer reviews are generally viewed by consumers as a reliable source of information (Nielsen, 2015). Conversely, there is evidence that positive consumer reviews increase consumer product preferences (Liu, 2006; Garcia, 2017). Hotel services are much more difficult to evaluate than tangible products. Therefore, consumers tend to trust hotel ratings and reviews from previous customers (Kumaria & Sangeethab, 2022). Literature underlines that tourists' intention to visit or stay in environmentally friendly hotels is linked to green hotel features, including reducing waste, minimizing energy consumption, adopting recycling practices, selecting and offering green suppliers and organic products (Galati, 2021). Source credibility, an antecedent of positive eWOM, is known to increase consumer trust in green hotels and thus create positive intentions towards booking green hotels (Kumari & Sangeetha, 2021). In this context,

H1: Environmentally friendly and non-environmentally friendly reviews made online (e-WOM) create a significant difference in hotel preferences.

H2: Environmentally friendly and non-environmentally friendly reviews made online (e-WOM) create a significant difference in e-WOM credibility.

H3: Environmentally friendly and non-environmentally friendly reviews made online (e-WOM) create a significant difference in intention to overpay.

H4: Green hotel reviews create a significant difference in eWOM credibility based on environmental awareness levels.

H5: Green hotel reviews create a significant difference in hotel preference and intention to overpay based on environmental awareness levels.

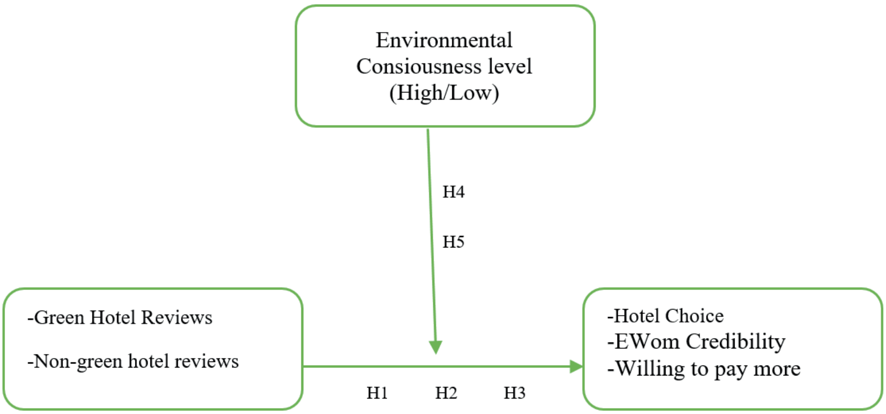
2.3. Aim the working

The aim of this study is to investigate the impact of electronic reviews (Ewom) of green hotels on hotel preference and overpayment intention. The role of consumers' environmental awareness in this impact is also examined. This study is expected to contribute to sustainable marketing and environmentally conscious consumers. This study can help develop different recommendations for green hotel policies, operations, and marketing. The increasing popularity of empirical studies as a methodological approach in tourism and hospitality research in recent years (Bresciani et al., 2021) constitutes the primary motivation and originality of this research.

3. Methodology

In this part of the study, information about the research model, the experimental design of the study and the scales used in the study is included.

3. 1. Experimental Design of the Research



Research Model

3.2. Experimental Design of the Research

The research population consisted of 216 tourists who had stayed at a four- or five-star hotel in the last two years. To achieve the research objective, this study employed a 2x2 factorial between-subjects mixed factorial experimental design. Two images of environmentally friendly hotels from Tripadvisor.com, a website hosting real online hotel companies, were used in the study, and five environmentally friendly hotel reviews (energy, water conservation, solid waste, recycling, etc.) were displayed directly below the images. The other image used two images of non-environmentally friendly (normal) hotels from the same website, and five non-environmentally friendly/normal hotel reviews (location, hygiene, service quality, etc.) were displayed directly below the images. The survey questions were displayed immediately after the images.

For both conditions, necessary manipulation checks were conducted using real hotel images and user reviews from Tripadvisor.com. This aimed to ensure both surface and internal validity of the study. The study employed a blind experimental design. Participants were selected using a convenience sampling method, and their assignment to groups was random. Cluster analysis (K-means) was performed to distinguish high and low environmental awareness levels of individuals and they were divided into two groups.

3.1. Sample Survey

The study population consisted of individuals who had stayed at a four- or five-star hotel within the last two years. Participants were choosing using a accessibility illustration way method, and group assignment was done randomly. Data were confident through a face to face analysis. All degrees employ in the work were 5-point Likert-type scales ranging from 1 to strongly disagree / 5 to strongly agree. The hotel preference scale was adapted from Gao and Mattila, 2015, and Leaniz and Lopez, 2018; the eWom credibility scale was adapted from Park et al., 2011, and Jimenez and Mendoza, 2013; and the overpayment and environmental awareness scales were adapted from Leaniz and Lopez, 2018.

4. Findings and Discussion

In this part of the research, the obtained data and the analysis results and findings are included.

4.1. Reliability Analyses

The reliability of a study spouse the density of the results obtained when the measured variables are repeated (Nakip, 2006:144). The most important indicator of this in academic studies is the Cronbach's Alpha. The Cronbach's Alpha values and mean values for the scales used in the work is indicate in the table. Variables, number of items, means

Table 1: Reliability Analysis Results of Scales

Variables	Number of items	Cronbach Alpha Değeri	Means
EWom Credibility	3 madde	,901	3,444
Hotel Choice	3 madde	,794	3,141
Willing to pay more	2 madde	,919	2,771
Environmental Consiousness level	8 madde	,825	3,865
Explanation: It was not necessary to remove any items from the scales.			

Table 1 above shows the results of the reliability analysis for the scales used in the study. The test results indicate that Cronbach's alpha values are quite high.

KMO and Bartlett's Test (dependent variables)		
Kaiser-Meyer-Olkin		**,806**
	Ki Kare	**1062,626**
	df	**28**
	p	**,000**

KMO and Bartlett's Test (Environmental awareness scale)		
Kaiser-Meyer-Olkin		**,845**
	Ki Kare	**535,938**
	df	**28**
	p	**,000**

The tables above point that the Kaiser Maier-Olkin test results for the dependent variables and the environmental awareness scale were 0.806 and 0.845, respectively. These results indicate that the sampling adequacy achieved in this study was quite good.

Table 2: Factor loadings of the scales

Factor Loadings			
EWOM Credibility1	,695	Environmental Cons.Level 1	,516
EWOM Credibility2	,770	Environmental Cons.Level 2	,668
EWOM Credibility3	,754	Environmental Cons.Level 3	,672
Willing to pay more	,711	Environmental Cons.Level 4	,740
Willing to pay more	,745	Environmental Cons.Level 5	,728
Hotel Choice1	,635	Environmental Cons.Level 6	,741
Hotel choice2	,785	Environmental Cons.Level 7	,699
Hotel choice3	,723	Environmental Cons.Level 8	,597

Table 2 shows the transformed factor distributions and factor loadings for the scales used in the study. According to the results of the principal components analysis performed by rotating the Varimax method, the responses appear to have a one-dimensional structure.

4.2. Manipulation Check

Within the content of the survey, in order to measure whether the hotel images and reviews were perceived positively by the participants, participants were asked, "To what extent do you rate the comments you read on the front page as positive or negative?" and their evaluations were tested using an ordinal scale from 1 negative to 7 positive. The second manipulation check aimed to measure whether participants perceived the images and reviews they viewed as green hotels (environmentally friendly). In this context, participants were asked, "To what extent do you rate the comments you read on the front page as green hotel (environmentally friendly)?" and were asked to respond between 1 least and 7 most. Manipulation checks were tested with an ordinal scale. An independent samples t-test was conducted for manipulation tests. A between-group t-test was conducted to compare the reviews of both hotels. The mean value for positive comments was 6.0714 for the green hotel comment and 6.060 for the non-green comment, $F= .870$, $t= .075$ ($p= .940$; $>.05$). It was observed that the reviews for both hotel groups were perceived positively. The second manipulation check concerns how environmentally sensitive the comments made in the experimental condition were perceived to be. The mean value for the green hotel comment was 6.00, while the mean value for the yeşil olmayan otel yorumları was 3.70; $F=29.334$, $t=9.361$ ($p=0.000$;<0.05) was tested across groups using a manipulation check. Surveys that did not correctly answer the manipulation questions were not included in the analyses.

4.3. Cluster Analysis Results for Participants' High and Low Environmental Consicousness Levels

After measuring the environmental consicousness level of the participants participating in the study, the participants were divided into two clusters: low and high environmental consicousness level. The K-Means test was applied for cluster analysis, and then Multivariate Analysis of Variance (MANOVA) was applied to the resulting clusters.

Table 3: Cluster Analysis

	Clusters	
	1	2
ENVRİO1	3,67	4,42
ENVRİO2	3,13	4,34
ENVRİO3	3,75	4,58
ENVRİO4	2,50	4,06
ENVRİO5	2,54	4,14
ENVRİO6	2,56	3,92
ENVRİO7	3,63	4,36
ENVRİO8	3,25	4,04
Total	72	144
Cluster 1: Participants with low environmental awareness; Cluster 2: Participants with high environmental awareness.		

Table 4: Demographic Characteristics of Participants

Demographic Characteristics of Participants								
		f			f			f
Age range	18-24 age range	47 person	**Education Level**	İlkokul	2 person	**Income Level**	0-1999 tl	1 person
	25-34 age range	72 person		Lise	12 person		20000-34999 tl	68 person
	35-44 age range	61 person		Üniversite	111 person		35000-64999tl	130 person
	45-54 age range	26 person		Lisansüstü	91 person		65000 tl ve üzeri	15 person
	55 +	10 person		**Gender**	Female 100 Male 116 Total 216		Total	216 person
	Total	216 person						

Table , the generality of individuals in the study were between the ages of 25 and 44, while the fewest participants were 55 and older. The vast majority of participants were university graduates, while the fewest were primary school graduates. Furthermore, the table reveals that the majority of participants earned between 35,000 and 65,000 TL.

Table 5: Independent Sample T-test Results for Possible Differences between Green Hotels and Non-Green Hotels on Dependent Variables

Dependent variables	**Mean differences**	**Standard Error differ.**	**t**	**p**
Willing to pay more	,28096	,13752	2,043	**,042**
Hotel choice	,12040	,12040	1,045	,297
EWom credibilty	-,14861	,11021	-1,348	,179

An examination of Table 4 discover that individuals are more likely to pay for green hotels than for non-green hotels. The test results show that the dependent variable of the execution, intention to overpay, is p=.042 (p<.05). There are no statistically significant differences in terms of the other dependent variables of the execution.

Table 6: Multivariate Analysis of Variance Descriptive Analyses

Descriptive Statistics					
İndependent variables	**Dependent variables**	**Environmental consicousness level**	**Means**	**Std. Sapma**	**N**
HOTEL CHOİCE	green hotel reviews	Low	2,8889	,76599	39
		High	3,3600	,97531	75
		Total	3,1988	,93308	114
	non-green hotel reviews	Low	3,0000	,69222	33
		High	3,1159	,78969	69
		Total	3,0784	,75805	102
	Total	Low	2,9398	,73014	72
		High	3,2431	,89653	144
		Total	3,1420	,85509	216
EWOM	green hotel reviews	Low	3,2137	,71118	39
		High	3,4578	,84144	75
		Toplam	3,3743	,80454	114
	non-green hotel reviews	Low	3,3838	,85441	33
		High	3,5894	,79035	69
		Total	3,5229	,81313	102
	Total	Low	3,2917	,77910	72
		High	3,5208	,81718	144
		Total	3,4444	,81014	216
WİLLİNG TO PAY MORE	green hotel reviews	Low	2,5513	1,06866	39
		High	3,0867	1,10702	75
		Tota	2,9035	1,11878	114
	non-green hotel reviews	Low	2,5152	,95594	33
		High	2,6739	,87374	69
		Total	2,6225	,89949	102
	Total	Low	2,5347	1,01164	72
		High	2,8889	1,01981	144
		Total	2,7708	1,02845	216

Table 6 shows the means and standard deviation values of the dependent and independent variables according to the participants' environmental conscious level. Table 6 shows the general MANOVA table.

Table 7 : General Manova Table Results

Factor		**Value**	**F**	**Hypothesis df**	**Hata df**	**p**
Intercept	Pillai's Trace	,951	1356,60[b]	3,000	210,000	**,000**
	Wilks' Lambda	,049	1356,60[b]	3,000	210,000	**,000**
Hotel group	Pillai's Trace	,004	,197[b]	3,000	210,000	,090
	Wilks' Lambda	,996	,197[b]	3,000	210,000	,090
Level of envir. Cons. Level	Pillai's Trace	,032	1,493[b]	3,000	210,000	,054
	Wilks' Lambda	,968	1,493[b]	3,000	210,000	,054
Hotel Grb * Env.cons. Level	Pillai's Trace	,007	,338[b]	3,000	210,000	,404
	Wilks' Lambda	,993	,338[b]	3,000	210,000	,404
a. Design: Intercept + OtelGrb + QCL_29 + OtelGrb * QCL_29						
b. Exact statistic						

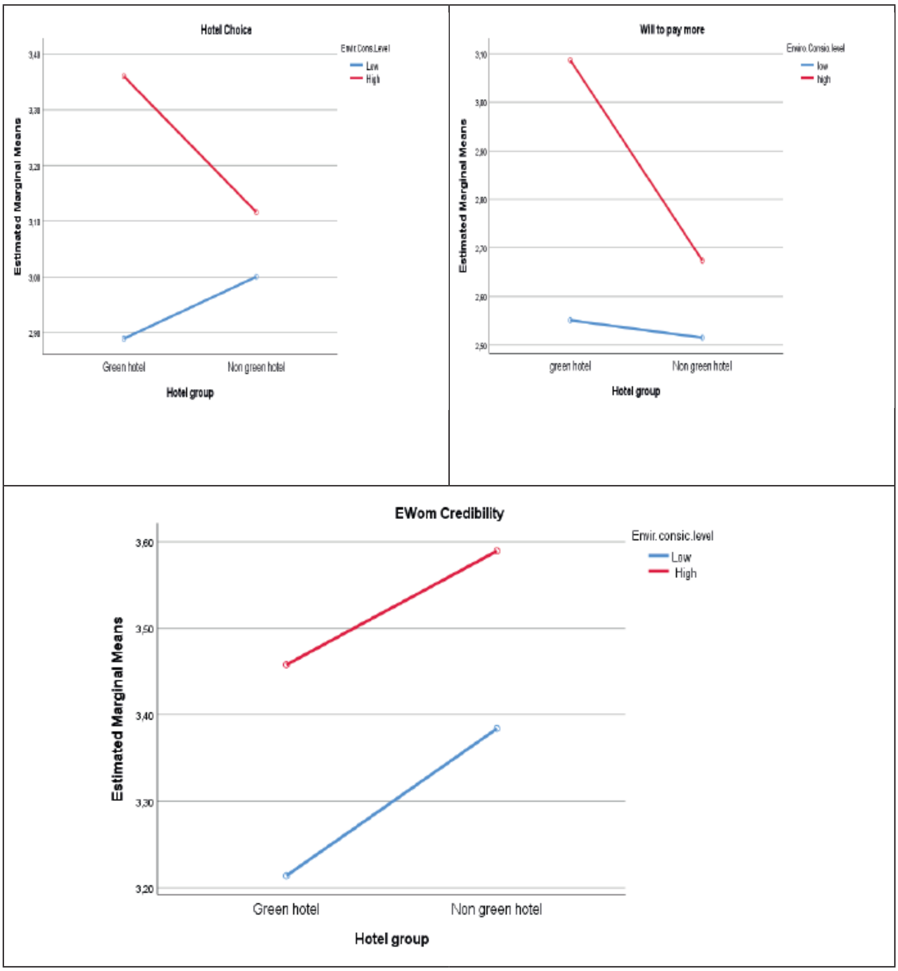
Because Table 7 above is a general Manova table, it only indicates whether there is a baseline interaction between the independent and dependent variables, but it does not indicate which dependent variables account for this interaction. Table 7 below shows which dependent variables account for the differences.

Table 8: Dependent Variables-Environmental Consicousness Level Interaction

Environmental Conscious Level and Hotel Review Groups Interaction Terms						
Faktör	**Bağımlı Değişkenler**	**Type III Sum of Squares**	**Sd**	**O.K.**	**F**	**p**
Intercept	EWom Credibilty	2222,472	1	2222,472	3427,886	,000
	Will to pay more	1399,356	1	1399,239	1378,294	,000
	Hotel Choice	1825,102	1	1825,102	2572,163	,000
Environmental Conscious Level	EWom Credibilty	2,413	1	2,413	3,722	**,055**
	Will to pay more	5,752	1	5,752	5,665	**,018**
	Hotel Choice	4,114	1	4,114	5,798	**,017**
Hotel group * Env.cons. Level	EWom Credibilty	,004	1	,004	,008	,931
	Will to pay more	,686	1	,686	,736	,393
	Hotel Choice	,349	1	,349	,555	,458
a. R^2 = ,031 (Corrected R^2 = ,010)						
b. R^2 = ,024 (Corrected R^2 = ,003)						
c. R^2 = ,024 (Corrected R^2 = ,002)						

When the changes in dependent variables are compared simultaneously with multivariate analysis of variance, it is seen that the interaction between participants with high and low environmental consicousness on the dependent variables creates a significant difference in intention to overpay (p=.018) and hotel preference (p=.017). The interaction term between hotel group and EWom creates a marginally significant difference (p=.055).

Participants with high environmental sensitivity are observed to prefer green hotels and are willing to pay more for their stays in green hotels. Another notable finding is that even with high environmental sensitivity, individuals are more likely to believe non green hotels reviews the outcomes are pictured in Figure 1.



When the survey outcomes are investigate it is appreciated that customers are willing to pay more to stay in environmentally friendly hotels, according to the results of the t-test conducted within the scope of the research. A multivariate analysis of variance reveals that individuals with high environmental sensitivity are more likely to prefer green hotels and are even willing to pay more for their stays in these hotels. This result is consistent with the results of a recent study on green hotels (Galati et al., 2021). Furthermore, it can be said that the results are similar to the results of a different study that found that customers with high environmentally sensitive beliefs and attitudes are more likely to use hotels that offer green sustainable services (Clark, 2021). In another study consistent with this study results, researchers found that environmentally conscious hotel guests tend to pay extra for the hotel's green activities (Kang et al., 2012).

Accommodation companies that engage in environmentally friendly activities can provide a competitive advantage by focusing on environmentally conscious individuals in their target audience. Furthermore, tourism companies can gain a ambitious benefit by engaging in activities that appeal to their target audience of highly environmentally conscious individuals, promoting their environmentally conscious activities online, and conducting various advertising campaigns.

Linxiang Lv. et al. (2024), using an experimental method, found that positive eWomen's reviews (compared to the absence of environmental cues) increased customers' booking intentions. This study found that as individuals' environmental awareness increased, they preferred hotels with positive environmental reviews (compared to those without). From this perspective, in addition to previous studies, this study goal to bring a new point of view to the abstract on green hotels by considering individuals' environmental sensitivity. Furthermore, the study's results are of great importance for emerging markets like Turkey. This work add valuable perspective into how developing countries can improve sustainable accommodation services in their tourism activities and which customer base they should consider in their target audiences. This study ensure valuable click into the market, as customers with high environmental awareness hold a significant place.

Research Limitations and Recommendations

Empirical studies inherently involve some artificiality and a margin of error. This study attempted to minimize this margin of error through the controls presented in the methodology section. Therefore, consumer behavior may vary in a real market environment. Because the data in this study was attain using a accessory sampling way and represents a specific sample, the results cannot be generalized. This study attempted to measure hotels' green activities primarily based on consumer comments. Future studies could evaluate consumer comments by providing more detailed hotel information. This study used positive hotel reviews. Future studies could expand the study by including both positive and negative hotel reviews. Future studies could examine customers' expectations of sustainable hotels, particularly in developing countries. Because individuals' economic conditions can influence their consumption behavior, this study could assist to the abstract by conducting comparative studies across different countries. Furthermore, comparisons of individuals from different cultures could contribute to the literature.

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Chapter 3

Bibliometric Analysis of Studies on Tea Tourism in Turkey

Ayşen Ertaş Sabancı[1]

Mehmet Sabancı[2]

1. Introduction

Tea is a beverage enjoyed by people in different countries around the world today. It is obtained from the leaves of the Camellia Sinensis plant. It is classified into different varieties such as black, green, white and oolong, depending on the degree of fermentation. Its widespread availability, health benefits and affordability make tea one of the most widely consumed foodstuffs. Tea contributes to the region where it is grown in many ways. Tea cultivation, tea processing and packaging factories, tea shops, tea museums, and tea tourism provide employment opportunities in various fields. Millions of people, particularly in countries such as China, India, Kenya, and Sri Lanka, earn their livelihood from the tea industry (Abanoz, Çakıroğlu, & Çomoğlu 2025).

The world's leading tea-producing countries have also incorporated tea into tourism. Turkey, which ranks fifth in the world in fresh tea production, has recently begun to utilise tea in the tourism sector. By focusing more on developing and promoting tea tourism, an alternative source of income for the country's economy can be created. Introducing Turkish tea and Turkish tea culture to the world is crucial for the country's economy (Eröz & Bozok, 2018; İskender, 2020).

Nowadays, people prefer regions that offer a variety of opportunities and numerous options in tourism. Tea tourism in the Eastern Black Sea region is

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integrated with cultural tourism, highland tourism, health tourism, and rural tourism, providing tourists with a collective structure. This advantage of the region can be utilised in destination marketing. Based on this, the study aimed to examine the literature on Turkish tea tourism from a bibliometric perspective. The findings obtained at the end of the analyses were presented in the study, and various recommendations were made regarding Turkish tea tourism.

2. Conceptual Framework

The tea plant is a shrub species that grows in humid regions. Belonging to the Camellia Sinensis family, this plant is processed in different ways to make the tea leaves drinkable (Alikılıç, 2016; Zhang, Xiong, Chen, Ye, Cao, Chen, Zhao & Luo, 2023). Before being discovered as a beverage, the tea plant was used to make medicine. The use of the tea plant as a beverage was first noticed by the Chinese emperor Shenn Nung. Legend has it that in 2737 BC, while the emperor was sitting next to a tea plant, tea leaves fell into a small pot of boiling water, and the smell that spread caught the emperor's attention. When the emperor took a sip out of curiosity, he found the water to be very different and refreshing. Initially known as a drink for the nobility, tea gradually became more widely used by the people living in China (Gaylard, 2015).

Until the 3rd century BC, tea leaves were picked from the branch and boiled fresh to make a drink. After this date, tea leaves were gradually dried and processed and combined with hot water. The drying process enabled tea to be consumed throughout the year, making it a frequently consumed beverage in daily life (Eröz & Bozok, 2018). Increasing tea production to meet public demand gradually led to a decrease in tea prices. This made tea more accessible to all segments of the population. This situation is considered to be the beginning of tea drinking becoming a tradition and a ritual among the public over time (Civitello, 2004). Today, it is the most consumed beverage in the world after water. The reasons for this can be attributed to its affordability, health benefits, and the enjoyment people derive from consuming it (Eröz & Bozok, 2018; Kuzucu, 2003).

Tea, whose consumption as a daily beverage had become well established by the 5th century AD, spread rapidly from China to the south and north (Eröz & Bozok, 2018). With the advent of trade in the Middle Ages, tea first spread to neighbouring Japan and then to countries with climates suitable for cultivation, such as India, Sri Lanka, Iran, Bangladesh, and Arabia (Doğan, 2018). Today, tea is produced in countries such as Kenya, Uganda, Mozambique, Argentina, Brazil, Chile, Azerbaijan, Vietnam, Georgia, and Turkey (Keskin, 2023). It is processed and packaged in the producing countries and shipped all over the world.

The tea plant has been processed into a beverage consumed worldwide. Tea types are classified according to the degree of oxidation and fermentation of the compounds they contain. The leaves of the Camellia sinensis plant are processed to produce numerous types of tea, such as white, green (unfermented), oolong (partially fermented), and black (fermented) tea. (Bortolini, Haminiuk, Pedro, Fernandes, & Maciel, 2021; Eröz & Bozok, 2018). Tea, along with coffee and cola, has become one of the three most popular beverages worldwide after water. Therefore, it has a wide consumer base all over the world (Cheng, Hu, Fox, & Zhang, 2012).

2.1. Tea in Turkey

The first arrival of tea in Turkey dates back to the Ottoman period in the 1600s. Tea was initially imported from Europe for consumption. Its cultivation as an agricultural product began during the reign of Abdulhamid II (1894). In a letter written to the Grand Vizier by the Ministry of Forestry, Mines and Agriculture at that time, the benefits and nutritional value of tea were mentioned. In addition, it was noted that tea was an important agricultural product from a commercial perspective, and approval was requested for its suitability for cultivation. A letter of approval was issued in response to this letter, and tea seeds imported from China by the then Minister of Trade, Ismail Pasha, were planted in Bursa. However, it was later observed that the tea seeds were not suitable for the region and its climatic conditions (Keskin, 2023).

In 1917, new initiatives related to tea production were launched in Turkey. Professor Ali Rıza Erten reported that the Eastern Black Sea Region, with its similar ecological conditions, could be a suitable area for tea production. However, with the outbreak of the First World War, Professor Rıza Erten's report on tea production was shelved. After the war, in 1924, serious unemployment and livelihood problems emerged in the Eastern Black Sea Region. The people of the region began to migrate for economic reasons. For this reason, it became imperative to create employment opportunities in the region (Doğan, 2018). Consequently, the government enacted Law No. 407, entitled 'The Cultivation of Hazelnuts, Oranges, Mandarins, Lemons and Tea in the Province of Rize and the District of Borçka'. Following the enactment of the law, a department called the 'Garden Cultures Station' was established in Rize. In this department, Zihni Derin, an agricultural engineer appointed to organise and control the work here, began producing tea seedlings using tea seeds brought from Batum (Eröz & Bozok, 2018). By 1937, 20 tonnes of tea seeds were purchased from Georgia, which was part of the Soviet Union, and tea production in our country took its definitive form. In 1938, the first tea harvest was carried out, and 30 kg of black tea was obtained by processing green tea (İskender, 2020).

Turkey ranks fifth in the world in terms of fresh tea production. In terms of dry tea production, it ranks sixth after China, India, Kenya, Vietnam and Sri Lanka (FAO, 2024). Tea production in Turkey takes place in a large geographical area stretching from the Sarp border with Georgia to the province of Ordu. According to the Tea Product Report (2024) published by the Ministry of Agriculture and Forestry, the main provinces with tea production areas are: Rize (67%), Trabzon (19%), Artvin (12%) and Giresun (2%). Tea is one of the main sources of livelihood for people living in the region. Within this region, Rize province has the most widespread tea cultivation and areas suitable for first-class tea production. Tea production areas in Rize province account for 92% of the total agricultural area in the province. Rize Province accounts for 60% of Turkey's tea production (Özyazıcı, Sağlam, Dengiz and Erkoçak, 2014; Kalcı, 2001).

Although tea does not have a long history in Turkey, it has been rapidly adopted culturally and has become one of the most important symbols of Turkish culture (Kahraman, Yıldırım & Ertaş, 2021). In Turkey, tea has become a beverage consumed in the morning, at noon, in the evening, and at different times of the day. Its price is quite low compared to other beverages, and it is possible to find tea to suit every budget (Yurteri, Özcan, & Seyis, 2019). Turkish tea is obtained by brewing processed and dried black powdered tea. To brew tea in the Turkish style, a teapot is used in which the water and tea-water mixture are placed in different chambers and boiled. First, the water is boiled in the bottom of the teapot, while the top part of the teapot used for brewing tea is heated with steam. Tea is added to the top chamber and water is added on top. Water is added to the bottom chamber and left to boil again. After the water has boiled, the heat is reduced, and it is boiled until the brewing time is complete. This time should be limited to 15 minutes to prevent the tea from oxidising, otherwise the tea will have a bitter taste and will not be enjoyable to drink (Kahraman, Yıldırım & Ertaş, 2021).

Provinces where tea consumption is also high are of great importance in terms of Turkish tea culture. Particularly in the eastern and south-eastern provinces, streets lined with tea houses bear traces of the city's history and culture. In the Erzurum region, tea is served with "kıtlama sugar" and a small slice of lemon. This illustrates how a beverage can influence culture. (Bükey, Göral, 2022).

Over time, tea has evolved beyond being merely a beverage and has begun to attract interest in various fields such as health, tourism, and functional foods. An example of this is the pairing of tea with food, which is featured in different menus. Furthermore, in addition to being consumed as a beverage, tea is also integrated into recipes in different ways to develop new products. An example of this can be seen in the work of Onat, Toker and Tercüman (2024), who developed four different products using green tea and black tea powders: green tea powder cheesecake, green tea powder biscuits, black tea cake and green tea powder rice pudding. The integration of tea into tourism is one of the most recent examples of its use in different areas. Activities in this field include visiting tea fields, taking photographs, involving tourists in tea harvesting, visiting tea factories, and tasting different teas (Yıldırım, 2023).

2.2. Tea Tourism

Tea tourism has emerged as a prominent form of tourism worldwide in recent years. Tourists travel to various destinations to discover the unique world of tea and experience tea culture (Özer & Acuner, 2024). Tea tourism destinations around the world are concentrated in geographical regions where tea is grown, particularly in Asian countries. Countries such as China, India, Japan, and Sri Lanka, which are leaders in tea production, are among the countries that use agricultural areas where tea farming is practised for tea tourism. China's initiatives related to tea tourism began after 1980 with national opening-up policies. In 1986, the tea museum was established in Hangzhou, the capital of China's Zhejiang Province, to convey Chinese cultures. This museum opened in 1990 and was introduced to the public (Zhou, 2011). In Sri Lanka, another important destination for tea tourism, 'Ceylon Tea' contributes significantly to the country's economy. In India, another destination, the 'Darjeeling Tea and Tourism Festival' is held in the Darjeeling region. The centuries old 'Toklai Tea Research Centre' in Assam, a state of India, has international tourist potential (Çaymer, 2018).

Tea tourism is a type of tourism that appeals to tourists interested in tea. Jolliffe (2007) defines the tea tourist as 'a tourist interested in history, traditions and tea consumption'. Tea tourists have various expectations regarding their destination. These expectations include knowing and learning about the history and origins of tea, experiencing tea culture, participating in tea festivals, tasting tea, and learning about the cultivation and processing stages of tea (Jolliffe & Nakashima, 2020). Tea tourism, which is developing in rural areas, contributes to the diversification of the livelihoods of the local population (Jolliffe, Nakashima, Chaikor, & Piboonrungroj 2024). Tea tourism also holds an important place from a socio-cultural perspective. This type of tourism contributes to the preservation of local culture and heritage (Jolliffe, 2007). Furthermore, as tea drinking is used as a means of social interaction, tea tourism activities contribute to strengthening social bonds between tourists and the local community.

When tea is mentioned in Turkey, the province of Rize comes to mind. Tea is extremely important for the people of Rize and its development. Furthermore, the region features architectural structures with iconic designs in the shape of teapots, teacups, and tea leaves. Tea tourism potential in Turkey is particularly high in the Eastern Black Sea provinces, especially in Rize. In this region, where highland tourism is actively practised, it can also be considered a potential attraction for tourists visiting the area. Consequently, interest in tea tourism has emerged in recent years and has been reflected in the literature. This study aims to conduct a bibliometric analysis of studies on Turkish tea tourism. In line with this objective, the study is expected to serve as a resource for tourist guides, travel agencies, and other sector stakeholders in the development of tea tourism. Furthermore, the study is expected to contribute to the literature and shed light on future research.

3. Methodology

Turkish tea culture and its integration into tourism represent a rich treasure trove for Turkish cuisine. Increasing the presence of this treasure trove in the literature is crucial for national and international promotion and recognition. Consequently, this study aims to examine bibliometric data on research conducted on Turkish tea tourism. Bibliometric analysis, one of the qualitative analysis methods, was employed in the research. The bibliometric analysis technique provides a broad perspective on scientific research and is accepted as an interdisciplinary foundation (Samiee and Chabowski, 2012).

Bibliometric research has intensified in the fields of tourism and gastronomy, particularly in recent years. While bibliometric analysis can be applied to many types of publications, its focus is on articles (Hall, 2011). Based on this, the study examined articles and theses on Turkish tea tourism from the past to the present. The studies were accessed through searches conducted on DergiPark, Google Scholar, and YÖKTEZ. Furthermore, due to the abstract nature of the presentations related to the subject and the difficulty in accessing book chapters, they could not be included in the study. These studies include the paper titled 'Tea Tourism and Sustainability in the Context of Regional Development: The Case of Rize Province' by Aydınbaş (2024), the book chapter titled "Memorable Experiences of Tourists Who Participate in Tea Tourism: Turkey Sample, 'the book chapter titled 'Gastronomy and Tea Tourism' by Yıldırım (2023), and the book chapter titled 'Tea Community Culture and Tourism" by Çetin and Erbaş (2022).

As a result of the literature review, eight articles and two theses were identified using the keywords "tea tourism", "tea tour" and "tea route". The studies included in the research were examined in terms of their types, years, number of authors, journals in which they were published, number of citations, methods, subjects, and keywords. It can be said that the research is limited in that there have not been many publications on Turkish tea tourism.

4. Findings

In this section of the study, tea tourism studies were examined from a bibliometric perspective. The studies included in the research were analysed in terms of their types, years, number of authors, journals in which they were published, number of citations, methods, subjects, and keywords. The findings obtained as a result of the analysis are presented in tables.

Table 1. Types of Work

Type of Work	Studies	f	%
Article	(Eröz & Bozok, 2018) (Karaşah, 2019) (İskender, 2020) (Çorbacı, Oğuztürk, Oğuztürk, Üçok & Aydın, 2022) (Yılmaz & Kumar Dixid, 2023) (Keskin, 2023) (Özer & Acuner, 2024) (Oğuztürk & Yüksek, 2025)	8	80
Thesis	(Küçük, 2021) (Türkoğlu, 2025)	2	20
Total		10	100

Source: Authors (2025)

The distribution of the studies included in the research according to their type is given in Table 1. According to the table, 80% of the studies were articles and 20% were theses. Based on the table, it can be said that most of the studies on tea tourism were published as articles.

Table 2. Distribution of Studies By Year

Years	Studies	f	%
2018	(Eröz & Bozok, 2018)	1	10
2019	(Karaşah, 2019)	1	10
2020	(İskender, 2020)	1	10
2021	(Küçük, 2021)	1	10
2022	(Çorbacı, et. Al., 2022)	1	10
2023	(Yılmaz & Kumar Dixid, 2023) (Keskin, 2023)	2	20
2024	(Özer & Acuner, 2024)	1	10
2025	(Oğuztürk & Yüksek, 2025) (Türkoğlu, 2025).	2	20
Total		10	100

Source: Authors (2025)

The distribution of studies included in the research by year is presented in Table 2. Considering the distribution of studies by year, it can be stated that 20% more publications were made in 2023 and 2025 compared to other years. The table shows that one study was conducted each year in the remaining years. Table 2 also shows that the first article on Turkish tea tourism was published in 2018 by Eröz and Bozok. Based on this, it can be said that interest in tea tourism in Turkey began in the last 10 years and is increasing day by day.

Table 3. Distribution of Studies by Number of Authors

Number of Authors	Articles	f	%
One Author	(Karaşah, 2019) (İskender, 2020) (Küçük, 2021) (Türkoğlu, 2025) (Keskin, 2023)	5	50
Two Authors	(Eröz & Bozok, 2018) (Yılmaz & Kumar Dixid, 2023) (Özer & Acuner, 2024) (Oğuztürk & Yüksek, 2025)	4	40
Three Authors	-	-	-
Four Authors	-	-	-
Five Authors	(Çorbacı, Et. Al., 2022)	1	10
Total		10	100

Source: Authors (2025)

The distribution of the studies included in the research according to the number of authors is presented in Table 3. Based on the table, it can be seen that 50% of the studies were authored by a single author. Furthermore, the findings of the research indicate that 40% were authored by two authors. Upon examining Table 3, it is understood that there are no studies with three or four authors, but there is one study with five authors.

Table 4. Distribution of Studies by Journals in Which They Were Published

Journal Title	**f**	**%**
Journal of Tourism & Gastronomy Studies	2	20
The Journal	1	10
Multidisipliner Yaklaşımlarla Coğrafya Dergisi	1	10
Journal of Humanities and Tourism Research,	1	10
Üçüncü Sektör Sosyal Ekonomi Dergisi	1	10
Tourism: An International Interdisciplinary Journal	1	10
Düzce Üniversitesi Orman Fakültesi Ormancılık Dergisi	1	10
Recep Tayyip Erdoğan University Institute of Postgraduate Education	1	10
Afyon Kocatepe University Institute of Social Sciences	1	10
Total	10	100

Source: Authors (2025)

The distribution of studies according to the journals in which they were published is shown in Table 4. Based on this, it can be seen that 20% of the studies were published in the Journal of Tourism & Gastronomy Studies. According to Table 4, the remaining studies were each published in different journals. Furthermore, the theses included in the table belong to different universities and institutes. An examination of Table 4 reveals that the topic of tea tourism has been published not only in journals specialising in tourism but also in different journals such as geography, economics and forestry.

Table 5. Distribution of Studies According to Citation Counts

Studies	Number of Citations
(Eröz & Bozok, 2018)	19
(Çorbacı, et. Al., 2022)	9
(Yılmaz & Kumar Dixid, 2023)	8
(İskender, 2020)	8
(Karaşah, 2019)	7
(Küçük, 2021)	-
(Keskin, 2023)	-
(Özer & Acuner, 2024)	-
(Oğuztürk & Yüksek, 2025)	-
(Türkoğlu, 2025)	-

Source: Authors (2025)

The ranking of the studies included in the research according to their citation counts is provided in Table 5. Based on this, the study with the highest number of citations is (Eröz & Bozok, 2018) with 19 citations, followed by (Çorbacı, et al., 2022) with 8 citations, (Yılmaz & Kumar Dixid, 2023) and (İskender, 2020) with 7 citations, and (Karaşah, 2019) with 7 citations. The findings also indicate that the other studies have not yet received any citations.

Table 6. Distribution of Studies According to Method Used

Method	Work	f	%
Qualitative	(Yılmaz & Kumar Dixid, 2023) Website analysis (İskender, 2020) Document review (Eröz & Bozok, 2018) Compilation, document review (Keskin, 2023) Document review (Karaşah, 2019) In place observation and interview (Özer & Acuner, 2024) Interview	6	60
Quantitative	(Çorbacı, et. Al., 2022) Survey (Küçük, 2021) Survey	2	20
Mixed	(Oğuztürk & Yüksek, 2025) Observation, fieldwork and survey (Türkoğlu, 2025) Interview and survey	2	20
Total		10	100

Source: Authors (2025)

The distribution of studies included in the research according to method is presented in Table 6. According to the data in Table 6, it is understood that qualitative research methods were preferred in 60% of the studies. As qualitative data collection techniques, document review, interviews, and field observation techniques were used. It was concluded that 20% of the studies included in the research were quantitative, while the remaining 20% were written using a mixed research method. Another finding of the research was that questionnaires were used as a quantitative data collection technique.

Table 7. Distribution of Studies by Subject

Topics	**Studies**
Tea Tourism and the Potential of Rize Province	(Eröz & Bozok, 2018) (Keskin, 2023)
Tea Tourism Products and Experiences	(Yılmaz & Kumar Dixid, 2023)
The Applicability of Tea Tourism in the Eastern Black Sea Region	(İskender, 2020)
The Impact of Natural and Cultural Landscape Value on Tourism Potential	(Çorbacı, et. Al., 2022)
Unforgettable Tea Tourism Experience	(Özer & Acuner, 2024)
Evaluation of Artvin Tea Tourism within the Scope of Rural Tourism	(Karaşah, 2019)
Assessing the Tourism Potential of Tea Gardens: A Tea Route Proposal	(Oğuztürk & Yüksek, 2025
Gastro-Tourist Experience and Destination Image of Tea Culture	(Türkoğlu, 2025)
Local People's Perceptions of Tea Tourism Evaluated within the Scope of Special Interest Tourism	(Küçük, 2021)
Total	

Source: Authors (2025)

The distribution of the studies included in the research according to their subjects is presented in Table 7. Based on the table, it can be seen that studies on tea tourism are concentrated in the Eastern Black Sea region. The topics focused on in the studies can be listed as tea tourism and regional potential, applicability in the region, local people's perceptions of tea tourism, gastro-tourist experiences, unforgettable tea tourism, tea tourism products and experiences.

Figure 1. Key words of the studies Word Cloud

Source: They were created by the authors using the Wordclouds programme (2025).

The keywords of the studies included in the research were examined and presented visually in Figure 1 using word cloud analysis. As can be seen from the visual, the most frequently recurring keyword is Tea Tourism (6). This is followed by Rize (5), Tea (3), Tourism (2) and Rural Tourism (2) as the most frequently recurring keywords. The other keywords in the visual have only been used once.

5. Conclusions And Recommendations

In our country, tea has been rapidly embraced culturally and has become one of the most important symbols of Turkish culture (Kahraman, Yıldırım & Ertaş, 2021). Over time, tea has evolved beyond being merely a beverage and has become a product studied in various fields such as health, functional foods, and tourism. The integration of tea into tourism is one of the most recent examples of its use in different areas. Some of the activities in this area include visiting tea fields, photographing them, involving tourists in the tea harvest, visiting tea factories, museums, and shops, tasting different teas (black, green, white), and providing tourists with an experience of tea culture through its symbols and rituals. (Yıldırım, 2023) It can be said that tea has a very important place in Turkish cuisine and that promoting it in tourism will contribute to our country's recognition, diversity and economy. Based on these studies, articles and theses on Turkish tea tourism were examined from a bibliometric perspective.

The analyses conducted in the study revealed that the majority of the studies consisted of articles. The fact that the first study was conducted in 2018 indicates that tea tourism has only recently begun to attract interest in Turkey, while the increase in studies in 2023 and beyond shows that the subject is becoming increasingly popular. Furthermore, when examining the distribution of studies according to the number of authors, it was concluded that the studies were predominantly undertaken by thesis authors, followed by studies with two authors.

An examination of the journals in which Turkish tea tourism studies were published reveals that the majority of studies were published in journals specialising in tourism. However, there are also studies published in journals in different scientific fields such as geography, economics and forestry. Based on this, it can be said that tea tourism is a multidisciplinary subject and is addressed from different perspectives in the studies. When examining the distribution of studies according to the number of citations, it is understood that, apart from the first study written, the others do not have many citations. This situation can be attributed to the highly original nature of the field of study and the fact that the subject is slowly gaining popularity today.

The studies included in the research were also examined in terms of research methods. The analysis revealed that qualitative research methods were predominantly used. Based on this, it can be concluded that an attempt was made to understand the subject in depth. At the same time, there are also studies on tea tourism that prefer quantitative and mixed methods. The distribution of the topics focused on in the studies is also within the scope of the research. The topics can be listed as tea tourism and regional potential, applicability in the region, local people's perceptions of tea tourism, gastro-tourist experiences, unforgettable tea tourism, tea tourism products and experiences. Based on this, it can be said that tea tourism topics are addressed in a very rich and wide range. Finally, the study examined the keywords used in the research. The analysis revealed that the most frequently recurring keywords were tea tourism, Rize, tea, tourism, and rural tourism.

Based on the studies examined in the research, it has been understood that tea tourism topics are quite suitable for interdisciplinary studies. Consequently, it can be suggested that researchers from different fields participate in joint projects related to tea tourism in future studies. Furthermore, the lack of studies on Turkish tea tourism is a limiting factor in the research. Therefore, it is recommended that literature studies on this subject be increased and diversified. One of the findings of the study is that there are not many foreign articles on the subject. For this reason, research in foreign literature should be increased. Studies published in international publications will increase both the recognition of Turkish tea culture and tourism and the potential number of foreign tourists interested in tea tourism.

Based on the findings of the research, it is recommended that stakeholders in the tea tourism sector become more active in promotion and marketing. In particular, campaigns using videos and photographs via social media, one of today's most effective marketing and advertising tools, can be conducted to increase national and international recognition. Although there are quite a few agencies in the Black Sea Region that integrate tea into their daily tours, there are very few agencies that organise tea-focused tours. Therefore, tea-focused tours should be increased, and support should be sought from experts in the field when creating tour content. At the same time, when creating tour content, tea tours in countries that have become brand destinations for tea should be used as examples, and tours should be conducted with professional tourist guides. Creating tours that appeal to multiple senses can positively influence tourist satisfaction. Touching tea leaves, explaining tea cultivation in tea fields, involving tourists in the harvest, processing the tea in a factory or using traditional techniques, and finally allowing tourists to taste the tea they have picked and processed and gifting it to them in packaging can provide tourists with an unforgettable experience. Experience-focused tour content can also be integrated into tea tours.

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Chapter 4

The Role of Female Vendors in Consumer Perceptions of Street Food

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1. Introduction

Street food, with its variety of regional dishes, is representative of the region's culinary culture and an integral part of its cuisine. It is also one of the region's major tourist attractions. Street food consumption is also quite widespread in Turkey, and there are many types of street food that vary from region to region and season to season. In terms of gastronomic tourism, street food occupies an important place due to its speed, variety, easy accessibility, and cultural characteristics. Street food not only offers consumers the opportunity to quickly experience local flavors but also provides the opportunity to become part of the regional culture. Street food is an important element that shapes the chemistry of cities. The vendors of street foods, which have existed in cities since ancient times, are as important as the street foods themselves. Street foods are of great importance for regional culture, destination promotion, and continuity, but a review of the literature shows that they do not receive the same level of attention and importance as before due to reasons such as hindering modernization and being unregistered. It has been observed that most of the studies in the literature are in foreign publications and focus on the hygiene, safety, and economic effects of foods sold as street foods (Ballı, 2016). It has been observed that street food vending is a male-dominated activity and that women are involved in the production part rather than the sales part.

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Street food carries both economic and cultural value in countries with gastronomic diversity such as Turkey. However, production and sales activities in this field are mostly carried out in a male-dominated structure. Women selling food on the streets is still perceived as unusual, which can affect consumer attitudes and perceptions. In this context, the main research question of this study focuses on the following: "How do consumers develop perceptions of female street food vendors, and how do these perceptions influence their purchasing behavior?"

While gastronomic tourism treats street food as a cultural experience that goes beyond mere food consumption, the profile of the producers behind this experience is often overlooked. Examining women's productive roles in the public sphere is important both academically and socially in the context of gender equality. This study highlights the topic of "women street vendors," which has received limited attention in the gastronomy literature, and contributes to the representation of women's labor in the public sphere.

2. Literature Review

According to Tinker (1999), "street food is a type of food that is seen as an economical, easy, and quick alternative for both producers and consumers amid the intense pace of work." According to the Food and Agriculture Organization of the United Nations (FAO), street food is defined as "ready-to-eat food sold and/or prepared by mobile vendors or similar sellers, particularly in streets, avenues, or similar public areas" (FAO, 2009). According to the World Health Organization (WHO) (1996) definition, street foods are "food and beverages sold by street vendors on streets or in public areas and consumed by consumers immediately or within a short time without requiring any production process."

People often choose foods sold on the streets to meet their nutritional needs. This has led to street food culture becoming an important industry (Demir et al., 2018). Foods and beverages defined as street food not only meet people's nutritional needs but also contribute to their socialization (Çavuşoğlu and Çavuşoğlu, 2018). Street foods have not only existed throughout history all over the world, but have also become an important factor in the formation of national identity with technological, social, cultural, and artistic developments. Street foods are widely used in developed and developing countries and form an important part of the culinary culture of countries (Tinker, 1987). Street foods are among the first alternatives that come to mind, especially in periods when restaurants and eateries are not available, and the consumption of street foods has been an important part of Turkish food and drink culture since the Ottoman Empire (Ballı, 2016). If we examine the meanings of some of the terms covered in the study: Perception; directing one's attention to something and becoming aware of it, comprehending it (TDK, 2025). Studies show that perceptions of street foods are generally grouped under three main headings. Hygiene encompasses the measures that must be taken to protect, improve, and ensure the continuity of human health. (Parlak, 2020). Economy refers to the ways in which people produce and share what they produce in order to sustain their lives, and all the relationships arising from these activities. Nutrition refers to the intake of nutrients necessary for the body (TDK, 2025).

The insufficient quality of raw foods, the storage of foods under unsuitable conditions, the conditions under which food is processed, and the lack of knowledge and adherence to hygiene rules by vendors have led to the emergence of diseases, confirming rumors about the unhealthiness of street foods (Akinbode et al., 2011). Illegal additives and environmental pollution in street foods pose the main threats to street foods. Most street vendors do not have sufficient knowledge about the hygiene rules they must comply with during food preparation, processing, storage, and serving (Ceyhun Sezgin and Şanlıer, 2016). Therefore, it is recommended that street vendors implement food safety practices during the preparation and serving of street foods and avoid using inappropriate paper or materials during packaging and serving (FAO, 2009). As long as consumers are properly informed, authorities assist street vendors in selecting foods suitable for street vending, and vendors conduct their sales in a meticulous and hygienic manner within the framework of this information, street foods can be the easiest and cheapest way for many people with low incomes to obtain a balanced and healthy menu outside their homes (Privetera and Nesci, 2015). Examining street foods, which are rich in nutritional value and variety, by grouping them can reveal their nutritional value and relationship with health in a more meaningful way when purchasing street foods (Karsavuran, 2018).

Aşık Akşit (2019) reveals that the average attitude towards the hygiene of street foods is low and that people have a negative attitude towards the hygiene of the tools and equipment used in the preparation and presentation of street foods. Despite the negative attitude towards the hygiene conditions of street foods, satisfaction with street foods is at a good level; this is explained by the low income level of the participants and the fact that social and psychological pleasure outweighs the negative perception of hygiene.

Street vendors are generally defined as individuals who sell their products to consumers anywhere on the street without having a permanent structure

(Bhowmik, 2005). In terms of sales methods, vendors can generally be classified as stationary street vendors and itinerant street vendors. Vendors offer their products for sale using tools such as small stalls, mobile handcarts, and hut-like structures (Powell et al., 1990). Street vendors play a very important role in bringing people together, allowing them to quickly satisfy their hunger, and enabling socialization (Ballı, 2016). Street vendors provide low-priced food and beverages to citizens of medium and low economic status. However, there is no legal status that allows street vendors to continue selling their products in this manner. The way vendors sell their products is considered illegal in many parts of the world. For this reason, street vendors are constantly warned by the authorities (Bhowmik, 2005).

A study conducted by the Food and Agriculture Organization of the United Nations (FAO) on street food vendors in the Central Accra region revealed that street food sales are predominantly a sector managed by women. Despite the widespread informality of street food vending, the study found that the general hygiene and safety conditions under which street food is prepared and sold in Accra are acceptable (FAO, 2016).

Bayraktar and Zencir (2019), in their work, asked questions about the role of women in the profession based on interviews with participants and reached some findings regarding the role of women in street food. Although there is no study in the local literature indicating that women play an active role in street food, it has been stated that women are more likely to be involved in the background, in the production part. However, it has also been revealed that there are participants who think that women working as street vendors could be an attractive element.

Solunoğlu and Nazik (2018) determined that consumer preferences regarding street foods in Gaziantep province are generally positive, with differences based on education, income, and occupational groups. Ballı (2016) examined the importance and place of street foods in gastronomic tourism and, in this context, the street foods available in Adana province. Bayraktar and Zencir (2019) evaluated street foods from the perspective of street vendors in Izmir and presented the vendors' views. The study concluded that the vendors' working conditions were not adequate, that they had economic concerns, and that they considered their profession to be difficult.

Trafialek et al. (2017) conducted a study in Athens, Greece, with the aim of checking street vendors' compliance with hygiene rules. It was observed that there was no protective device in case of breakage of thin glass bulbs found on mobile stalls and that no precautions were taken against the possibility of hair loss. It was revealed that more supervision is needed to improve the hygiene levels of food vendors. Kumar Singh et al. (2016) conducted a study to evaluate the impact of health education on street vendors' food safety and hygiene. After the training, no significant improvement was observed among the vendors. It was found that health education could partially improve street vendors' food safety practices.

3. Methodology

A review of the literature reveals frequent studies on street foods, but no previous research has examined the role of female vendors in changing consumers' negative perceptions of street foods. This study aims to determine whether women's active role in street vending changes consumers' negative perceptions of street foods. In line with this objective, the research questions are as follows:

- What is the meaning of street food in the eyes of consumers; how is it positioned in cultural, practical, and economic contexts?
- Do consumers differentiate their purchasing decisions based on the gender of street food vendors?
- How are female street food vendors evaluated by consumers, and how do these qualities influence purchasing behavior?

Interview questions were developed based on these research questions, and expert opinion was sought in preparing the interview questions. Since the study examines consumers' perceptions of street food, a qualitative research design and phenomenological research pattern were adopted. In this way, the participants' individual experiences with street food were presented by the researchers with universal explanations (Creswell, 2023). Qualitative research is an approach based on understanding and researching social phenomena within their context (Yıldırım and Şimşek, 2011). Since the role of women in street foods is a specific topic, there is no scale in the literature for female vendors, participants needed to be guided, and it was thought that the effect of women's perceptions on street foods could only be revealed through detailed interviews with the participants. For all these reasons, data was collected from consumers using the semi-structured interview technique, one of the qualitative research methods. This method is more flexible than structured interviews, allowing the number and order of questions to vary according to the flow of the topic (Kozak, 2017). In addition to questions about street foods and street vendors, the interview form also included nominal questions aimed at identifying the demographic characteristics of the participants.

The population includes all people, values, etc., that the researcher is interested in for a specific study. Consumers who have experienced street food in Istanbul were defined as the population in this study. All processes carried out to select the population units to be studied, which form the focus of the study, are referred to as sampling. In this study, the sample size was set at 20 people. The study was conducted between August 10-15, 2025.

Purposive (judgmental) sampling was used in the study. Purposive sampling is a sampling technique in which the researcher selects individuals to be included in the sample from a group that he/she believes can represent the population, based on his/her own judgment (Gegez, 2015).

4. Findings

The analysis of the data obtained from the interviews conducted as part of the research primarily defined the demographic characteristics of the participants. Subsequently, a general evaluation of each of the responses provided was carried out. In the next stage, these responses were analyzed using thematic analysis, and the main themes regarding the role of female vendors in consumer perceptions of street food were identified.

4.1. Research Findings on Participants' Demographic Characteristics

The table below shows the demographic characteristics of the 20 participants who took part in the research.

Table 1. Participants' Demographic Characteristics

Code	Age	Gender	Education	Occupation
1	26	Male	Bachelor's degree	Travel Consultant
2	26	Male	Bachelor's degree	Private Sector Employee
3	31	Male	Bachelor's degree	Mechanical Engineer
4	31	Female	Bachelor's degree	Teacher
5	26	Female	Bachelor's degree	Not Working
6	30	Female	Associate degree	Production Manager
7	28	Female	Bachelor's degree	Cook
8	32	Female	Bachelor's degree	Housewife
9	28	Male	Bachelor's degree	Electrical Engineer
10	25	Male	Bachelor's degree	Cook
11	26	Male	Bachelor's degree	Cook
12	23	Female	Bachelor's degree	Teacher

13	28	Female	Bachelor's degree	Student
14	32	Male	Bachelor's degree	Ship Mechanical Engineer
15	22	Female	Bachelor's degree	Student
16	26	Female	Master degree	Lawyer
17	27	Female	Bachelor's degree	Cook
18	31	Male	Bachelor's degree	Manager
19	29	Female	Associate degree	Civil Servant
20	36	Female	Master degree	Marketing Specialist

4.2. General Evaluations of Participants' Responses to Questions

The general evaluation of the questions posed to participants and their responses is presented in Table 2.

Table 2. General Evaluations of Participants' Responses

QUESTION	OVERALL EVALUATION OF RESPONSES
What do street foods mean to you? Could you explain?	Participants often describe street food as "tasty," "fast," "convenient," and "accessible." It also appears to hold nostalgic meaning for some participants, evoking childhood memories. This demonstrates that street food has value not only in terms of nutrition but also in a cultural and emotional context.
Do you consume street food? If so, what are your preferred street foods? Could you share your reasons for consuming them and how often you do so? If you don't consume them, what are your reasons for not choosing them?	The vast majority of responses indicate that street foods are consumed regularly. Simit, mussels, corn, and kokoreç are particularly popular choices. Taste, easy accessibility, and price are the main reasons for consumption, while some participants stated that they avoided consuming street foods due to hygiene concerns.
Do you think street food is hygienic and healthy? If yes, please explain why. If no, what are your reasons, and what measures do you think should be taken to make it more hygienic/healthy?	Hygiene is a significant area of concern. Most participants indicated that street foods are unhygienic, highlighting in particular the lack of oversight, open-air sales, and inadequate personal hygiene. To ensure greater health and safety, it is recommended that oversight be increased, equipment be upgraded, and hygiene training be provided.

When buying street food, what criteria do you consider? Could you explain?	Hygiene, freshness, and price have been the most frequently mentioned purchasing criteria. Secondary factors such as taste and presentation also influence choice. Participants indicated that the product's appearance and the seller's general attitude also play a role in their selection.
Do vendors have any influence on your purchasing behavior when it comes to street food? If so, could you provide some information on this?	A significant portion of participants stated that salespeople's behavior and appearance influenced their purchasing decisions. Factors such as friendliness, personal hygiene, dress code, and sincere communication with customers stand out.
What characteristics do you think street vendors who sell street food should have? Could you explain?	Participants place the most importance on personal hygiene, cleanliness, sincerity, and professional experience in street vendors. Particular attention has been drawn to the vendor's personal grooming, communication skills, and professionalism, especially since it is an area that involves direct contact with food. It is understood that trustworthy, attentive, and respectful vendors are preferred.
Can you explain whether the gender of street vendors has any effect on your behavior when purchasing street food?	The vast majority of participants stated that the seller's gender had no effect on their purchasing behavior. Statements such as "I don't differentiate between men and women" and "what matters is the product and hygiene" were prominent in the opinions. This shows that gender awareness has developed in some participants and that neutral approaches have been adopted.
Does the fact that street food vendors are women influence your consumption habits? If your answer is yes, could you provide information on why and how it affects you?	The general trend is that female street vendors do not directly influence consumption behavior. However, a small number of participants stated that female vendors may be more careful about hygiene. This shows that some individuals adopt a more trusting approach towards women, but the majority remain neutral.

Can you describe the three main feelings and/or hesitations you experience when you see a female street vendor?	The emotions participants felt when encountering female vendors most frequently included positive expressions such as "appreciation," "pride," "effort," "cleanliness," and "success." In addition, some participants expressed feelings such as 'hesitation' or "anxiety about inadequacy" when considering the difficulties women face in doing this work. This finding indicates that awareness is growing regarding the increased visibility of women's labor.
Can you describe the three main feelings and/or hesitations you experience when you see a male street vendor?	Compared to female vendors, feelings toward male vendors were assessed as more neutral and customary. While some participants expressed reservations such as "neediness," "hygiene concerns," and "distrust," for the majority, male vendors are seen as ordinary and unremarkable figures. This situation demonstrates the influence of social habits.
When you buy a street food you want to eat from a female street vendor, what are the three main criteria you consider?	Hygiene, quality, and price have been the primary criteria in purchases made from female vendors. However, some participants stated that they did not evaluate female vendors differently and that their criteria remained unchanged. This indicates the existence of attitudes that do not discriminate based on gender.
When you buy a street food you want to eat from a male street vendor, what are the three main criteria you consider?	Similar to female vendors, hygiene, communication with customers, and product quality were also considered important when purchasing from male vendors. However, some participants stated that they were less sensitive when shopping from male vendors, indicating that they "considered fewer criteria" because they were more accustomed to them.

4.3. Thematic Analysis of Participants' Responses to Questions (Code Book)

In this study, a thematic analysis was performed on the data obtained from the interviews. Accordingly, the data collected on the role of female vendors in consumer perceptions of street food during the interviews with participants were read several times, and coding was performed on meaningful statements. The coding was simplified inductively to create sub-themes, which were then categorized to identify four main themes. Accordingly, dimensions expressing the role of female vendors in consumer perceptions of street foods were examined under the theme headings "Meaning of Street Foods and Consumption Motivations, Consumption Frequency and Preferences, Perceptions of Hygiene and Health, Vendor and Product Selection Criteria, Effect of Gender on Street Food Purchasing Behavior, Emotional Responses to Female Vendors, Criteria for Female and Male Vendors." As indicated in Table 3, a Code Book was created under these theme headings. The code book contains **22 sub-themes** created from codes selected from the answers to the interview questions under a total of **7 main themes.**

Table 3. Code Book

MAIN THEMES	SUB-THEMES	CODES
The Meaning of Street Food and Consumption Motivations	Cultural and Emotional Value	*Childhood memories*
		Local culture
		Traditional flavor
	Practicality and Economy	*Fast consumption*
		Easy access
		Economical option
	Flavor and Satisfaction	*Unique flavor*
		Emphasis on taste
		Satisfying
Frequency of Consumption and Preferences	Frequency and Routine	*Several times a week*
		Habit
		Social acceptance
	Popular Products	*Sandwich with döner*
		Consumption of mussels
		Preference for kokoreç
		Simit
	Reasons for Consumption	*Affordability*
		Craving
		Habit
		Satisfaction
	Reasons for Non-Consumption	*Hygiene concerns*
		Trust issues
		Open-air sales

Perception of Hygiene and Health	Hygiene Issues	*Lack of supervision*
		Poor personal hygiene
		Food safety
	Positive Perception of Hygiene	*Observation-based trust*
		Attention to cleanliness
		Acceptance out of habit
	Recommendations for Improvement	*Increased supervision*
		Protective equipment
		Fixed stands
Seller and Product Selection Criteria	Product-Focused Criteria	*Price affordability*
		Freshness
		Taste
		Appearance
	Seller-Related Criteria	*Personal hygiene*
		Seller's attire
		Confidence-inspiring demeanor
	Sales Environment	*Counter cleanliness*
		Presentation order
		Packaging
The Effect of Gender on Street Food Purchasing Behavior	Gender Neutrality	*Gender does not matter*
		Product-focused preference
		Seller neutrality
	Positive Perception of Female Sellers	*Appears more hygienic*
		Regular work
		More meticulous
	Comparison and Perception	*Male seller_routine*
		Female seller_attentive
Emotional Responses Towards Female Salespeople	Pride and Appreciation	*Recognition of women's labor*
		Strong female figure
		Emphasis on success
	Empathy and Support	*Difficult conditions*
		Work support
		Women's employment support
	Hesitation or Concern	*Street risk*
		Perception of vulnerability

Criteria for Female and Male Salespeople	Female Salesperson Criteria	*Hygiene expectations*
		Product quality
		Presentation order
		Friendliness
	Male Salesperson Criteria	*Habit-focused*
		Hygiene observation
		Lower selectivity
	Criteria Differences	*Gender-based criteria change*
		More selective view of women

THEME 1 - The Meaning of Street Food and Consumption Motivations

- ***Cultural and Emotional Value:*** The vast majority of participants view street food not only as a food alternative, but also as a symbol of childhood memories, local cultures, and traditional cuisines. For example, one participant clearly emphasized the emotional connection street food has with the past by stating, "It represents my childhood."
- ***Practicality and Economy:*** Street food is often described as a quick, practical, and economical option. Participants defined street food as "easily accessible, quick, and practical food solutions," noting that it is particularly appealing to individuals with time constraints.
- ***Flavor and Satisfaction:*** Consumers also defined street food as offering "unique flavors" and being 'satisfying' options. The word "flavor" was one of the most frequently repeated words in participant responses.

THEME 2 - Consumption Frequency and Preferences

- ***Frequency and Routine:*** While some participants stated that they consume street food several times a week, it appears that this habit has become a routine. Expressions such as "2-3 times a week" indicate a high frequency of consumption.
- ***Popular Products:*** Among the products frequently preferred by participants, "mussels, kokoreç, simit, and döner sandwich" stand out. The fact that these products are quick to consume, filling, and tasty determines their selection.

- ***Reasons for Consumption:*** The main reasons for consumption decisions include both rational and emotional motivations such as affordability, satiety, habit, and craving.
- ***Reasons for Not Consuming:*** Individuals who do not consume these products mostly explain their decisions with concerns about hygiene, lack of trust, and uneasiness about open-air sales. For example, one participant directly expressed this concern by saying, "I'm not consuming them right now. I don't think they're hygienic".

THEME 3 - Perception of Hygiene and Health

- ***Hygiene Issues:*** Negative views regarding hygiene were frequently expressed. Issues such as "lack of control," "open sales," and "poor personal hygiene" were particularly emphasized. Participants stated that they were aware that hygiene "may vary depending on the producer" and technical issues such as "cross-contamination".
- ***Positive Perception of Hygiene:*** Some participants stated that street foods could be hygienic based on visual impressions. They defended street foods with expressions such as "trust based on observation" and "acceptance through habit".
- ***Improvement Recommendations:*** Among the solutions proposed for hygiene and health issues, "increased inspections," "use of protective equipment," and "fixed stands" stood out. These recommendations demonstrate consumers' need for trust.

THEME 4 - Seller and Product Selection Criteria

- ***Product-Focused Criteria:*** When purchasing street food, consumers focus most on product-specific criteria such as "affordability, freshness, taste, and appearance." These factors directly influence perceived value and purchasing decisions.
- ***Seller-Related Criteria:*** Factors such as "the seller's personal hygiene, attire, and confidence-inspiring attitude" were frequently mentioned by participants. For example, statements such as "the seller being neatly dressed and having clean equipment positively influences my purchasing behavior" reflect the importance of these criteria.
- ***Sales Environment:*** Sales environment factors such as "cleanliness of the counter," "packaging," and "presentation layout" were also seen by participants as decisive in the purchase decision.

THEME 5 - The Effect of Gender on Street Food Purchasing Behavior

- ***Irrelevance of Gender:*** A significant portion of participants stated that the gender of the seller was not a determining factor in their purchasing behavior. Statements such as "it doesn't matter if they are male or female" and "it's not the vendor, it's the product that matters" emphasized that concrete characteristics such as product quality, hygiene, and price are more influential. One participant clearly expressed this attitude by saying, "Gender makes no difference to me when I buy a product."
- ***Positive Perception of Female Salespeople:*** Some participants have a more positive perception of female salespeople. Statements such as "women are more hygienic" and "they work more carefully" reflect a sense of trust in female salespeople. In these views, women's meticulousness and orderliness stand out as positive differences.
- ***Comparison and Perception:*** In gender comparisons, male vendors are generally defined as "familiar and routine" figures, while female vendors are seen as more noticeable and evaluated individuals. One participant stated, "It's as if the male vendor hasn't done it, so I'm more careful with the female vendor," revealing the gender-based difference in perception.

THEME 6 - Emotional Responses Towards Female Vendors

- ***Pride and Appreciation:*** Many participants stated that they feel appreciation and admiration when they see a female vendor on the street. This situation is reflected in codes such as "appreciation of women's labor," "emphasis on success," and "strong female figure." Statements such as "I feel proud, I wish she could work in better conditions" clearly reflect this feeling.
- ***Empathy and Support:*** Some participants tend to support female vendors because they believe they work in difficult conditions. Opinions such as "The thought that this is their only source of income worries me" and "I am happy about female employment" demonstrate a tendency toward social empathy and support for women.
- ***Hesitation or Concern:*** Some feelings towards female vendors are related to protective instincts and security concerns. Statements such as "I hope nothing happens to her," especially regarding female vendors who work at night, reveal that women working on the streets are still perceived as vulnerable and at risk.

THEME 7 - Criteria for Female and Male Vendors

- ***Criteria for Female Vendors:*** The main factors participants pay attention to when purchasing products from female vendors include "hygiene, presentation, product quality, and a friendly smile." These statements suggest a higher level of expectation towards female vendors. One participant expressed this difference by saying, "I am more careful because she is a woman."
- ***Criteria for Male Vendors:*** When purchasing products from male vendors, criteria such as "habit-oriented" and "less selective" stand out. This situation shows that male vendors have a more ordinary and unquestionable profile within social norms.
- ***Criteria Differences:*** Among the participants' statements, it is noteworthy that different evaluation criteria are applied to female and male sellers. While this does not constitute gender-based discrimination or prejudice in consumer behavior, it does indicate the existence of a double standard. While female salespeople are evaluated more meticulously and selectively, male salespeople are treated with a more tolerant and customary approach. When shopping from women, statements such as "they should be more hygienic, more organized, look clean, pay attention to their attire" stand out. Expectations of female sellers are often that they should be more meticulous, attentive, and cheerful. This situation has been expressed with the code "a more selective view of women." For male sellers, criteria such as hygiene or presentation have mostly been less important or evaluated based on "habit."

5. Conclusion and Discussion

This research was conducted to understand the role of female vendors in consumer perceptions in the context of street food, and in-depth qualitative data was obtained through structured interviews. The interviews with participants were evaluated using thematic analysis, revealing the multi-layered structure of street food in the eyes of consumers.

The first part of the study revealed that street food carries cultural, nostalgic, and emotional significance for consumers, beyond being merely an economical and practical alternative. Factors such as taste, affordability, and accessibility emerged as key determinants of consumption decisions. However, the perception of hygiene was also a decisive factor in consumption preferences; in particular, open-air sales and lack of supervision sometimes undermined confidence in street foods.

The findings obtained within the framework of the study's main problem, "consumer perceptions of female vendors," revealed striking differences. Although a large proportion of participants stated that the vendor's gender did not directly influence their purchasing decision, it was observed that higher hygiene expectations, meticulousness, and presentation standards were applied when evaluating female vendors. This reflects a sense of trust in women, but also points to a double standard.

It was observed that participants developed feelings of appreciation, pride, empathy, and support towards female sellers; however, there were also situations where they found the presence of women in this field unusual and even worrying. It is understood that women working in public spaces, especially at night, is considered risky in terms of safety, and this is indirectly reflected in consumer perception. Furthermore, as seen in the theme of "criterion differences," it was stated that female vendors are expected to be more selective, more critical, and held to higher standards than their male counterparts.

This study is one of the rare qualitative studies that examines the relationship between gender roles and consumer behavior in the context of street gastronomy. In this respect, it makes a unique contribution to the field of gastronomy from a gender perspective. By revealing how perceptions of women's economic visibility in public spaces are shaped in the consumer mind, it adds a new layer to the consumer behavior literature. Furthermore, the findings obtained through qualitative thematic analysis produce conceptual codes that can serve as a basis for developing criteria and scales for future mixed and quantitative research.

- Local governments, gastronomy festivals, and street food organizations can be advised to develop social awareness and support strategies to make female vendors more visible.
- Strengthening positive perceptions of female street vendors based on hygiene, presentation, and trust can be transformed into marketing opportunities to increase female employment.
- Ensuring that both female and male street vendors provide more professional and sustainable services through food inspections, hygiene training, and consumer awareness campaigns will increase consumer confidence and public support.
- Awareness campaigns that make consumers aware of their double standards can support normative changes towards gender equality.

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Chapter 5

Evaluating Türkiye in the Gastronomic Identity of the Best Mediterranean Countries: A Comparative Analysis Based on TasteAtlas

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1. Introduction

Food is considered a significant indicator of identity and belonging, beyond simply meeting individuals' biological needs. Food preferences reflect individuals' backgrounds, cultural identities, and social affiliations (Fischler, 1988; Murcott, 1982). The "You are what you eat" approach reveals that culinary culture has become a symbol of national identity, and in this context, national cuisine is positioned as a tool for both historical and cultural transmission (Lawrence and Tushman, 2020). The ways in which food is prepared and consumed are also reflections of social structure. While trends toward individualization have strengthened with modernization, traditional table practices continue to play an influential role in identity transmission (Crowther, 2013).

In the digital age, food is no longer merely a part of everyday consumption practices; it has also become a primary tool of cultural transmission and representation. The participatory environment offered by Web 2.0 technologies allows individual experiences to be transformed into a collective memory through recipes, visuals, and venue suggestions (Rousseau, 2012; De Solier, 2013). In this context, traditional food knowledge has moved beyond being an intergenerational legacy and has entered global circulation through blogs, social media accounts, and digital platforms (Kwik, 2008; Goody, 2001). Indeed, the literature frequently emphasizes that food memory has evolved from individual experiences to collective memory, and

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that sensory dimensions play a role in the construction of social identity (Holtzman, 2006; Sutton, 2008; Halbwachs, 2019). In this process, the guiding function of digital environments is accelerating the transformation of traditional knowledge memory and radically changing the way new generations acquire culinary knowledge (Alpyıldız, 2022).

Digital gastronomy platforms, by cataloging local culinary elements, regional recipes, and authentic venues on a global scale, create new research opportunities in both academic and applied fields. Online atlases like TasteAtlas increase the visibility of culinary cultures through traditional dishes, regional products, and "best of" lists; they also provide important data sources on how countries' gastronomic identities are perceived internationally. The fact that the content production logic of these platforms is shaped by user reviews and category classifications necessitates examining the dynamics of representation and visibility from both cultural and economic perspectives (Nogueira, 2023).

The representation of Turkish cuisine on digital platforms like TasteAtlas not only increases the visibility of gastronomic diversity but also facilitates the reconstruction of cultural identity on an international scale. Digital gastronomy platforms provide a current and concrete example of this process, with Turkish cuisine, along with Mediterranean countries, becoming visible not only through its geographical and cultural context but also through the representations it has garnered in global circulation. Thus, Turkey's culinary identity, while preserving its distinctiveness based on local elements, is being rebuilt internationally as an "export cuisine" (Mintz, 1996).

In the context of Turkey, the reflections of similarities and differences across the Mediterranean region on TasteAtlas are comparatively evaluated through gastronomic diversity, prominent dishes, restaurant categories, and visibility levels. The primary objective of this research is to reveal the representation of Mediterranean cuisines on the TasteAtlas platform and to examine Turkey's position in this representation in comparison with other Mediterranean countries. The study aims to explain the impact of digital visibility on gastronomic identity by analyzing the distribution of dishes, restaurants, and categories on the platform.

The significance of this research lies in its data-based exploration of the role digital platforms play in cultural representation and its critical assessment of Turkey's gastronomic visibility. In this respect, the study offers a theoretical contribution to the literature while also aiming to produce findings that will guide strategic practices in the fields of gastronomy and tourism

2. Conceptual Framework

Gastronomy and Identity

The relationship between the concepts of food, culture, and identity varies across societies. Gastronomic identity allows for the formation of a region's culinary culture (Töre Başat, Sandıkçı & Çelik, 2017). Harrington (2005) associates gastronomic identity with the environmental and cultural elements that shape a destination's food and beverage sector, emphasizing that this identity is determined not only by environmental factors such as geography, climate, and local products, but also by history, traditions, beliefs, and values. Regional culinary elements, flavor composition, and table settings enable the integration of gastronomic identity with cultural identity.

Furthermore, regional gastronomic products and presentation styles reflect the characteristics of the destination and form the basis of gastronomic identity (Bekar & Karakulak, 2017). In this context, gastronomic identity is addressed in its cultural and social aspects and is gaining increasing importance with the increasing interest in local cuisine in tourism literature (Çalışkan, 2013; Ürkün ve Özgürel, 2025).

National Cuisine, Globalization

Today, the origins, development, and global circulation of national cuisines have become a subject of debate in gastronomy research. Simone Cinotto (2006) emphasizes that national cuisines do not have historically fixed or pure structures, but are constantly shaped by migration, trade, colonialism, and global food circulation. As Sidney Mintz has stated, cuisines often gain their identities when introduced to different geographies rather than their home countries, becoming a kind of "export cuisine." In this context, globalization is considered a process that transforms and redefines cuisines rather than a factor that threatens their authenticity. The nationalization of French cuisine, the adaptation of Western elements in Japanese cuisine, or the diasporic reconstruction of Belizean cuisine are typical examples of this transformation (Mintz, 1996; Cinotto, 2006).

Taste Atlas

TasteAtlas is a digital platform offering information on traditional dishes, local ingredients, and authentic recipes from around the world. Functioning as an online gastronomic atlas, it aims to highlight and celebrate the diversity of global cuisines. Its user-friendly interface provides access to a vast database of dishes, ingredients, and local flavors (Amalia et al., 2024). TasteAtlas describes itself as follows: "TasteAtlas is an encyclopedia of flavors, a world atlas of traditional dishes, regional ingredients, and authentic restaurants. We have cataloged over 10,000 foods and beverages, and tens of thousands more remain to be researched and mapped. Besides the popular ones, there are also forgotten tastes and aromas from every city, region, and village in the world" (TasteAtlas, 2025).

The platform's origins stem from founder Matija Babit's desire to discover new flavors. Realizing there were no resources available to access diverse cuisines, Babit developed the idea in 2015. After approximately three years of development, TasteAtlas was launched in 2018. The app made it possible to obtain comprehensive information about regional dishes, cuisines, and various food categories from around the world (Nogueria, 2023). The platform, which remains accessible today, is regularly updated and provides new data every year (Güler ve Akdemir, 2025).

TasteAtlas is considered a global food guide that lists all the world's cuisines and their regional dishes. The platform, which has been active since 2018, began publishing "best of" lists in 2022. One of the most striking aspects of these lists is that the rankings are based entirely on user-generated, free-flowing evaluations (Erbay & Beyoğlu, 2023). Today, users worldwide construct identities, establish influence, shape aesthetic norms and cultural power, and even play a decisive role in social and economic contexts through the food content they produce not only through platforms like TasteAtlas but also on social media platforms like Instagram (Contois & Kish, 2022).

3. Method

This research was conducted using the descriptive analysis method, which is a qualitative research approach. Descriptive analysis is a type of qualitative data analysis that involves summarizing and interpreting data obtained through various data collection techniques according to predetermined themes. The primary goal of this method is to present the findings to the reader in an organized, meaningful, and interpreted manner (Yıldırım & Şimşek, 2003).

The study sample was comprised of countries located in the Mediterranean basin that are prominent in terms of tourism. Based on World Tourism Ranking data (Wikipedia, 2024), France, Spain, Italy, Turkey, and Greece, which ranked in the top 10 in terms of international tourist numbers in 2024, were included in the study (WP Travel, 2024; UNWTO, 2024, as cited in Wikipedia, 2025). These countries were chosen both because of their geographical location in the Mediterranean region and their high competitiveness in the tourism sector.

The research dataset was compiled from lists published on the TasteAtlas platform, an online gastronomy atlas. Data from the "100 Best Dishes," "100 Best Cuisines," "100 Best Food Regions," "100 Best Food Cities," and "100 Best Foods by Category" categories were evaluated. Numerical findings for each category were compiled on a country basis and presented in tables and percentages. This method allows for a comparative analysis of countries' visibility on digital gastronomy platforms (Nogueira, 2023; TasteAtlas, 2025).

The methodological approach used in the study combines descriptive and comparative analysis. Descriptive analysis allowed TasteAtlas data to be presented in tables and percentages, while comparative analysis allowed for the identification of similarities and differences between countries by combining these findings with tourism data. Thus, the digital representation of the gastronomic identities of five prominent Mediterranean tourism countries was evaluated from a holistic perspective, in conjunction with global tourism data.

4.Findings

This study systematically examines the cuisines of Mediterranean countries ranked among the top 10 in global tourism in 2024, based on the 100 Best Foods by Category dataset, across 20 distinct food categories (UNWTO, 2024, as cited in Wikipedia, 2025; TasteAtlas, 2025). The food categories analyzed include: Cheeses, Meat Products, Soups, Salads, Pasta, Noodle Dishes, Meat Dishes, Poultry Dishes, Vegetable Dishes, Stews, Breads, Snacks, Pastries, Dumplings, Cooked Sausages, Sandwiches, Dips, Spreads, Cakes, and Seafood Dishes.

The tables presented illustrate, for each category, the number of dishes per country and their proportional representation within the total category. The findings reveal the gastronomic diversity of these countries and highlight the dominance of specific food categories, providing a comparative framework for evaluating characteristic features of Mediterranean cuisines.

Table 1. 100 Best Foods by Category; Cheeses, Meat Products, Soups, Salads, Pasta

	Cheeses		**Meat Products**		**Soups**		**Salads**		**Pasta**	
Country	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
France	16	% 22.9	13	% 22.8	2	25%	4	% 17.4	1	% 1.2
Spain	6	% 8.6	15	% 26.3	1	% 12.5	5	% 21.7	2	% 2.3
Italy	28	40%	28	% 49.1	-	-	2	% 8.7	78	% 90.7
Türkiye	1	% 1.4	1	% 1.8	**4**	**50%**	**6**	**% 26.1**	-	-
Greece	19	% 27.1	-	-	1	% 12.5	6	% 26.1	5	% 5.8
Total	70	100%	57	100%	8	100%	23	100%	86	100%

In the Cheese category, which totals 70 products, Italy holds a clear lead with 28 products, accounting for 40% of the total. Greece is the second-largest contributor with 19 products, representing 27.1% of the total. France also contributes significantly with 16 products, making up 22.9%. Spain contributes 6 products, equating to 8.6%, while Türkiye has the lowest share in this category with only 1 product, or 1.4%.

The Meat Products category totals 57 items, with Italy being the dominant country, providing 28 products and representing nearly half of the total at 49.1%. Spain follows as a strong contributor with 15 products, accounting for 26.3%. France contributes 13 products, or 22.8%. Türkiye has a minimal share of 1 product (1.8%), and notably, Greece contributes zero products (0%) to this category.

The Soup category has the smallest total volume of all categories examined, listing only 8 products in total. Türkiye shows the highest concentration here, contributing 4 products, which is exactly 50% of the total Soup count. France is the next largest contributor with 2 products (25%). Spain and Greece each contribute 1 product, accounting for 12.5% each. Italy has no products listed in the Soup category.

With a total of 23 products, the Salad category exhibits a relatively balanced distribution among the participating countries. Türkiye and Greece share the highest percentage, each contributing 6 products, which accounts for 26.1% of the total respectively. Spain is close behind with 5 products (21.7%). France contributes 4 products (17.4%), while Italy has the lowest share with 2 products (8.7%).

The Pasta category, with 86 total products, holds the highest product count in the table. This category is overwhelmingly dominated by Italy, which contributes 78 products, equating to a massive 90.7% share. Greece is the second-largest contributor, though significantly smaller, with 5 products (5.8%). Spain and France contribute 2 products (2.3%) and 1 product (1.2%) respectively. Similar to the Soup category for Italy, Türkiye has zero products listed in the Pasta category.

Table 2. Comparative Percentage Distribution of Cheeses, Meat Products, Soups, Salads, and Pasta Across Five Countries

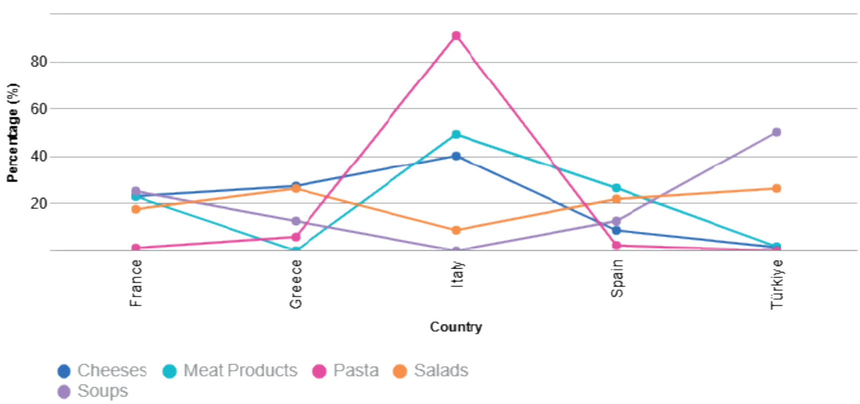


Table 3. 100 Best Foods by Category; Noodle Dishes, Meat Dishes, Poultry Dishes, Vegetable Dishes, Stews

	Noodle Dishes		Meat Dishes		Poultry Dishes		Vegetable Dishes		Stews	
Country	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
France	-	-	4	% 16.7	4	40%	1	% 4.2	2	% 18.2
Spain	-	-	-	-	1	10%	6	25%	3	% 27.3
Italy	1	100%	6	25%	-	-	5	% 20.8	2	% 18.2
Türkiye	-	-	**8**	**% 33.3**	3	30%	**6**	**25%**	1	9%
Greece	-	-	6	25%	2	20%	6	25%	3	% 27.3
Total	1	100%	24	100%	10	100%	24	100%	11	100%

This category has the smallest total count, with only 1 product across all countries. This single item is contributed entirely by Italy, which accounts for 100% of the total Noodle Dishes count. No products are listed for France, Spain, Türkiye, or Greece.

Out of a total of 24 Meat Dishes, Türkiye emerges as the leading contributor with 8 products, representing 33.3% of the total. Italy and Greece share the second-highest contribution, each providing 6 products, which accounts for 25% of the total count. France contributes 4 products, or 16.7%. Notably, Spain has zero products listed in this category (0%).

The Poultry Dishes category totals 10 products. France is the primary contributor, accounting for 4 products and a significant 40% share. Türkiye follows with 3 products (30%). Greece contributes 2 products (20%), and Spain provides 1 product (10%). Similar to Meat Products for Spain, Italy has no products listed in the Poultry Dishes category (0%).

The Vegetable Dishes category, totaling 24 products, shows a highly balanced contribution among several countries. Spain, Türkiye, and Greece are tied for the largest share, each contributing 6 products, accounting for 25% of the total count. Italy is slightly behind with 5 products (20.8%). France is the lowest contributor in this category, listing only 1 product, or 4.2%.

With a total of 11 products, the Stews category also shows shared leadership. Spain and Greece are tied at the top, each contributing 3 products, which equals 27.3% of the total. France and Italy are tied for the next position, each providing 2 products, accounting for 18.2% of the total count. Türkiye provides the lowest contribution in this category with 1 product, or 9%.

Table 4. Comparative Percentage Distribution of Noodle Dishes, Meat Dishes, Poultry Dishes, Vegetable Dishes and Stews Across Five Countries

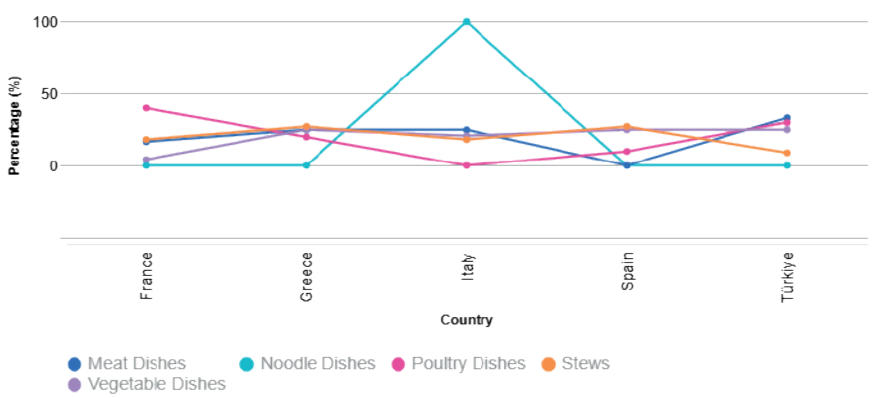


Table 5. 100 Best Foods by Category; Breads, Snacks, Pastries, Dumplings, Cooked Sausages

	Breads		**Snacks**		**Pastries**		**Dumplings**		**Cooked Sausages**	
Country	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
France	2	% 7.7	1	% 4.5	10	% 27.8	-	-	4	21%
Spain	1	% 3.9	4	% 18.2	1	% 2.8	-	-	9	% 47.4
Italy	11	% 42.3	8	% 36.4	8	% 22.2	20	% 95.2	4	21%
Türkiye	9	% 34.6	5	% 22.7	9	25%	1	% 4.8	1	% 5.3
Greece	3	% 11.5	4	% 18.2	8	% 22.2	-	-	1	% 5.3
Total	26	100%	22	100%	36	100%	21	100%	19	100%

Out of a total of 26 Bread products, Italy holds the largest share, contributing 11 items and accounting for 42.3% of the total. Türkiye follows closely as the second-highest contributor, with 9 products and a 34.6% share. Greece provides 3 products (11.5%), while France and Spain have the lowest representation, contributing 2 products (7.7%) and 1 product (3.9%), respectively.

The Snacks category totals 22 products, with Italy leading the contribution by providing 8 items, representing 36.4% of the total. Türkiye is the second-highest contributor with 5 products (22.7%). Spain and Greece are tied for the next position, each contributing 4 products and holding an 18.2% share. France has the lowest representation in Snacks, contributing only 1 product (4.5%).

The Pastries category has the largest volume in this table, totaling 36 products. France is the primary contributor with 10 products, accounting for 27.8% of the total. Türkiye is close behind with 9 products (25%). Italy and Greece are tied for the third position, each contributing 8 products and holding a 22.2% share. Spain is the lowest contributor in this category with only 1 product (2.8%).

This category totals 21 products and is overwhelmingly dominated by Italy, which contributes 20 items, representing 95.2% of the total count. Türkiye is the only other country contributing to this category, providing 1 product (4.8%). France, Spain, and Greece all contribute zero products (0%) to the Dumplings category.

The Cooked Sausages category totals 19 products, and Spain is the clear leader, providing 9 products, which accounts for 47.4% of the total count.

France and Italy are tied for the second-highest contribution, each providing 4 products and accounting for 21% of the total. Türkiye and Greece are tied for the lowest share in this category, each contributing 1 product (5.3%).

Table 6. Comparative Percentage Distribution of Breads, Snacks, Pastries, Dumplings and Cooked Sausages Across Five Countries

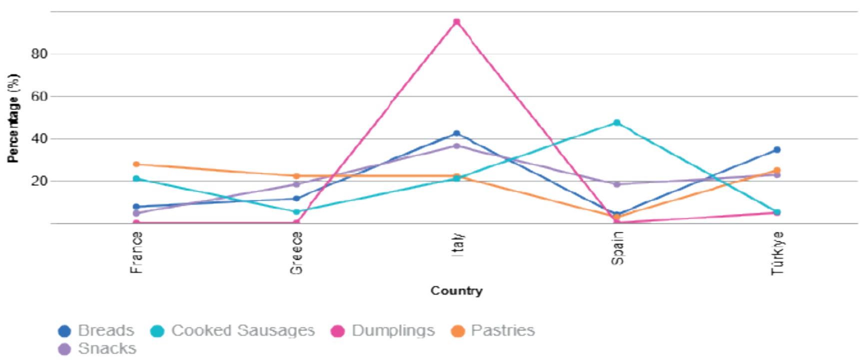


Table 7. 100 Best Foods by Category; Sandwiches, Dips, Spreads, Cakes and Seafood Dishes

	Sandwiches		Dips		Spreads		Cakes		Seafood Dishes	
Country	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
France	3	% 16.7	6	24%	6	% 26.1	9	% 42.9	2	10%
Spain	8	% 44.4	4	16%	4	% 17.4	2	% 9.5	5	25%
Italy	5	% 27.8	3	12%	2	% 8.7	8	% 38.1	9	45%
Türkiye	2	% 11.1	5	20%	5	% 21.7	-	-	1	5%
Greece	-	-	7	28%	6	% 26.1	2	% 9.5	3	15%
Total	18	100%	25	100%	23	100%	21	100%	20	100%

The Sandwiches category totals 18 products and is dominated by Spain, which contributes 8 items, representing 44.4% of the total. Italy is the second-largest contributor with 5 products (27.8%). France contributes 3 products (16.7%), and Türkiye provides 2 products (11.1%). Notably, Greece has zero products listed in this category (0%).

The Dips category totals 25 products. The highest contributions come from Greece (7 products, 28%) and France (6 products, 24%). Türkiye is the third-highest contributor with 5 products (20%). Spain provides 4 products (16%), and Italy has the lowest share with 3 products (12%).

The Spreads category totals 23 products and shows shared leadership between France and Greece, which each contribute 6 products, accounting for 26.1% of the total. Türkiye follows closely with 5 products (21.7%). Spain contributes 4 products (17.4%), and Italy has the lowest share with 2 products (8.7%).

The Cakes category totals 21 products and is clearly dominated by France and Italy. France leads with 9 products (42.9%), while Italy is right behind with 8 products (38.1%). Spain and Greece each contribute 2 products (9.5%). Crucially, Türkiye contributes zero products (0%) to the Cakes category.

The Seafood Dishes category totals 20 products and is dominated by Italy, which contributes 9 items, accounting for 45% of the total. Spain is the second-largest contributor with 5 products (25%). Greece contributes 3 products (15%), and France provides 2 products (10%). Türkiye has the lowest contribution in this category with only 1 product (5%).

Table 8. Comparative Percentage Distribution of Sandwiches, Dips, Spreads, Cakes and Seafood Dishes Across Five Countries

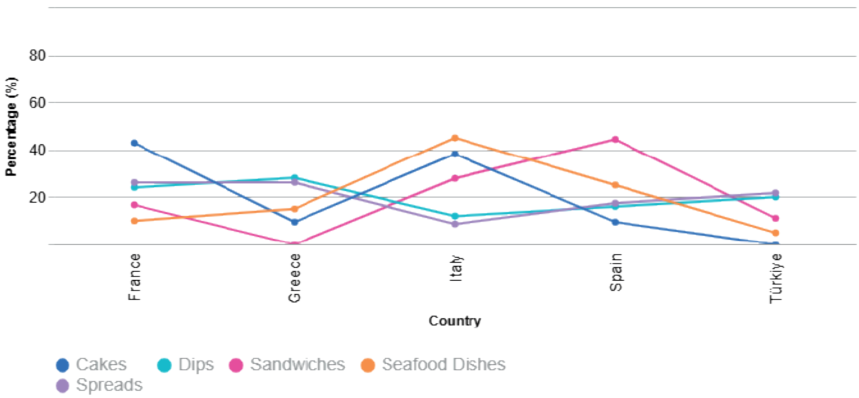
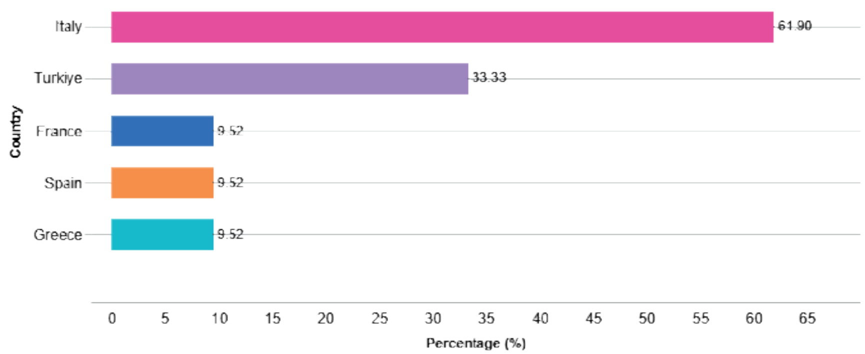


Table 9. 100 Best Foods

Country	Number Of Dishes	% of Category
France	2	9.52
Spain	2	9.52
Italy	13	61.90
Turkiye	7	33.33
Greece	2	9.52

Table 10. Percentage Distribution of 100 Best Foods



In the "100 Best Dishes" category, Italy leads with 13 dishes, accounting for 61.90% of the total. Turkey demonstrates a strong position with 7 dishes (33.33%), indicating its significant role within the context of Mediterranean cuisine. France and Spain have only two examples each (9.52%), and Greece is similarly represented by two dishes. This distribution suggests that Turkey holds a competitive position among world cuisines, with increasing international recognition of its traditional dish diversity.

Table 11. 100 Best Cuisines in the World Rank

Country	Number Of Dishes
France	8
Spain	4
Italy	2
Turkiye	6
Greece	1

In the "100 Best Cuisines" ranking, Turkey holds the 6th position, while France is 8th, Spain 4th, Italy 2nd, and Greece 1st. This ranking reflects Turkey's strong culinary tradition within Mediterranean gastronomy, yet it remains somewhat behind globally recognized cuisines such as those of Italy and Greece. Turkey's position indicates significant potential in terms of culinary diversity and uniqueness, while also highlighting the need for enhanced international promotion to increase global recognition.

Table 12. 00 Best Food Regions in the World

Country	Number Of Dishes	% of Category
France	14	28.00
Spain	5	10.00
Italy	15	30.00
Turkiye	4	8.00
Greece	10	20.00

In the "100 Best Food Regions" category, Italy leads with 15 regions, representing 30.00% of the total. Turkey is represented by 4 regions (8.00%), while France has 14 regions (28.00%), Greece 10 regions (20.00%), and Spain 5 regions (10.00%). This indicates that Turkey possesses notable regional culinary diversity, yet its recognition is limited compared to countries such as Italy and France. The findings suggest potential for Turkey to increase international visibility through its diverse regional cuisines.

Table 13. 100 Best Food Cities

Country	Number Of Dishes	% of Category
France	4	10.81
Spain	6	16.22
Italy	20	54.05
Turkiye	3	8.11
Greece	1	2.70

In the "100 Best Food Cities" list, Italy leads with 20 cities (54.05%). Turkey has moderate representation with 3 cities (8.11%), while France contributes 4 cities (10.81%), Spain 6 cities (16.22%), and Greece 1 city (2.70%). This distribution indicates that Turkey's visibility in culinary tourism is limited to certain cities, highlighting the potential need for promoting additional cities and gastronomic centers internationally.

Table 14. 100 Most Legendary Restaurants in the World

Country	Number Of Dishes	% of Category
France	4	10.81
Spain	6	16.22
Italy	20	54.05
Turkiye	3	8.11
Greece	1	2.70

In the “100 Most Legendary Restaurants” category, Italy leads with 11 restaurants (37.93%). Spain follows with 9 restaurants (31.03%), Turkey with 5 restaurants (17.24%), and France with 4 restaurants (13.79%). Greece is not represented in this category. This indicates that Turkey has limited global visibility regarding legendary restaurants, yet considering its rich culinary culture and local flavors, there is potential for achieving greater international recognition in this area.

Table 15. 100 Most Legendary Cookbooks

Country	Number Of Dishes	% of Category
France	3	17.65
Spain	3	17.65
Italy	8	47.06
Turkiye	1	5.88
Greece	2	11.76

In the “100 Most Legendary Cookbooks” category, Italy leads with 8 books (47.06%). France and Spain each have 3 books (17.65%), Greece 2 books (11.76%), and Turkey 1 book (5.88%). This demonstrates that Turkey has very limited representation in legendary cookbooks. Considering its rich culinary culture and traditional recipes, there is substantial potential for increasing international visibility in culinary literature.

5. Conclusion and Discussion

The findings of this research reveal that Türkiye’s representation on the digital gastronomy platform TasteAtlas varies considerably across different categories when compared to other Mediterranean countries. While Türkiye demonstrates strong visibility in categories such as soups, meat dishes, vegetable dishes, salads, pastries, and breads, it remains underrepresented in others, including cheeses, pasta, seafood, cakes, legendary restaurants, and cookbooks. These differences can be explained both by historical and cultural culinary dynamics and by the content generation mechanisms of digital platforms.

Türkiye’s dominance in soups (50%) and meat dishes (33.3%) is directly linked to traditional dietary habits. Soups such as lentil, kelle paça and beyran soup hold a strong place in both everyday life and cultural memory. Similarly, kebabs, köfte, and stews reflect the continuation of nomadic traditions and meat-centered dietary culture. These strengths highlight the authenticity and diversity of Turkish cuisine. In contrast, Türkiye’s very limited representation in the cheese category (1.4%) is noteworthy. Despite the presence of numerous geographically indicated cheeses (e.g., Ezine, Kars kaşar, Erzincan tulum) their lack of international recognition results in restricted visibility on platforms like TasteAtlas. Countries such as Italy (40%) and Greece (27.1%) have been far more successful in promoting and branding their cheeses globally (Çakmakçı & Salık, 2021). This finding aligns with Mintz's (1996) concept of "export cuisines," as Turkish cheeses have remained primarily domestically consumed, without gaining significant presence in global markets.

Italy's overwhelming dominance in the pasta category, accounting for more than 90% of representation, demonstrates how international gastronomic identities are formed. Cinotto (2006) emphasized that Italian cuisine achieved global recognition largely through iconic products such as pasta and pizza. Türkiye's absence from this category can be seen as a natural outcome of pasta being symbolically embedded within Italian culinary identity. By contrast, Türkiye's moderate to strong representation in breads, pastries, and baked goods reflects the importance of dough-based products in Anatolian culinary culture. Dishes such as baklava, börek, and gözleme are internationally recognized. However, Türkiye's limited presence in cakes and cookbooks suggests that it has yet to establish a strong position in modern gastronomy literature and global culinary publishing.

Türkiye's mid-level ranking in higher-order TasteAtlas lists such as "100 Best Cuisines" and "100 Best Food Cities" indicates that, despite its rich culinary heritage, its digital visibility still requires more strategic enhancement. As Erbay and Beyoğlu (2023) argue, the evaluations of independent international food authorities directly influence the global recognition of cuisines. Türkiye's sixth place ranking shows strong potential, but when compared with Italy and Greece, it is evident that it still lags behind. In this sense, emphasizing the categories where Türkiye excels in international promotion could contribute significantly to the branding of its cuisine. Conversely, categories where Türkiye is weak, such as cheeses, seafood, and cookbooks, require targeted strategies. Expanding the international presence of geographically indicated products, increasing the visibility of gastronomic cities (e.g., Gaziantep, Hatay), and supporting restaurant branding are crucial steps. Similarly, publishing more cookbooks and academic works could strengthen Türkiye's representation in the culinary literature.

Overall, this study shows that Türkiye possesses strong potential within Mediterranean cuisine but remains limited in terms of global visibility in certain domains. The findings emphasize that gastronomic identity is shaped not only by culinary diversity but also by international promotion, digital presence, and cultural diplomacy. In this respect, the study contributes to the literature by highlighting the interplay between gastronomic identity, cultural heritage, and digital visibility. At the same time, the results provide practical implications for Türkiye in terms of gastronomy tourism, culinary diplomacy, and international promotional strategies. More strategic action in these areas could strengthen Türkiye's position in global competition and make its place among Mediterranean cuisines more prominent.

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Chapter 6

The Green Restaurant Effect: Reducing Carbon Footprint and Enhancing Gastronomy Tourism

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1. Introduction

Climate change stands as one of the most pressing global challenges, fundamentally reshaping economic, social, and environmental systems worldwide. The reduction of the carbon footprint is not confined to sectors such as energy and transportation but extends directly to food and tourism as well (Yılmaz & Biliç, 2025). Rising population levels, rapid urbanization, and shifts in consumption patterns exert significant environmental pressures, particularly within food production and service industries. Mitigating the climate crisis and achieving sustainability goals necessitate the reduction of environmental impacts at every stage of the food chain, rendering this approach an imperative rather than an option (Bayar, 2022).

The food and beverage sector occupies a critical position in reducing greenhouse gas emissions. Restaurants generate environmental burdens across multiple processes, ranging from menu planning and supply chains to cooking methods and waste management. Kitchen equipment, intensive water consumption, and food waste stand out as the primary contributors to the carbon footprint of restaurants (Yang et al., 2025). In recent years, "green restaurant" practices, driven by sustainability principles, have been recognized as a strategic step toward mitigating these impacts (Yong

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et al., 2024). By incorporating measures such as the use of local and seasonal ingredients, energy efficiency, waste recovery, and environmental certification, green restaurants lower operational costs while also cultivating an environmentally responsible brand image (Yazıcıoğlu & Aydın, 2018). A particularly tangible example of this transformation is the inclusion of carbon footprint information on menus. Listing the emissions generated during the production, processing, and transportation of each dish raises consumer awareness in decision-making and reinforces restaurants' sense of accountability (Liu et al., 2022).

In recent years, gastronomy tourism has evolved into a multidimensional phenomenon that extends beyond the discovery of local flavors and cultural experiences, including environmental and ethical dimensions as well. Several key dynamics encourage this transformation. Foremost among them is the global crisis brought about by climate change, which has heightened consumers' environmental awareness and prompted individuals to question the ecological costs of the products they consume (Akdağ & Şimşek, 2024). The visibility of environmental issues through media and digital platforms has further raised awareness of concerns such as carbon emissions, food waste, and biodiversity loss. In the aftermath of the pandemic, health and safety considerations have also played a role, leading consumers to prioritize not only taste but also sustainable production, clean ingredients, and ethical supply chains. This shift has introduced a new dimension to gastronomy tourism (Malickova, 2025). When evaluating destinations, tourists now consider not only the authenticity of culinary culture but also environmentally conscious practices. Green restaurants respond to this demand through strategies such as energy and water conservation, waste management, the use of local and seasonal ingredients, and menus that display carbon footprint information, thereby enhancing the attractiveness of destinations (Madanaguli et al., 2022). Carbon-labeled menus enable tourists to consider not only price and flavor but also environmental impact when making dining choices. This development positions gastronomy tourism within the framework of conscious consumption (Bschaden et al., 2024). Consequently, sustainable culinary practices have come to represent more than a marketing strategy for businesses; they now serve as a factor that strengthens the brand value of destinations.

This study addresses, within a holistic framework, the significance of reducing the carbon footprint on a global scale, the role of restaurants in the climate crisis, and the orientation of gastronomy tourism toward sustainability. Its purpose is to examine best practices aimed at mitigating the environmental impacts of restaurants and to highlight how carbon-labeled menus and other green restaurant strategies generate value within the tourism sector. Designed as a qualitative review article, the study draws on national and international academic publications, reports, and industry-focused research published in recent years. The findings demonstrate that green restaurant practices play an effective role in reducing the carbon footprint of restaurants while also making a direct contribution to sustainable gastronomy tourism. The results further reveal that environmentally friendly menu design, energy efficiency, waste management, and the use of local products not only reduce the environmental burden of businesses but also enhance the brand value and touristic appeal of destinations.

2. Gastrotourism and Sustainability

The industrial, agricultural, and service sectors exhibit varying degrees of sensitivity to climate change, with its impacts differing across regions. Approximately 8% of global greenhouse gas emissions stem from agricultural and tourism activities (Lenzen et al., 2018). Agriculture and tourism both contribute to climate change and are directly affected by its consequences. These sectors rely heavily on natural resources such as soil, fossil fuels, fertilizers, and pesticides, leading to intensive resource consumption, waste generation, and increased carbon emissions. The outcomes of climate change may unfold differently depending on geographical conditions; while some regions may experience beneficial effects, others may suffer from more severe negative consequences (UNWTO, 2008). Within tourism, food services and restaurant businesses occupy a significant position, often ranking as the third-largest revenue source after transportation and accommodation (Wang et al., 2013). According to data from the World Tourism Organization (UNWTO), 1.4 billion international tourist arrivals were recorded globally in 2018 (UNWTO, 2019). Assuming an average of three meals per tourist per day, this translates to approximately 4 billion meals, the majority of which were provided by food and beverage establishments. Consequently, rising population levels and growing demand for travel lead to increased energy, land, and natural resource consumption by restaurants, directly linking them to global warming. For this reason, it has become imperative that all tourism-related sectors—including transportation, accommodation, and food services—adapt to climate change. Such adaptation not only minimizes risks but also enables the pursuit of sustainable economic, social, and environmental opportunities (Özgen, Binboğa, & Güneş, 2021).

Restaurants rank among the highest energy-consuming businesses within the retail sector and generate environmental impacts throughout their supply chains. The use of low-carbon ingredients, minimization of food waste, and the implementation of energy-efficient equipment and facility designs play a critical role in reducing greenhouse gas emissions in restaurants (Filimonau et al., 2017). Furthermore, sharing reliable carbon and nutritional data related to food ingredients and production processes with consumers enables socially conscious customers to make environmentally friendly menu choices (Pulkkinen et al., 2016). In recent years, the rise in consumer environmental awareness and the increasing preference for eco-friendly products have enhanced the value of sustainable practices in restaurants (Yu & Liu, 2021).

Gastronomy tourism is increasingly recognized as a distinctive segment within the tourism industry. This form of tourism allows participants to closely experience a region's culinary culture and to taste unique foods developed within the context of the region's climate, local ingredients, cultural traditions, customs, and historical background (Nesterchuk, 2021). Gastronomy tourists seek authentic and local experiences while demonstrating a preference for sustainable and ethically produced food. Local and distinctive foods contribute to the sustainability of tourism (Resmi, Dhewanto, & Dellyana, 2023). This trend requires food and restaurant businesses to develop sustainability-focused products and to transform their organizational culture accordingly. Successful establishments gain a competitive advantage by appealing to environmentally conscious consumers. The sustainable restaurant concept responds to the growing demand for environmental awareness and healthy living, encouraging industry professionals to adopt eco-friendly practices and establish green organizations, including organizations like the Green Restaurant Association and the Sustainable Restaurant Association.

3. Carbon Footprint in Restaurant Operations

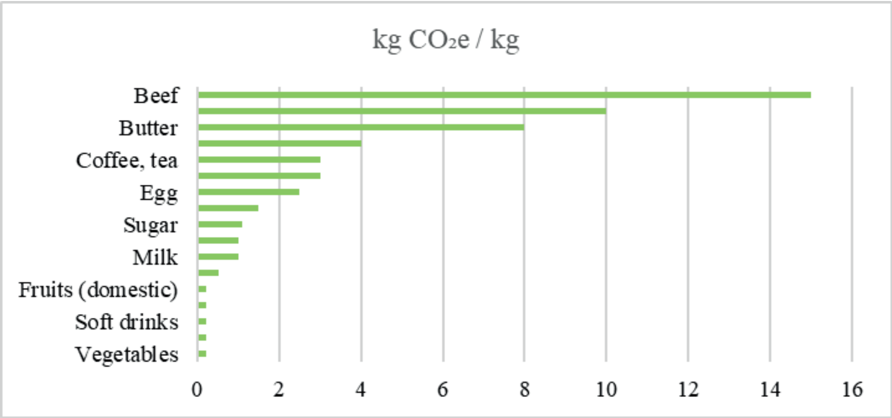
Restaurant businesses occupy a critical position in terms of carbon footprint within both the tourism and food service sectors. The carbon footprint refers to the total amount of direct and indirect greenhouse gas (GHG) emissions released into the atmosphere over the life cycle of a particular activity or product (Pandey & Agrawal, 2014). Key contributors shaping the carbon footprint of restaurants include the supply chain, menu composition, energy usage, and waste management (Figure 1). The supply chain, in particular, accounts for a substantial portion of restaurant emissions; production, processing, transportation, and storage processes can contribute 60–70% of total greenhouse gas emissions (Cerutti et al., 2016). A study conducted by McLennan et al. (2016) in a small café in Kyoto found that the highest carbon footprint impact originated from food production, followed by transportation activities. Similarly, Clune et al. (2017) identified that, on a global scale, foods with the highest warming potential include beef, lamb, and lobster, while those with the lowest are onions, celery, and potatoes. These findings underscore the critical role of selecting appropriate ingredients in menu planning for reducing carbon footprints.

Figure 1. Common Carbon Footprints for Restaurants (Yang et al., 2025)

Kitchen and facility energy consumption represents another major determinant of restaurants' total greenhouse gas emissions. Fossil fuel-powered kitchen equipment and HVAC systems increase direct emissions and contribute to the overall GHG burden at the urban level (Majumdar et al., 2013). A study conducted in Turkiye by Özgen et al. (2021) found that LPG usage in a pizza chain accounted for nearly half of the establishment's five-year carbon footprint. Consequently, energy efficiency measures and fuel transitions represent priority areas for carbon reduction strategies in restaurant operations.

Menu composition represents one of the most critical factors influencing restaurants' carbon footprint. Reducing the consumption of meat and energy-intensive dairy products, while favoring plant-based and seasonal ingredients, can result in significant decreases in overall carbon emissions (Hallström et al., 2015). In Denmark, the Climate+ initiative developed by the Copenhagen City Council aims to guide restaurants toward low-carbon practices by limiting meat consumption at the menu level, increasing the proportion of vegetables and legumes, and minimizing food waste (Pulkkinen et al., 2016). Similarly, in the United States, restaurants offering hyper-local food production and plant-based meals have implemented concrete practices that not only reduce carbon footprints but also enhance consumer awareness (Baldwin et al., 2011).

Table 1. Greenhouse gas emissions from various food in CO_2 equivalents (Byggmästar, 2019).



The climate impact of different food ingredients varies considerably. Meat, particularly beef, generates substantially higher greenhouse gas emissions compared to other foodstuffs. This is primarily due to the requirement of approximately 10 kg of plant-based animal feed to produce 1 kg of meat (Byggmästar, 2019) (Table 1). Pork and poultry, in contrast, emerge as more environmentally friendly alternatives. In Finland, the average per capita annual meat consumption in 2015 was 79 kg, distributed as 35.1 kg of pork, 21.6 kg of poultry, and 19.2 kg of beef (Byggmästar, 2019). These data clearly highlight the importance of minimizing meat-related carbon emissions in menu planning. In selected restaurant examples across Europe and Asia, performing carbon calculations at the menu level and transparently presenting low-carbon items to consumers has contributed to clarifying environmental impacts and promoting sustainable consumption behaviors (Gössling et al., 2011). Menu design, therefore, should consider not only taste and nutritional value but also carbon intensity, providing substantial support for restaurants in achieving their operational sustainability goals.

Waste management in restaurants constitutes a critical component of their carbon footprint. Food waste arises from preparation losses, service-stage waste, and plate leftovers; although these may appear to account for less than 1% of total emissions, preparation losses can exceed 60% (Dhir et al., 2020). In Malaysian restaurants, preparation losses represented the highest proportion at 51.37%, followed by service-related waste at 30.95% and plate leftovers at 17.68% (Sha'ari et al., 2023). Similarly, in New Zealand, of the 24,375 tons of annual food waste, 61% was deemed preventable, largely due to demand forecasting errors, oversized portions, and insufficient staff training (Mazzetto, Falconer, & Ledgard, 2023). A study conducted in Northern Europe reported that the accommodation sector in Finland, Sweden, Norway, and Denmark generated 680,000 tons of food waste annually, of which 456,000 tons were preventable (Kaysen et al., 2012). According to a European Commission report, total food waste in the EU food service sector amounts to 11 million tons, representing 12% of all food waste in the EU, with substantial variation observed among individual countries (Stenmarck et al., 2016). A study evaluating alternative methods for food waste disposal employed life cycle analysis to calculate greenhouse gas emissions and compared options including donation, animal feed, anaerobic digestion, composting, incineration, and landfilling with varying levels of methane capture. The research demonstrated that donation emerged as by far the lowest-emission and most beneficial option (Moult et al., 2018).

Digital technologies and artificial intelligence (AI)-supported systems have proven to be important tools for minimizing food waste and reducing the carbon footprint. AI-based demand forecasting systems, combined with inventory optimization and portion control, can mitigate risks associated with overproduction and spoilage (Bux, 2024). Systems integrated with 3D scanners and digital scales categorize waste, quantify its volume, and assess its environmental impact. Additionally, the use of waste cooking oils in biodiesel production prevents environmental pollution, reduces fossil fuel consumption, and improves engine performance as well as carbon footprint profiles (Onuh, Inambao, & Awogbemi, 2021).

4. The Concept of Green Restaurant

Green restaurants are defined as establishments that place environmental awareness and sustainable production-consumption principles at the core of their operations (Tibon, 2012). Also known as ecological restaurants, these establishments prioritize environmentally friendly practices such as energy efficiency, the careful use of natural resources, waste management, food safety, and the reduction of air and water pollutants (Higgins, Moskwa, & Wijesinghe, 2019). This approach provides businesses with cost advantages, competitive edge, and enhanced brand image, while also contributing to increased environmental awareness in society (Kim & Hall, 2021).

Restaurants that adopt sustainability strategies focus on practices including the use of organic and locally sourced food during production, sustainable supply chains, eco-friendly building design, and energy management (Chen, Sloan, & Legrand, 2010). Restaurants have a significant impact on both carbon footprint and food waste. Food production, packaging, cleaning, energy consumption, and long-distance supply chains generate considerable environmental effects within the restaurant sector (Jang, Kim, & Bonn, 2011). In Turkiye, an average of 93 kilograms of food per capita is wasted annually, leading to the unnecessary loss of existing food as well as the resources used in its production (Chen, Sloan, & Legrand, 2010).

At the international level, organizations such as the Green Restaurant Association (GRA) and the Sustainable Restaurant Association (SRA) guide restaurants toward sustainable practices and provide certification. The GRA focuses on improving environmental performance in areas such as energy, water, and chemical use, waste management, and restaurant facilities, while the SRA supports restaurants in sustainability through education, consultancy, and certification (Keşkekci & Gençer, 2023). These certification systems help restaurants reduce their environmental impact while raising public awareness. In Turkiye, the New Generation Green Restaurateur certification system, implemented in collaboration with Boğaziçi University, the Tourism Restaurant Investors and Operators Association (TURYİD), Istanbul Beşiktaş Municipality, Unilever Food Solutions, and WWF-Turkiye, aims to support local sourcing, reduce energy and water consumption in restaurants, improve waste management, and promote sustainable food use. Under the YNR program, restaurants systematically address food procurement, energy and water use, chemical management, and waste processes; sustainability performance is evaluated through unannounced inspections, and certified establishments are promoted as green restaurants (http://yesilnesilrestoran.org, 2017). These initiatives attract environmentally conscious tourists and local consumers, providing restaurants with a competitive advantage and enhancing brand value (Aydın & Erdoğan, 2016). Green restaurants support environmental sustainability and offer significant opportunities for gastronomy tourism. Tourists increasingly demand information not only about local and authentic culinary experiences but also about production processes and environmental impacts. This conscious consumer behavior encourages restaurants to adopt sustainable practices and contributes to transforming gastronomy tourism into a sector that supports environmental awareness (UNWTO, 2018).

Among restaurants in Turkiye certified under the New Generation Green Restaurateur program are *Kitchenette, Fenix*, *Tom's Kitchen*, *Frankie*, *Sunset*

Grill & Bar, *La Mancha*, and *Tadında Anadolu* (Şahingöz & Güleç, 2019). On the international level, ten restaurants operating in Turkiye stand out for complying with the Green Star standards established by the Michelin Guide: *Agora Pansiyon*, *Vino Locale*, *Hiç Lokanta*, *Asma Yaprağı*, *Neolokal*, *The BARN*, *telezzüz*, *Mezra Yalıkavak*, *Casa Lavanda*, and *OD Urla*. The menus of these restaurants are designed according to seasonal cycles and adhere to principles of sustainability, zero-waste practices, low carbon emissions, and local sourcing. Except for a limited number of indispensable items not grown in Turkiye, such as cocoa, vanilla, and coffee, all ingredients are sourced locally, and menus are developed based on this approach.

Table 2. Carbon Impact Comparison: Traditional vs. Green Restaurants

Criteria	Traditional Restaurant Concept	Green Restaurant Consept	Carbon Impact
Menu Structure	Meat-focused, fixed	Vegan/vegetarian options, seasonal	Meat production □ high carbon emissions Plant-based menu □ 30–50% lower
Supply Chain	Long-distance imported products	Local producers, self-grown	Transportation-related emissions decrease
Energy Use	Conventional kitchen equipment	Energy-efficient tools	Electricity consumption drops by 10–20%
Waste Management	High food waste	Zero waste, composting, recycling	Landfill methane emissions decrease
Single-use Materials	Plastic plates, straws	Biodegradable materials	Carbon footprint of plastics decreases
Training & Culture	No employee awareness	Employee & tourist training	Sustainable behavior becomes long-term

Source: (FA0, 2021; SRA, 2020; WRAP, 2021).

5. Conclusion

The tourism sector's gradual shift toward an experience-oriented model has made gastronomy an integral component of destinations. However, the long-term value of gastronomy tourism is directly linked to both cultural identity and culinary diversity, as well as environmental and social responsibility. In this context, green restaurants emerge as strategic actors in the development of sustainable tourism. They are considered among the most tangible and effective measures for reducing the carbon footprint within the tourism sector. The energy, water, and raw materials consumed by restaurants directly shape the sector's overall environmental load; consequently, every sustainability decision made at the operational level contributes to lowering destination-level carbon emissions. Reducing the carbon footprint is not a by-product but a central purpose of green restaurants. Therefore, the future of sustainable tourism is closely tied to restaurant businesses adopting and disseminating strategies aimed at carbon reduction.

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Chapter 7

Evaluation of Policy Measures Taken by Countries in Overtourism

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1. Introduction

The tourism industry has a multifaceted structure due to its social, cultural, and environmental impacts, as well as the economic benefits it generates (Duyar & Bayram, 2019). Increasing tourist movements also leads to new problems in destinations. Increased tourist density, particularly in destinations with high appeal such as large cities, coastal areas, natural parks, and cultural heritage sites, has brought the phenomenon of overtourism to the forefront of the international agenda (Goodwin, 2017). The increase in tourist numbers, especially in popular destinations, intensifies overtourism in regions with inadequate infrastructure or weak management (UNWTO, 2024).

Overtourism occurs when the physical, economic, social, cultural, and political capacity of a destination is exceeded due to the damaging effects of tourism (Milano, 2018). It is also defined as the number of visitors to a destination that reach a level at which they can negatively affect the quality of life of the local population and the visitor experience (Aylan & Aylan, 2020).

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Destinations are not taking sufficient measures to address the damage caused by overtourism, which stems from rapid tourism growth (Eren & Bozkurt, 2020). Overtourism causes problems such as environmental degradation, infrastructure deficiencies, social tensions, and a decline in the quality of life of the local population (Yüksel et al., 2020). The tourism industry is not only an economic development tool but also has strategic importance in terms of sustainable development and the empowerment of local communities. For this reason, it is crucial that destinations, museums, and archaeological sites are preserved and passed on to future generations. The environment and cultural heritage in tourist destinations must be protected; otherwise, these assets face the threat of extinction (Timur & Getz, 2009).

The purpose of this study is to outline the policy measures taken in different countries in the context of overtourism. In this regard, secondary data sources were utilised in the research, and the current situation was examined by compiling academic publications, official reports, data from international organisations, relevant policy documents, and news articles. This was done in line with the policies implemented in international contexts. Within this scope, policies and measures in different destinations were examined. Additionally, the contributions of these measures to addressing the problem of overtourism were evaluated.

2. Conceptual Framework

2. 1. The Concept of Overtourism

Popular destinations attract tourists due to their natural environments and cultural images (Çetinoğlu & Meydan Uygur, 2020). In this context, it is crucial to strengthen the image of destinations and manage tourist flows in a balanced manner. However, failure to consider the carrying capacity of regions leads to environmental and social problems due to intense tourist flow (Öztürk, 2020).

In recent years, the unplanned growth of tourism has highlighted issues of excessive crowding, particularly in popular destinations and city centres. In this context, the concepts of 'overtourism,' 'anti-tourism,' and 'tourism phobia' have begun to be discussed in the literature (Özgürel & Yılmaz, 2021). Overtourism refers to a situation where the local population or visitors perceive that the quality of life and experience in a destination has declined to an unacceptable level due to excessive tourist density (Goodwin, 2017). While tourist density provides economic benefits, it can also create various pressures on the local population (Oklevik et al., 2019).

The emergence of overtourism is primarily attributed to the abundance of leisure time, financial power, and the influence of social media (Yarkıcı & Yıldız, 2024). The continuous improvement of accommodation and transportation options in tourism has contributed to a rapid increase in the number of people participating in tourism activities. In particular, the reduction in airfare costs and the availability of many low-cost airlines in the market have made it easier for tourists to reach their destinations (Duyar & Bayram, 2019). However, if tourism is not managed correctly, the growing number of tourists can lead to social and environmental pressures. The rise in reactions against tourism across Europe clearly shows that this situation can cause damage and disruptions and that necessary measures must be taken (The Guardian, 2025a). The phenomenon of overtourism is directly linked to various concepts, including destination management, carrying capacity, social carrying capacity, physical infrastructure, attractiveness factors, local community experiences, and sustainability.

2. 2. The Effects of Overtourism

The long-term appeal of a tourism region depends on tourism management and planning carried out within the framework of environmental sustainability principles (Öztürk, 2020). Overtourism can negatively impact the living conditions of local communities by leading to the overuse of natural resources and environmental pollution (Bayrakcı, 2025). Therefore, strengthening environmental infrastructure and ensuring the continuity of values is crucial in minimising the adverse effects of overtourism and promoting sustainability.

Beyond environmental impacts, the destructive effects of overtourism on the physical and social fabric of cities are also being observed. Increased tourist density exceeds infrastructure capacity, leading to a decline in the quality of public services; problems such as transportation disruptions, insufficient parking, noise, and overcrowding directly affect the daily lives of residents (Gurran & Phibbs, 2017).

Overtourism has led to cultural degradation in terms of traditions and social norms, negatively impacting local communities (Eren & Bozkurt, 2020). When destinations exceed their social carrying capacity, local communities are most adversely affected, and their enjoyment levels decline. This situation leads to negative attitudes and discomfort towards visitors, replacing mutually beneficial social, economic, and cultural interactions (Çetinoğlu & Meydan Uygur, 2020). Furthermore, a destination's physical infrastructure, natural and cultural attractions, and transportation and accommodation facilities can increase tourist demand, but also bring the risk of overcrowding. This situation can lead to problems such as traffic congestion, overcrowding, and seasonal overcrowding (Akyurt Kurnaz & İpar, 2020). This process both lowers the quality of life for the local population and causes the economic and cultural contributions of tourism to society to take a back seat.

The effects of overtourism are not limited to overcrowding and congestion; they also threaten the authenticity of destinations. Uncontrolled tourism development has a negative impact on natural landscapes, causing pollution in the sea and air, and affecting water resources and ecosystems. It also causes to economic inequality and social exclusion. Various policies and strategies have been developed worldwide to limit the negative consequences of overtourism. These policy measures and strategies aim not only to limit the number of tourists but also to protect the welfare of local communities, social interaction, and environmental sustainability (Peeters et al., 2018).

2. 3. Political Measures Taken Around the World

To mitigate the negative impacts of overtourism, many countries and cities worldwide have developed strategies at various scales. Urban tourism policies must be aligned with sustainable urban goals (UNWTO, 2018). The United Nations' Sustainable Development Goals aim to make cities safe, resilient, and sustainable by 2030 (United Nations, 2023). In this context, tourism capacity, transportation, management of natural and cultural resources, and the local community's perception of tourism should be regularly monitored. Sustainable, accessible, and smart cities should be promoted through investments in technology and innovation. Capacity limits should be determined, visitor distribution and segmentation should be planned, and acceptable tourism impacts should be defined with the participation of all stakeholders. Additionally, possible future scenarios should be developed through strategic foresight and scenario planning (UNWTO, 2018).

Cities such as Venice and Barcelona, which are listed on the UNESCO World Heritage List, face social, economic, and environmental pressures resulting from overtourism. Venice, with an average of 60,000 tourists per day, places significant pressure on its local population of approximately 55,000 (Seraphin et al., 2018; Milano, 2017). City residents also bear the negative consequences of tourism growth. As cities transform to accommodate tourists, the global travel supply chain benefits. For example, Airbnb is thought to reduce housing affordability and displace residents (Milano et al., 2018).

To minimise the effects of overtourism worldwide, cities are implementing strategies to limit tourist density, ensure sustainability, manage visitor flows using digital technologies, and increase local community participation in tourism processes (Çolak et al., 2020). Providing affordable and safe housing, implementing participatory urban planning, and adopting zero-waste recycling policies help reduce the negative impacts on countries (United Nations, 2023). For example, in Amsterdam, due to increasing tourism, the local population has moved out of the city, the opening of new hotels and souvenir shops has been banned, and the "Enjoy and Respect" campaign has been launched; in addition, fines for tourists who consume excessive alcohol or cause public harm have been increased (The Guardian, 2018).

Measures taken in other cities include the following: In Venice, an entrance fee of €5–€10 on busy days (Habertürk, 2025). Restrictions on short-term rental permits in Athens and regulations on short-term rentals of low-standard housing (Greek City Times, 2025). Appropriate clothing and environmental rules for temples, as well as a tourist tax of IDR 150,000 in Bali (Villa Bali, 2024). Short-term rental ban in Barcelona and non-renewal of existing licenses (Reuters, 2025a).

In cities such as Český Krumlov and Paris, measures have been taken to prohibit tour buses from entering old town squares, require parking outside the city, and limit the duration of bus stops (Yarkıcı & Yıldız, 2024). In Amsterdam, the Netherlands, problems such as overcrowding, noise, tourist shops, increased waste, and air pollution are being experienced. In this context, measures such as paying attention to transport capacity, cooperation between stakeholders, and creating alternative areas are recommended (Koens et al., 2018). Germany's tourism strategy, developed with a focus on sustainable development, aims to strike a balance between the environment, economy, and society. This strategy has been shaped in line with digital transformation and the United Nations Sustainable Development Goals. Germany aims to reduce greenhouse gas emissions to zero by 2045. In this context, making tourism environmentally friendly and protecting natural beauty are at the forefront (Germany The Travel Destination, 2023).

Due to excessive tourist density and damage, Maya Bay has been temporarily closed to tourism (Hongthong, 2018). In New York City, alternative routes have been promoted to balance the heavy tourist flow, and regulations have been implemented to reduce the increased tourist density in the DUMBO area, driven by social media (New York Post, 2024).

The New Zealand government aims to reform conservation laws to facilitate commercial activities and infrastructure projects in protected areas, with the intention of promoting job creation and economic growth. However, environmental groups have stated that the reforms could have a negative impact on biodiversity and ecosystems (Reuters, 2025b). According to its 2024–2028 strategy, New Zealand balances visitor numbers by directing tourists to the low season to make tourism sustainable, promotes year-round tourism, and strives to protect environmental and cultural values (Tourism New Zealand, 2024).

Table 1. Destinations and Solution Policies Around the World

Destination	Solution Policies
Italy (Venice)	To reduce overtourism in Venice, visitor limits, cruise ship regulations, time- and route-based traffic management, entrance fees, local community involvement, smart density maps, and sustainable transportation measures should be implemented (The Guardian, 2025b).
Germany	To reduce overtourism in Germany, visitor restrictions, online reservations, sustainable transportation, and awareness-raising measures are being implemented (Germany The Travel Destination, 2023).
Greece (Santorini)	The island's infrastructure must be planned in accordance with its carrying capacity, and visitor numbers must be limited during peak periods (Hellenic Ministry of Tourism, 2024).
Thailand (Maya Bay)	The uncontrolled influx of tourists in Maya Bay, Thailand, is harming both the urban and natural heritage. Therefore, agreements have been made between the local community, businesses, authorities, tourists, and environmentalists, and Maya Bay has been temporarily closed to visitors (Houngthoung, 2018).
Bhutan	Bhutan aims to minimise environmental impacts and preserve cultural heritage by adopting a “high-value, low-volume” tourism model. This model seeks to offer high-quality and sustainable travel experiences by limiting the number of tourists (Borgen Project, 2020).
New Zealand	New Zealand, according to its 2024–2028 strategy, balances visitor numbers by directing tourists to the low season to make tourism sustainable, promotes tourism throughout the year, and ensures the preservation of environmental and cultural values (Tourism New Zealand, 2024).
New York	The DUMBO neighbourhood in Brooklyn, popular on social media platforms, has negatively impacted the quality of life in the area due to the influx of tourist traffic. This situation has prompted city officials to take various measures to manage tourist traffic more effectively (New York Post, 2024).

Amsterdam	Amsterdam has restricted short-term rentals to control overtourism, launched campaigns to regulate negative tourist behavior, and implemented strategies to balance tourism growth. The combined use of growth-focused and reduction-focused approaches aims to protect the city's sustainability and the quality of life of its residents (Amsterdam Municipality, 2022).

Source: Edited by the authors.

These examples demonstrate that overtourism has various impacts in different destinations and that solution strategies vary according to local conditions. Urban planning, stakeholder participation, and sustainable management models are critical in mitigating the adverse effects of overtourism. Policy measures taken worldwide reveal that combating overtourism requires comprehensive management using not only physical restrictions but also cultural, economic, and technological tools. Since each destination has a distinct socio-cultural structure, natural resources, and carrying capacity, it is crucial that the strategies developed are tailored to be appropriate, specific, and participatory in the local context.

2. 4. Political Measures Taken in Turkey

Turkey, being a major tourist destination worldwide, faces the problem of overtourism in some regions due to increasing tourist density. This situation has negative consequences for these regions. Various policy measures have been developed in Turkey to prevent the adverse effects of overcrowding and ensure sustainability. These measures aim to balance the density in city centres and mitigate the environmental and social impacts of tourism. Especially in popular destinations such as Istanbul, Cappadocia, Antalya, Bodrum, and Çeşme, tourism activities exceeding the carrying capacity lead to both the destruction of the natural environment and a decline in the quality of life of the local population (Çetinoğlu & Meydan Uygur, 2020; Eren & Bozkurt, 2020). In this regard, policies such as innovative tourism practices and the promotion of alternative destinations are being implemented to prevent these problems (Anadolu Agency, 2025).

Turkey's Strategies for Countering Overtourism

- Twelfth Development Plan (2024–2028)

Turkey has aimed to diversify tourism, enhance its sustainability, and increase local community participation through the Twelfth Development Plan in order to mitigate the adverse effects of overtourism. The plan envisions the development of high-quality tourism types, including health, cultural, and nature tourism, as well as increased infrastructure investments. The use of artificial intelligence and digital technologies in tourism can reduce pressure during peak seasons by monitoring and directing tourist flows. Furthermore, investments in specific areas, such as sports tourism and health tourism, increase Turkey's tourism revenue and international brand value, while also supporting the protection of natural and cultural resources (Presidency of the Republic of Turkey, Strategy and Budget Authority, 2023).

- Entry Fees and Protection Laws

Entrance fees and visitor restrictions established in national parks, nature parks, and archaeological sites that require protection are implemented to manage the adverse effects of excessive tourism. For example, the Pamukkale travertines are protected under the Management Plan of the General Directorate of Special Environmental Protection, and visitors are informed accordingly (Çetinoğlu & Meydan Uygur, 2020). In accordance with the Convention Concerning the Protection of the World Cultural and Natural Heritage, as of 2025, our country has had 22 sites included in the UNESCO World Heritage List as a result of the work carried out under the responsibility of the General Directorate of Cultural Assets and Museums (General Directorate of Cultural Assets and Museums, 2025).

- Promoting Alternative Types of Tourism

Promoting alternative forms of tourism, such as rural tourism, ecotourism, cultural tourism, health tourism, and gastronomy, helps spread tourism throughout the year and reduces excessive tourist pressure in crowded areas (Ataberk, 2017).

- Digital Management and Data Utilization

Tourist density is monitored, and tourist flow is directed through mobile applications and digital platforms. This approach helps balance overcrowding in tourist areas and increases the effectiveness of sustainable tourism practices (Presidency of the Republic of Turkey, Strategy and Budget Authority, 2023).

- Residents Participation and Awareness

The participation of the residents in tourism activities and raising environmental awareness are critical in reducing the adverse effects of overtourism. The increased tourist density in Ula and Akyaka, which are part of the Muğla province, during the summer months poses a risk of damaging the region's Slow City title and urban identity. For this reason, municipalities are taking various measures within the framework of environmental, infrastructure, and social cohesion policies (Akyurt Kurnaz & İpar, 2020). A study conducted for the Cappadocia region yielded recommendations, including increasing residents' sense of responsibility, adopting a tourism mindset, developing de-marketing applications, and reducing demand by adjusting pricing during peak periods (Eren & Bozkurt, 2020).

- International Collaborations and Policies

Turkey contributes to the development of sustainable tourism policies in collaboration with European countries and through other international cooperation initiatives. These partnerships support the management of overtourism at the global level. UNESCO plays a significant role in the international protection of cultural heritage, historical sites, and natural areas (Tourism Promotion and Development Agency, 2022).

Table 2. Destinations and Solution Policies in Turkey

Destination	Solution Policies
İstanbul	According to the policies established by the European Parliament's Committee on Transport and Tourism, visitor density should be dispersed, time-based guidance and dynamic visitor routes should be implemented, and traffic control should be ensured through financial and official operational regulations (Peeters et al., 2018).
Antalya	Transportation and infrastructure should be strengthened, alternative types of tourism should be encouraged, historical and natural values should be protected, visitor revenues should be directed towards restoration and environmental improvements, coastal and green areas should be monitored, and planned development should be ensured (Boz, 2019).
Cappadocia	Within the scope of protecting the natural heritage of Cappadocia, assessments are being conducted on the environmental impacts occurring in important areas such as fairy chimneys and underground cities. Additionally, various project plans are being developed to mitigate erosion and damage. Within the scope of these plans, the aim is to ensure controlled tourist flows in the region in line with management plans prepared to prevent damage to natural formations. (Cappadocia Regional Directorate, 2025).
Muğla	To reduce waste and overcrowding issues in Akyaka, the number of containers and informative warnings should be increased, education should be provided to residents and tourists, and tourism authorities should make participatory decisions (Akyurt Kurnaz & İpar, 2020).

Source: Edited by the authors.

In line with these strategies, environmental, economic, and socio-cultural damage can be minimised, but this is not sufficient. Methods of combating overtourism in Turkey and around the world show some similarities and differences. Solutions in Turkey primarily focus on the proposal and planning levels, aiming to spread tourist density seasonally, enhance transportation and infrastructure, protect historical and natural areas, raise environmental awareness, and promote alternative types of tourism. In global examples, Bhutan implements a model that supports local development by limiting the number of tourists through high fees. In New Zealand, tourist flow is actively managed through visitor quotas, reservation systems, alternative routes, and investments in public transportation. In summary, while solutions in Turkey are mostly limited to suggestions and regulations, sustainable tourism is targeted through official policies and practices globally.

3. Conclusion and Discussion

Strategies, plans, regulations, and policies aimed at mitigating the adverse effects of overtourism are crucial for protecting destinations in their environmental, economic, and social dimensions. In this context, a sustainable tourism approach will create benefits in terms of managing tourist density and destination use in a balanced manner, improving the quality of life of the local population, and protecting environmental, economic, and cultural values. This study examines the effects of overtourism at both national and international levels, as well as the policy measures developed to counter these effects. Analyses indicate that overtourism creates significant pressures in social, economic, and environmental dimensions, directly impacting the quality of life for the local population and the preservation of cultural heritage (Çolak et al., 2020). Particularly in destinations popular for their historical and natural heritage, increasing visitor numbers strain the carrying capacity of cities and create severe pressures on infrastructure. Overtourism also has adverse effects on local communities, leading to increased cultural fractures and environmental damage.

As seen in international examples, different strategies are being implemented to address overtourism, tailored to the specific needs of each destination. These include restrictions on cruise ships in Venice, primarily by UNESCO, and entrance fees charged to day visitors (Venezia Unica, 2025), regulation of short-term rental platforms in Berlin (Federal Ministry for Economic Affairs and Climate Action, 2017), environmental and landscape protection measures in Santorini, management of tourist behavior in Amsterdam (UNWTO, 2018), and Bhutan's "high-value, low-volume" tourism policy (Borgen Project, 2020) are among the prominent practices.

This demonstrates the importance of holistic approaches that prioritise the preservation of carrying capacity, environmental sustainability, and the well-being of local communities.

In Turkey specifically, destinations such as Izmir, Nevşehir, Muğla, Antalya, and Pamukkale face various social and economic problems alongside increasing tourist density. Although current development plans and tourism legislation include some measures aimed at sustainability and capacity management, shortcomings in implementation and a lack of coordination pose obstacles to an effective management process. This situation highlights the need for Turkey to develop a more inclusive, comprehensive, and long-term strategy. In this context, the following recommendations have been developed to reduce the adverse effects of overtourism and support sustainable tourism:

Increasing local community participation: When developing tourism policies, the experiences and expectations of the local community should be taken into account, and active participation in decision-making processes should be ensured (UNWTO, 2018). The local community should be made more aware of tourism issues.

Promoting alternative destinations and routes: Directing tourists to lesser-known areas instead of crowded regions can help reduce pressure on city centres and enhance the visitor experience.

Supporting social and cultural tourism: Cultural and social experiences should be highlighted alongside entertainment tourism; this can diversify the visitor profile and increase the benefits for the local community (Bisht, 2025).

Preserving housing and quality of life: Regulating short-term rentals, strengthening housing policies, and preserving housing affordability can safeguard the living standards of the local population (Federal Ministry for Economic Affairs and Climate Action, 2017). Pricing measures can be implemented to reduce demand.

Environmental and cultural sustainability: Visitor quotas should be established in historical and natural areas to ensure their preservation. Environmental awareness programs should be implemented, and strict measures should be taken to protect cultural heritage (UNWTO, 2018). Environmentally friendly and sustainable tourism certification schemes should be utilised.

Digital and innovative tourism management: Utilising technologies that monitor visitor flows is essential. On busy days, the tourism experience and local life should be balanced with alerts, directions, and reservation systems (UNWTO, 2018). Social media users should be encouraged to discover alternative places. Different routes should be offered digitally through new applications in the form of fun games.

Promoting year-round tourism and balancing peak seasons: Directing visitors to the low season can reduce overcrowding in some areas and contribute to the sustainable use of resources (Tourism New Zealand, 2024). In tourist areas, hotels should set maximum daily and seasonal tourist numbers. Off-season tourism incentives and sports will be quite effective in reducing tourist density.

High-quality, low-volume tourism model: As in the case of Bhutan, limiting the number of tourists and offering high-quality experiences both minimises environmental impacts and helps preserve cultural heritage (Borgen Project, 2020).

Although the complete elimination of overtourism is not feasible in the short term, negative impacts can be significantly reduced if local governments, public authorities, stakeholders, the private sector, and tourists act with a shared sense of responsibility. Turkey needs to develop comprehensive and effective policies that maximise economic benefits while ensuring environmental and social sustainability in line with the Sustainable Development Goals. The main limitation of this study is that it relies solely on secondary sources and does not use any primary data collection methods (interviews, surveys, etc.). Nevertheless, a comprehensive assessment of overtourism management has been made by compiling current and diverse data sources. Future studies could involve interviews with residents, administrations, and business owners in destinations experiencing overtourism, thereby providing perspectives from different stakeholders. Furthermore, interviews could facilitate an in-depth examination of the issue from the perspective of relevant stakeholders, enabling comparisons between national and international destinations.

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Chapter 8

Does SocialWOM Really Work? Conceptualizing a New Marketing Approach through the Case of the Cappadocia Balloon Festival

Damla Erdem[1]

1. Introduction

Today, modern daily life is inevitably dependent on digital platforms, which have become indispensable, and this development has facilitated the integration of individuals' time into everyday life (Park & Kim, 2024). Supporting this conclusion, according to 2025 statistics from We Are Social, which publishes a regular digital global status report every year, 5.24 billion of the world's 8.20 billion people are social media users. In Turkey, 58.5 million of the country's 87.6 million population actively use social media. Looking at Instagram alone, it is seen that with 58.5 million users, 66.7% of the population spends time on this platform, and Turkey ranks first in Instagram usage globally (wearesocial, 2025). In this context, it is possible to say that traditional marketing strategies are increasingly being shaped by digital media (Zlatanov & Đuričanin, 2023). It is particularly emphasized that word-of-mouth (WOM) is being replaced by the more effective eWOM (Verma & Yadav, 2021a). This study will discuss the necessity of shifting the concept of digital word-of-mouth (eWOM) to social word-of-mouth (socialWOM), a fast and effective form of instantaneous communication encompassing social media platforms, with its sub-conceptualization. In this context, this study aims to introduce socialWOM as a new sub-concept of eWOM in tourism and to examine its functioning through the Instagram posts of participants at the 2025 Cappadocia Balloon Festival. Therefore, it is believed that this study will contribute both to strengthening the theoretical foundation of socialWOM and to developing the digital visibility and marketing strategies of tourism destinations.

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2. Literature Review

2.1. SocialWOM: A New Conceptualization

The concept of "word of mouth" (WOM) has been studied in the context of tourism and marketing research over the last five years (Aprilia, & Kusumawati, 2021; Fakfare et al., 2025; Seow, et al., 2024; Stylidis, & Quintero, 2022; Torabi et al., 2023) and has become one of the main topics addressed to understand people's cognitive, emotional, and behavioral intentions (e.g., revisit intention, satisfaction, trust, quality, etc.). The literature shows that WOM has a significant and positive effect in directing consumer visit intentions, especially when uncertainty is high about issues such as service and argument quality, source credibility, and information needs (e.g., the destination, hotel, or organization being visited for the first time), thus strongly influencing decisions; while variables such as level of involvement and credibility increase the persuasive power of WOM (Arifah et al., 2024; George et al., 2021). In this context, the findings in the theme category of WOM are clustered around (1) antecedents (consumer motivation, satisfaction/loyalty, consultation intention) (Moliner-Velázquez et al., 2022), (2) variables (perceived quality, functional and social value, perceived reliability) (Park et al., 2021), and (3) outcomes (visit intention, recommendation, spending and loyalty experience sharing, appreciation, interaction) (Lu, et al., 2021). In this context, criticism of traditional word-of-mouth (WOM) research is mostly related to the measurement's reliance on subjective reports, the use of secondary data, and the limitations in revealing real interactions (Berger, 2025). However, today, as digital transformation accelerates, the impact of WOM is being reshaped in the form of social word-of-mouth (socialWOM) through social media-based interactions (especially Instagram), and is becoming more visible and effective, especially in the sharing of tourism and recreational experiences. Electronic Word of Mouth (eWOM) encompasses user-generated content with the emergence of Web 2.0 and new media channels (e.g., websites, e-commerce sites, forums, blogs). In this process, traditional word-of-mouth (WOM) has evolved into a form that occurs in digital environments, and online customer comments about a product or company are defined as eWOM communication (Verma & Yadav, 2021a). Furthermore, eWOM, with its more advanced features thanks to the monitoring and measurement opportunities it offers, has further increased the impact of WOM (Jan & Bhat, 2021). In this context, recent studies have focused on topics such as text analysis of eWOM in tourism (Verma & Yadav, 2021), pre-, during-, and post-travel experience analyses (Guerreiro et al., 2024), hashtag analysis (Skogh & Ludvigsson, 2025), and positive-negative sentiment polarization (Zhao et al., 2023). The importance of further examining the various variables that contribute to the credibility of eWOM studies is generally emphasized (Verma & Dewani, 2021b). However, the broad scope of eWOM, particularly its focus on interaction and visibility, highlights the need to consider socialWOM as a separate conceptualization, particularly when it occurs solely through social media platforms (Instagram, Facebook, TikTok, X, etc.). Accordingly, this study aims to position socialWOM as a communication- and individual-focused subconcept of eWOM that examines the context of social media platforms (Instagram, Facebook, TikTok, X, etc.).

Social word-of-mouth (socialWOM) can be defined as a form of communication where content creators can continuously, quickly, and easily interact with users through social media platforms. The content produced (e.g., posts, videos, reels, or stories) possesses a higher potential for persuasion thanks to their originality, credibility, and transparency. The point emphasized by this concept is the need to replace traditional word-of-mouth marketing with the concept of socialWOM, which offers instant access to large audiences and allows individuals to express their feelings and thoughts more quickly and sincerely without the need to physically gather. Similar studies in the literature related to this concept contribute to the strengthening of the conceptual framework. Based on these studies, the structural characteristics of socialWOM are as follows:

- ***Micro-influencer power:*** Influencers are defined as content creators who focus on specific niches and are highly engaged. Their followers perceive them as both "experts" and relatable "everyone," fostering genuine trust. Low-cost collaborations and original content creation make influencers valuable for targeted and effective marketing campaigns (stackinfluence, 2025).
- ***Source and content:*** Influencers leverage the authenticity and transparency of their content, strengthening their engagement with followers and increasing participation intention (Goldsberry et al., 2025).
- ***Experiential and situational context:*** Experiences such as festivals or events contain various situational cues that influence the emotion and content style of participants' social media posts. For example, weather conditions, crowd density, event content, or disruptions during the event process shape how users interpret and share their experiences. It has been emphasized that such negative experiences can quickly turn into collective complaints on social media, negatively impacting the

reputation of a destination or event in a short time. In this context, it reveals how experiences are reflected in social interaction through sharing, perception, and evaluation processes not only at the individual but also at the community level. These digital channels play a critical role in the development of tourism-related destination strategies; therefore, it is important to consider the concept of SocialWOM in managing public opinion and perception (Shah & Schweiggart, 2023).

In line with the aforementioned characteristics, social word-of-mouth marketing (socialWOM) can benefit the tourism sector, content creators, marketing and social media experts, destination management organizations (DMOs), and relevant stakeholders in developing strategies to be implemented on social media users in terms of destination visibility and promotion. In this context, the concept of social word-of-mouth (socialWOM) has been presented as a phenomenon applicable to social media platforms where the number of users is limited and content providers are known to the recipients, in a similar study by Pihlaja et al. (2017). This study also includes research findings that support the concept of socialWOM, the conceptual basis of which it is intended to establish. According to the authors, compared to traditional eWOM platforms based on anonymous reviews, social eWOM possesses unique characteristics in terms of target audience, information reliability, source evaluation, and interpersonal relationships. Pihlaja et al. (2017) argue that social eWOM requires a different conceptual framework than anonymous eWOM. Marketing managers should understand its distinct role and value-creating potential compared to other forms of word-of-mouth communication, and they emphasize the importance of designing social media strategies to incorporate methods for transforming it into social eWOM. Therefore, the study concludes that this approach offers a critical framework for understanding how social media interactions create visibility and shared experiences for tourism destinations and events, beyond simply digital reviews. In this context, in light of studies in the literature, the concept of socialWOM is linked to a better understanding of the changing dynamics of digital communication and the need to develop a new approach in marketing. This provides an important basis for discussion for future research.

3. Methodology

This study adopted a qualitative research approach. The research data were selected from posts shared on Instagram using the #cappadociabalonfest hashtag within the context of the 2025 Cappadocia Balloon Festival. Ten posts, identified through purposive sampling, constituted the dataset for content analysis. The number of selected posts was limited to 10 due to the relatively limited amount of content shared under the #cappadociabalonfest hashtag, allowing for a more manageable and in-depth dataset for analysis. Content analysis is proposed to understand the complexity of qualitative datasets—such as interview transcripts and social media content—and to identify patterns within these data (Nicmanis, 2024).Content analysis, which is based on the analysis of words and concepts expressed in texts, is widely used in the social sciences to examine human communication (Schwartz & Ungar, 2015). In this context, within the framework of the socialWOM conceptualization, four categories were identified: type, feature, emotion, and prominent theme (Buhalis & Law, 2008; Filieri & McLeay, 2014; Kaplan & Haenlein 2010; Pang & Lee, 2009), and the posts identified through content analysis were coded under these categories. Data analysis was conducted solely on textual content; visuals, reels, and video content were not included in the evaluation. As shown in Figure 1, text-based sentiment analysis can also be conducted by examining the document holistically, focusing on individual segments such as comments, posts, or tweets, or by analyzing the text by breaking it down into sentences (Cebeci, 2020).

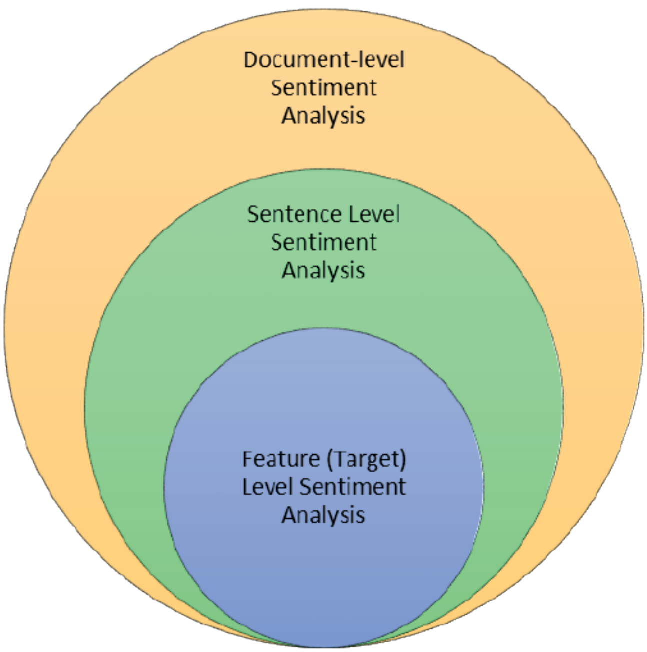

Figure 1. Sentiment Analysis Levels

Source: Cebeci (2020).

Text-oriented documents can refer to messages, tweets, posts, user comments, or critiques. Thus, content extracted from social media is evaluated holistically in terms of sentiment polarity (Cebeci, 2020; Liu, 2020; Pozzi et al., 2017; Pradhan et al., 2016). This method allows us to examine how social media users convey their festival experiences and the implications of these posts for social word-of-mouth marketing in tourism. Therefore, this study aims to clarify socialWOM as a named conceptualization, distinguishing it from classifications such as eWOM and social eWOM, which are used variously in the literature, and to concretize it through content analysis and text-based sentiment analysis in the context of the Cappadocia Balloon Festival. Thus, we aim to provide a perspective on how experience communication, shaped by the interaction of Instagram user communities, shapes a destination's digital visibility and participant expectations.

4. Findings

In this part of the research, the data obtained were analyzed using content analysis and text-based sentiment analysis. The findings regarding the coding of Instagram posts obtained from the Cappadocia Balloon Festival sample with the #cappadociaballoonfest hashtag are presented in Table 1.

Table 1. Coding Table-Cappadocia Balloon Festival

Post No	Text	Type	SocialWOM Feature	Sentiment	Prominent Theme
1	*"A feast of color in the fairytale Cappadocia sky! 2025 BalloonFest continues until August 10th, featuring specially designed balloons from around the world."*	Recommendation	Sharing a positive experience	Positive	Activity/experience
2	*The annual balloon festival in Cappadocia has begun. 38 balloons from 27 countries took off, adorning the sky with a breathtaking view. With this spectacular scene continuing until August 10, it's the perfect time to visit Cappadocia. There are events going on all day long—what more could you ask for!"*	Recommendation	Sharing a positive experience	Positive	Activity/experience
3	*"Unfortunately, the balloon flights were canceled today due to the weather. We came but couldn't see it. Those coming from far away provinces should check it out before coming."*	Comment/criticism	Sharing experiences	Mixed	Activity/weather
4	*"40 specially shaped balloons from 27 different countries took off in Cappadocia at sunrise, creating a truly spectacular visual feast. Witnessing this unique moment was an amazing experience. Send this to someone you want to go with to the next festival. Comment below: which balloon did you like the most?"*	Recommendation	Sharing a positive experience	Positive	Activity/suggestion

5	*"We're at the Cappadocia Balloon Festival. How do you like it? This festival isn't just a trip; it's like walking in a dream. If it's not on your list yet, add it now! Would you like to experience this visual feast? Leave an emoji in the comments with your dream balloon color!"*	Recommendation	Viral/ Recommendation-driven	Positive	Activity/experience
6	*"The atmosphere was very nice. But there was a lot of traffic on the way out. You shouldn't go all the way inside."*	Comment/ suggestion	Sharing experiences	Mixed	Activity/experience
7	*The Cappadocia Balloon Festival was fantastic this year. A total of 38 different designs of balloons from 27 countries provided a true visual feast. The most famous spot for balloon viewing is Lovers' Hill. This spot, also known as the Panorama, offers a wide-angle view.*	Recommendation	Viral/ Recommendation-driven	Positive	Activity/experience
8	*"Cappadocia Balloon Festival 2025... Only three days each year. This is how the sky becomes colorful at the Cappadocia Balloon Festival."*	Recommendation	Viral/ advertisement-driven	Positive	Activity/suggestion
9	*"Have you ever seen a turtle, frog, or emoji in the sky? That's exactly what the Cappadocia Balloon Festival is! Don't worry if you missed it this year, will you be with us next year?"*	Recommendation	Viral/ advertisement-driven	Positive	Activity/suggestion
10	*"We were amazed to see the balloons from 28 countries. They were all wonderful. Thank you to everyone who contributed."*	Recommendation	Viral/ Recommendation-driven	Positive	Activity/experience

Source: Instagram (2025).

5. Conclusion

This study aims to introduce socialWOM as a new sub-concept of digital word-of-mouth marketing (eWOM) in tourism and to examine its functioning through Instagram posts by participants of the 2025 Cappadocia Balloon Festival. For this purpose, 10 posts obtained from Instagram using the #cappadociaabalonfest hashtag were examined solely for their text and comment content. The dataset generated through content analysis was also evaluated with text-based sentiment analysis. These analyses revealed that seven posts with the #cappadociaabalonfest hashtag were positive, while two posts were negative/mixed. This suggests that festival participants mostly expressed positive experiences in their Instagram posts, while negative/mixed content was due to factors such as weather and crowds. Within the social word-of-mouth (socialWOM) category, recommendations, criticism, and comments are prominent, while viral recommendations, viral advertising, and experience sharing are prominent among socialWOM features. Instagram users who shared posts were categorized as bloggers, content creators, influencers, and individual users. Shaping these posts based on low-cost collaborations and original content creation creates significant value for targeted and powerful marketing strategies that impact individuals. This finding aligns with the "micro-influencer power" characteristic of the socialWOM concept in the literature and emphasized by stackinfluence (2025). Furthermore, the prominent theme classification reveals that festival attendees' Instagram posts revolve primarily around sharing advice, recommendations, and experiences to participate in the event. In this context, the findings demonstrate that positive experiences during the event increase the festival's visibility on digital platforms and play a significant role in strengthening interaction with other Instagram users. Furthermore, comments on post number 3, *"Unfortunately, the balloon flights were canceled today due to weather. We arrived but couldn't see it. Those coming from far away should check it out first,"* and post number 6, *"The atmosphere was very nice. But there was a lot of traffic on the way out. You shouldn't go all the way inside,"* indicate that the mixed emotions experienced by festival attendees shape their expectations of the participant experience. This finding aligns with the "experiential and situational context" characteristic mentioned by Shah & Schweiggart (2023) in the literature. The authors emphasized that individual experiences in tourism events, especially in negative situations, can quickly turn into collective complaints via social media, negatively impacting the destination or event's reputation. Consequently, they demonstrated that experiences are shaped not only by individual but also by community-level sharing, perception, and evaluation processes. Therefore, managing digital interactions has become a critical element in tourism destination strategies, and considering the concept of SocialWOM in this context stands out as a crucial requirement. Furthermore, the post number 5, “We’re at the Cappadocia Balloon Festival. How do you like it? This festival isn’t just a trip; it’s like walking in a dream. If it’s not on your list yet, add it now! Would you like to experience this visual feast? Leave an emoji with your dream balloon color in the comments!” aligns with the “source and content” characteristic proposed by Goldsberry et al., (2025). In the context of social word of mouth (socialWOM), this feature includes the effect of content originality and transparency on increasing the intention to participate in the event by strengthening the interaction with users.

Based on these findings, it appears that social media platforms (e.g., Instagram) allow content creators to interact with users continuously, quickly, and easily. The content produced (e.g., posts, videos, reels, or stories) offers a form of communication with a higher potential for persuasion thanks to their originality, credibility, and transparency. This concept emphasizes the need to replace traditional word-of-mouth marketing with socialWOM, a concept that provides instant access to a wider audience and allows individuals to express their feelings and thoughts more quickly and intimately without the need to physically gather. Therefore, this study examined the functioning of socialWOM through Instagram posts of participants of the 2025 Cappadocia Balloon Festival. The following conclusions were reached:

- Positive experiences shared through social media can strengthen the festival’s digital visibility and user engagement.
- Negative or mixed experiences can turn into complaints, affecting the destination’s reputation and the perceived quality of the event.
- Original and transparent content can increase user engagement and positively contribute to participation intention.
- The role of micro-influencers can be critical in socialWOM strategies.
- This can benefit the tourism sector, content creators, marketing and social media experts, destination management organizations, and relevant stakeholders in developing strategies to be followed with social media users in terms of destination visibility and promotion.
- Social media-based destination management strategies developed by taking into account the power of digital engagement can significantly contribute to increasing the destination’s digital visibility.

Future research addressing the concept of social word of mouth (socialWOM) should go beyond the qualitative method used in this study and adopt quantitative or mixed methods and examine various perspectives on different social media platforms and user groups with different demographic characteristics, which will contribute to strengthening the theoretical infrastructure of this still very new concept.

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Chapter 9

Analysis of Visual Stimuli in Tourism Promotion Using Eye Tracking Technique: An Investigation of Artificial Intelligence-Generated Images of Istanbul

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1. Introduction

In contemporary tourism promotion, the most effective tools are visual elements. Visual contents employed in the promotion of a touristic activity or destination stand out as powerful components that directly shape the mental representation and preference of destinations (Kapan & Üncel, 2020; Çuhadar et al., 2021). With the digital evolution and the advancement of artificial intelligence (AI) technologies, the use of AI-generated visuals in promotional materials has become increasingly widespread. These visuals introduce new dimensions to marketing strategies in terms of aesthetics, innovation, and content richness. Moreover, they necessitate that visual contents carry not only aesthetic appeal but also scientifically measurable value. In addition, they enable researchers to identify which elements are most attention-grabbing and to develop strategies that may enhance individuals' engagement with promotional materials in tourism contexts (Shen et al., 2020).

Eye-tracking has emerged in the literature as an objective and precise tool that measures how dynamic visual stimuli influence individuals' attentional orientations. Accordingly, eye-tracking offers a robust methodological framework for evaluating the effects of AI-generated visuals not only

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theoretically but also experimentally. This allows the effectiveness of promotional visuals on potential consumers to be assessed, highlighting the points that capture attention and informing improvements in promotional and marketing practices. Consequently, such applications can lead to visible changes and advancements in marketing strategies.

There are numerous studies addressing this issue in the literature. For example, a comprehensive systematic review by Scott, Zhang, Le, and Moyle (2017) demonstrated that eye-tracking technology—enthusiastically embraced in recent years—has become increasingly prevalent in tourism research, particularly in the areas of "advertising and promotion monitoring," "website design," and "visitor experience assessments." The authors argued that eye-tracking provides an objective scientific basis for tourism marketing, as it captures attention data beyond traditional self-reported measures (Scott et al., 2017). Similarly, Ma (2024) conducted a review study that outlined the current state of eye-tracking in tourism applications, its methodological approaches, and potential future directions. The common conclusion across such studies is that eye-tracking data generate concrete outcomes that can directly contribute to marketing strategies.

This line of research further suggests that integrating eye-tracking data with other biometric metrics, such as galvanic skin response, offers a promising way to achieve a holistic understanding of the tourist experience (Ma, 2024). Accordingly, the accumulation of knowledge established in the literature provides a solid theoretical foundation for research to be carried out in the context of Istanbul. Within this framework, the in-depth visual attention analyses facilitated by eye-tracking constitute a powerful tool for evaluating the effectiveness of natural, cultural, historical, and human-made tourist attractions in destination promotion. Hence, outlining the general framework of tourism attractions before moving on to the application phase facilitates a clearer understanding of the methodological approach.

Tourism attractions are defined as the natural, cultural, historical, and man-made elements that play a fundamental role in capturing visitor interest (Gunn & Var, 2002). In this research, the design of AI-generated visuals incorporated Istanbul's prominent attractions—including the Bosphorus view, historic mosques, the Grand Bazaar, Galata Tower, and modern bridges. In this way, the study aimed to examine the effects of visual stimuli on the distribution of potential tourists' attention within the context of elements that are critically important for destination promotion. By linking the theoretical framework highlighted in the literature with an Istanbul-specific application, the originality of this research is further emphasized.

The unique contribution of the study lies in evaluating AI-generated visuals of Istanbul—based on tourism attractions—through eye-tracking analyses. This approach seeks to reveal both how algorithmically designed visual stimuli shape salience and effectiveness and how Istanbul's cultural, natural, and man-made elements are perceived within such visuals.

2. Conceptual Framework

2.1. The Role of Visual Stimuli in Tourism Promotion

In tourism marketing, image, perception, and decision-making processes largely depend on visual stimuli (Wang et al., 2020). These elements directly influence potential visitors' emotional responses, information processing, and decision-making (Beerli & Martín, 2004). Echtner and Ritchie (2003) emphasized that destination image is not only cognitive but also affective in nature and can be reinforced through visual materials. In this respect, visuals serve as rapid conveyors of symbols, cultural values, and experiential promises that represent a destination.

MacKay and Fesenmaier (1997) revealed that tourists' first impressions of destinations are predominantly shaped by visual perception, which substantially influences their decision-making processes. Traditional methods such as surveys, focus groups, and interviews may not always suffice in uncovering the true impact of visuals. At this point, neuroscience-based measurement techniques originating from cognitive psychology and marketing research have gained importance. Among these, eye-tracking is particularly valuable as it objectively identifies how individuals scan a visual material, which areas they focus on, and which details they overlook (Wedel & Pieters, 2008). Such measurements are significant not only for assessing marketing effectiveness but also for understanding the cognitive mechanisms underpinning consumer behavior.

Visual marketing is critical in tourism as it communicates a destination's natural beauty, cultural richness, and symbolic values through imagery. For instance, the use of human figures in destination advertisements has been shown to enhance visual appeal by enabling viewers to imagine themselves within the setting. In short, eye-tracking technologies provide a powerful research tool for examining visitors' perceptions and behaviors in a more comprehensive and detailed manner (Lever et al., 2019).

Eye-tracking studies measure the placement and duration of attention given to visual stimuli, thus objectively identifying which visuals are more effective. For example, Li et al. (2016) analyzed the role of embedded texts in tourism photographs and found that single-text visuals were more effective in capturing attention and enhancing memorability compared to those with multiple textual elements. Moreover, components such as natural landscapes, cultural sites (e.g., historic mosques or museums), and man-made structures evoke distinct emotional responses in viewers, thereby shaping both the cognitive and affective layers of destination image (Kavak & Özel, 2020). Research conducted in Turkey has also emphasized the strong role of social media visuals in reinforcing destination image and influencing consumer decisions (Şahin, 2025).

Thus, the balanced and compelling presentation of visual attraction elements and textual components in tourism promotion is crucial in determining how attention patterns are shaped in AI-generated visuals of Istanbul. Visual marketing, therefore, is recognized as a central strategy in destination image building. Natural landscapes, cultural elements, and human-made structures conveyed through visuals help potential visitors establish both emotional and cognitive connections with the destination (Feighey, 2003; Wang & Sparks, 2016).

Li, Scott, and Walters (2015) examined the distribution of attention across different components in promotional visuals and found that both text and image elements attracted similar levels of interest. Likewise, Fu, Yang, and Xie (2022), in their systematic review of eye-tracking in tourism, highlighted its multidimensional applicability in decision-making, experience evaluation, and emotional engagement. Eye-tracking can also be combined with other biometric techniques to measure emotional responses (Morin, 2011). However, even as a stand-alone method, it provides indirect indicators of factors such as emotional intensity, stress, and attention. Supporting eye-tracking data with self-reported measures can further enhance the reliability of findings.

The innovative potential of eye-tracking makes it an attractive approach for tourism researchers. Portable devices allow the method to be applied both in laboratory settings and in real-world contexts. Laboratory-based research often examines website usability, the effectiveness of marketing materials, and online tourist behavior (Babakhani et al., 2020; Green et al., 2011; Muñoz-Leiva et al., 2019; Pan et al., 2004, 2011, 2013). On the other hand, mobile eye-tracking devices enable the study of attention in naturalistic settings, though such studies remain relatively scarce. Existing examples include investigations of visual attention in city centers (Pinelo da Silva, 2011), gaze behavior when using maps (Kiefer et al., 2012a, 2012b), focal points of museum visitors (Eghbal-Azar & Widlok, 2013; Mokatren et al., 2018; Toyama et al., 2011), and interactions with visual cues in train stations (Pashkevich et al., 2020).

Several studies have also examined the impact of demographic and cultural variables on eye movements (Chua et al., 2005; Green et al., 2011; Hao et al., 2015; Pan et al., 2010; Raptis et al., 2018). A review by Scott et al. (2019) comprehensively assessed the advantages, limitations, data collection processes, analysis methods, and application areas of eye-tracking in tourism. Moreover, some studies have framed eye-tracking not only as a methodological tool but also from a theoretical perspective, particularly within neuromarketing research (Scott et al., 2017).

Kiefer et al. (2014), for instance, explored the factors influencing how long elements in a cityscape remain visually engaging. Their open-air eye-tracking experiment with tourists freely exploring a city environment revealed that the frequency of revisiting certain points of interest was a strong predictor of overall exploration time. Li et al. (2016) demonstrated that embedded text elements in landscape photographs significantly captured viewer attention and enhanced perceptions of advertising effectiveness. Yücel and İnanç (2020) examined the effectiveness of digital marketing activities in the tourism sector using eye-tracking, finding that logos and hotel names attracted more attention on hotel websites, whereas menu tabs such as "Homepage," "About Us," or "Facilities" were less engaging. This suggests that the strategic placement of visual focal points can enhance user interaction and brand perception.

Wang and Sparks (2016) analyzed emotional responses to tourism-related photographs and identified that both visual features (e.g., color, composition, content type) and participants' ethnic backgrounds significantly influenced attention patterns. Their findings highlight the need to account for cultural context in designing effective promotional strategies. Similarly, Pan and Zhang (2013) showed that consumers' online hotel choices were shaped not only by the position of hotels on a webpage but also by the presence of visuals, with visual richness reducing cognitive load and enhancing focus. Marchiori and Cantoni (2015) compared eye-tracking data with self-reported methods, concluding that relying solely on self-reports may fail to accurately capture true patterns of user attention.

In conclusion, these findings underscore the multidimensional role of visual stimuli in tourism promotion, reinforcing the conceptual and methodological foundation of the present study, which focuses on the analysis of AI-generated visuals of Istanbul through eye-tracking.

2.2. Eye-Tracking Technique and Core Concepts

Eye-tracking is a method that directly measures individuals' attentional orientations on visual materials through their eye movements. Its two most fundamental concepts are fixation and saccade (Wikipedia, 2025). *Fixation* refers to the period during which the eye remains relatively stable on a point and information processing occurs. *Saccade* denotes the rapid shift from one fixation point to another, typically lasting between 20 and 200 milliseconds (Wikipedia, 2025). In addition to these durations, eye-tracking analyses commonly employ metrics such as dwell time (total viewing time), time to first fixation, and AOI (*Areas of Interest*) (iMotions, 2022).

Among the most powerful visualization tools for eye-tracking outputs are heat maps, which render the regions of highest attentional density in "hot" colors (e.g., red), thereby making the distribution of attention across the stimulus readily apparent (Wikipedia, 2025; Dopinger, 2022). Gaze plots connect fixations and saccadic transitions with lines, presenting the viewer's scan path in a clear, sequential manner (Dopinger, 2022).

In tourism research, eye-tracking reveals visitors' attention patterns on destination images, web pages, or promotional posters. A systematic review by Scott et al. (2017) shows that eye-tracking has been widely adopted in tourism for *advertising evaluation*, *web usability studies*, and *visitor-experience analysis* (Scott et al., 2017). The central advantage of this technology is its ability to directly capture attention and perception patterns that individuals may not be able to verbalize, enabling the optimization of marketing materials at both academic and applied levels.

2.3. AI-Based Visual Generation

Artificial intelligence (AI) has driven substantial transformation in the visual production domain in recent years**.** Text-to-image systems (e.g., DALL·E, Midjourney, Stable Diffusion) allow users to generate high-quality visuals from concise textual prompts (Yu & Egger, 2021). These methods are particularly effective in tourism promotion for places with limited physical accessibility or where conventional shooting would be cost-prohibitive.

With the proliferation of generative AI providers, the speed and diversity of visual production have increased markedly. A recent line of inquiry underscores the transformative impact of image-generative AI on marketing communication, arguing that AI-based visual production holds potential for new strategies spanning personalization, virtual-environment integration, sustainable practices, and linguistically mediated cognitive processes (Yu, 2025).

In tourism contexts, AI-generated imagery offers novel possibilities for reframing destination image and constructing alternative promotional scenarios (Seo, 2025). Especially in specific urban scenes, AI-produced visuals can shape tourists' visual attention, opening avenues for innovative promotional strategies (Xiao, 2024). Moreover, AI-assisted promotional visuals have been used to foreground destination attractions and enhance consumer interest (Bui, 2024). While Turkey-focused studies on AI-generated imagery remain limited, the broader literature highlights how AI-based content creation systems (text, maps, video) can enrich tourism experiences (Başer, 2023). In sum, AI-driven visual generation constitutes a strategic instrument for crafting both aesthetic and functional promotional frames. When paired with eye-tracking analyses, the attentional salience and persuasive impact of such visuals become measurable, permitting rigorous evaluation of marketing effectiveness.

This study is positioned within theoretical approaches developed on destination perception and visual attention. Destination Image Theory (Echtner & Ritchie, 2003) argues that destination image consists of cognitive, affective, and symbolic components and that visuals directly influence this structure. On the other hand, Treisman's Feature Integration Theory, which explains visual attention processes, reveals that individuals direct their attention to high contrast, color, movement, and distinct shapes. Furthermore, Lang's (2000) LC4MP model explains how the cognitive load on media content shapes visual processing. The findings of the study, which show that elements such as the human figure, color contrast, and symbolic structures attract attention, are consistent with these theoretical frameworks.

3. Method

Traditional methods for assessing the impact of visuals (e.g., surveys, focus groups, interviews) may not always suffice due to the risks of response pressure and demand characteristics (Demirel, 2025). Moreover, unconscious reactions and affective states can modulate experiential outcomes (Page, 2012). At this juncture, neuroscience-based measures originating in cognitive psychology and marketing research come to the fore. Situated at the intersection of neuroscience, psychology, and marketing—and designed to elucidate decision-making mechanisms—neuromarketing brings to light nonconscious drivers of behavior (Adhikari, 2023; Alsharif et al., 2023). As a key tool for harvesting psychophysiological data, eye-tracking objectively reveals how individuals scan visual material, which regions they prioritize, and which details they overlook (Wedel & Pieters, 2008). These measurements matter not only for marketing effectiveness but also for unpacking the cognitive mechanisms underlying consumer behavior.

Eye-tracking applications in tourism are expanding. Li, Scott, and Walters (2015) analyzed attention distributions in destination-promotion visuals and found convergence between text and image components in drawing interest. Similarly, Fu, Yang, and Xie (2022) emphasized the method's multi-faceted utility across decision-making, experience evaluation, and emotional engagement. While emotional response can be measured by combining eye-tracking with other biometric techniques (Morin, 2011), eye-tracking alone provides indirect indicators of emotional intensity, stress, and attention. Accordingly, triangulating heat-map-based attention data with self-reports strengthens interpretive reliability. The methodological flexibility of eye-tracking—especially with portable devices—also enables studies in both laboratory and field settings.

Laboratory research has commonly addressed website usability, the assessment of advertising and marketing materials, and patterns of online tourist behavior (Babakhani et al., 2017; Green et al., 2011; Marchiori & Cantoni, 2015; Muñoz-Leiva et al., 2018; Pan et al., 2013). In tourism marketing, image, perception, and decision-making are heavily visual. Echtner and Ritchie (2003) note that destination image comprises both cognitive and affective components and can be reinforced via visual materials. Visuals thus serve as rapid conveyors of symbolic, cultural, and experiential meanings. MacKay and Fesenmaier (1997) showed that first impressions—largely visual—substantially influence destination choice.

In field studies, wearable mobile eye-trackers have been used to capture attention during naturalistic movement; however, such studies remain relatively scarce. Kiefer et al. (2012a) report that researchers' reluctance to use mobile eye-tracking in situ often stems from potential technical issues. Even so, select studies have examined which elements attract attention while participants walk in city centers (Pinelo da Silva, 2011), how gaze behavior shifts with map use (Kiefer et al., 2012a, 2012b, 2014), museum visitors' focal points (Eghbal-Azar & Widlok, 2013; Mokatren et al., 2018; Toyama et al., 2011), and interactions with visual cues in train-station wayfinding (Pashkevich et al., 2020). Numerous investigations have also analyzed the influence of demographic and cultural variables on eye movements (Chua et al., 2005; Green et al., 2011; Hao et al., 2015; Pan et al., 2011; Raptis et al., 2018; Wang & Sparks, 2016). Scott et al. (2019) offer a comprehensive review of advantages, limitations, data-collection procedures, analytic techniques, and applications of eye-tracking in tourism. Beyond methodology, some work considers eye-tracking from a theoretical standpoint, notably within neuromarketing (Boz et al., 2017). Although Turkish tourism research leveraging this method remains limited, experimental studies like the present one can inform visual optimization in destination-promotion strategies. This study therefore aims to surface similarities and differences in audience perceptions of tourism promotion visuals via eye-tracking, addressing the following question:

1. Which elements in AI-based tourism visuals receive greater viewer attention?

3.1. Eye-Tracking Device, Software and Experimental Setting

Eye tracking measurements were conducted using specialized eye tracking software. Each visual was displayed for 10 seconds, and based on similar studies in the literature, Areas of Interest (AOI) regions (historical structure, human figure, moving object, sky, water surface) were defined for each visual. Criteria such as first fixation time, total fixation count, dwell time, and attention value were used in the analyses. Since UX and neuromarketing literature (Nielsen, 2000) accepts that eye tracking studies can be conducted with small samples, N=5 was deemed appropriate for this research.

3.2. Research Population, Sample, and Procedure

The study population comprises adult internet users in Turkey who are exposed to digital tourism content. A combination of purposeful sampling and quota-based stratified sampling was employed. Nielsen (2000) indicates that user-experience studies can be conducted with five or more participants. In line with this guidance, the present study was carried out with five participants.

Although the sample size of five participants may appear limited in traditional quantitative research, it is considered sufficient and methodologically appropriate for eye-tracking studies. User-experience and neuromarketing literature widely accepts that small samples can reliably reveal core attention patterns because eye-tracking produces dense, moment-by-moment behavioral data rather than opinion-based responses (Nielsen, 2000; Wedel & Pieters, 2008). In particular, Nielsen (2000) demonstrates that 5–8 participants are enough to capture more than 80% of attention and usability problems in visual tasks. Eye-tracking experiments also emphasize depth of visual-behavioral data rather than the breadth of respondent numbers; therefore, small but well-controlled samples allow researchers to obtain clear fixation patterns, attention maps, and gaze-behavior insights without introducing noise or fatigue effects (iMotions, 2022). For these reasons, the use of five participants in the present study aligns with established UX and eye-tracking research protocols and is regarded as methodologically justified.

In the first phase, participants were shown AI-based tourism promotional visuals. Immediately thereafter, in the second phase, open-ended questions were administered via an eye-tracking software interface. The first section of the open-ended instrument collected demographic data (age, gender), followed by the questions below:

1. *To what extent did the visuals you viewed change your perception of Istanbul's touristic appeal?* (Please rate on a 1–5 scale.)
2. *Which element in the photographs attracted your attention the most?*

Including calibration and the closing questions, the procedure lasted approximately 5–7 minutes per participant, depending on individual response pace.

In the research findings, data regarding participants' age ranges, levels of influence, and average measures of visual attention are presented in order to address the research questions. The central question guiding the study was: *Which elements in AI-based tourism visuals do participants focus on more intensely?*

Accordingly, Figures 1, 2, 3, 4, and 5 present heat maps illustrating participants' focal areas as well as graphs displaying their Attention Values.

Figure 1. Heat map and attention graph of Participant 1 (K1), showing the highest Attention Value (0.8) recorded for the corresponding visual.

When Participant 1's (K1) eye-tracking and interaction metrics are examined, the time-to-first-fixation value was found to be 0.79 seconds. The participant directed their first gaze to the relevant AOI (Area of Interest) within 0.79 seconds. Analysis of the gazes-total value shows that 315 fixation points were recorded within 10 seconds.

The heat map indicates that visual attention was concentrated on the mosque domes and minarets located in the center of the image, as well as on the central building in front of and to the right of the mosque. The buildings positioned at the lower right side of the Galata Tower registered medium-level intensity.

The participant's attention graph reveals an increase in attention at both the beginning and end of the viewing period. Peaks in positive attention align with the mosque–minaret axis and other prominent architectural features. Furthermore, in response to the question *"Which of the visuals remained most memorable to you? Please explain why."* the participant answered: *"Hagia Sophia, because the visual was very beautiful."*

Figure 2. Heat map and attention graph of Participant 2 (K2), showing the highest Attention Value (0.6) recorded for the corresponding scene.

Participant 2's time-to-first-fixation value was 0.77 seconds. Examination of the gazes-total metric shows that 341 fixation points were recorded within a 10-second period.

The heat map indicates concentrated visual attention on the area containing the mosque domes and minarets in the center of the image, the domed building complex in front of the mosque, and the lower section of the Galata Tower.

In response to the question *"Which of the visuals remained most memorable to you? Please explain why."* the participant answered: *"The Galata Tower, because its structure and architecture are symbolically very beautiful, and I have also visited it before."*

Figure 5. Heat map of Participant 3 (K3), showing the highest Attention Value (0.6) recorded for the corresponding scene.

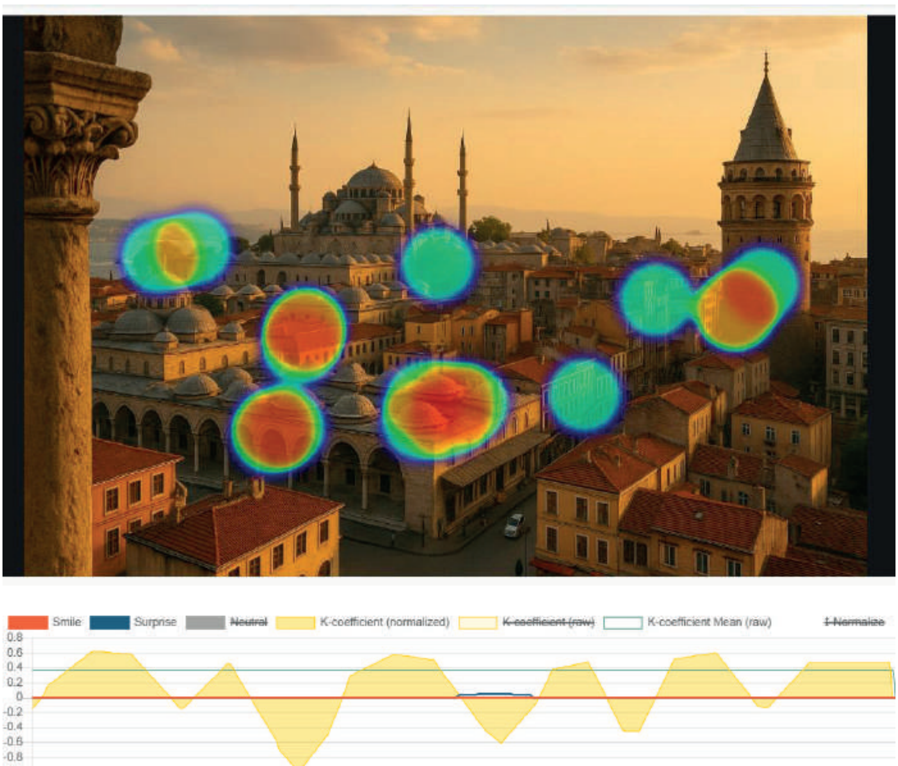
When Participant 3's eye-tracking and interaction metrics are examined, the time-to-first-fixation on the AOI occurred at 0.56 seconds. Analysis of the gazes-total metric shows that 260 fixation points were recorded within a 10-second period.

The heat map indicates that the areas receiving the highest visual attention were the Galata Tower and the surrounding buildings. Secondary focal points included the ferry's body and windows as well as the pink flowers. The participant's attention graph revealed short-term positive responses associated with moments when the Galata Tower or the ferry appeared.

Fluctuations in attention levels can be explained by the gaze shifting from one primary object (e.g., Galata Tower) to secondary objects (e.g., ferry, flowers).

In response to the question *"Which of the visuals remained most memorable to you? Please explain why,"* the participant answered: *"Hagia Sophia and the Galata Tower, because they are clearer and historical landmarks."*

Figure 6. Heat map and attention graph of Participant 4 (K4), showing the highest Attention Value (0.6) recorded for the corresponding scene.



When Participant 4's eye-tracking and interaction metrics are examined, the time-to-first-fixation on the AOI occurred at 0.56 seconds. Analysis of the gazes-total metric shows that 359 fixation points were recorded within a 10-second period.

The heat map demonstrates that the areas attracting the most intensive visual attention were the mosque and minarets located in the center of the photograph, along with the domed structures in the foreground. The participant's attention graph indicates a higher concentration of attention on the left side of the image (the left section of the mosque).

In response to the question *"Which of the visuals remained most memorable to you? Please explain why,"* the participant's answer was recorded but not fully detailed in this excerpt.

Figure 7. Heat map and attention graph of Participant 5 (K5), showing the highest Attention Value (0.7) recorded for the corresponding scene.

When Participant 5's eye-tracking and interaction metrics are examined, the time-to-first-fixation on the AOI occurred at 0.67 seconds**.** The gazes-total analysis indicates that 259 fixation points were recorded within 10 seconds.

The heat map shows that the area containing the seagull was highly salient. This finding can be explained by the tendency of moving elements in landscape photographs (e.g., birds, boats) to attract attention. In response to the question *"Which of the visuals remained most memorable to you? Please explain why,"* the participant stated: *"The one where the seagull was prominent; I think it was the most realistic."*

The findings obtained as a result reveal that participants showed intense visual attention to historical and cultural symbols. This finding supports studies in the destination image literature (Beerli & Martin, 2004; Wang & Sparks, 2016) and once again demonstrates that elements of tourist appeal are decisive in visual marketing. The finding that images containing human figures received higher attention values is consistent with the findings reported by Li (2024) and Bui (2024) that "human images create perceptual authenticity and attractiveness." Furthermore, the attention-grabbing effect of color contrast confirms the basic assumptions of visual attention theories (Treisman, 1988). Moving elements (seagull, ferry) are parallel to Kiefer et al. (2014)'s finding that "dynamism increases gaze concentration."

Conclusion

Individuals visiting tourist sites tend to show greater interest in areas rich in historical, cultural, and architectural features. This finding may be explained by Istanbul's strong potential in cultural heritage tourism. In particular, religious structures such as mosques emerged as highly attractive touristic landmarks. This suggests that in the marketing of the city, emphasis should be placed more on historical and symbolic monuments rather than modern structures.

Furthermore, historical landmarks such as the Galata Tower, which also provide panoramic views, represent key focal points of attention. Supporting the biometric findings, participants frequently responded to the question *"Which element in the photographs attracted your attention the most?"* with references to *"historical sites"* and *"historical textures."*

In sum, the study demonstrates that in a city such as Istanbul, tourism appeal largely derives from historical architecture, cultural symbols, and iconic silhouettes. Tourists' emotional and visual engagement can be explained by their desire for authentic experiences, their interest in historical and cultural richness, and their appreciation of aesthetic architecture. These findings provide concrete insights for urban planners, tourism agencies, and content producers, highlighting which landmarks and areas should be strategically emphasized in promotional efforts.

This study demonstrates that historical symbols, human figures, and high-contrast compositions have a high potential to attract attention in the promotion of Istanbul. It is recommended that tourism promotion teams highlight these elements in their posters, brochures, social media content, and video work. Furthermore, findings that the use of human figures in AI-generated visuals increases "perceived authenticity" point to the importance of integrating AI and human figures in marketing strategies. The attention-grabbing power of color contrast and objects that convey a sense of movement (seagulls, ferries) provides a strategic design guide for content designers.

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Chapter 10

The Impact of QR Code Menus on Customer Behavior: A Conceptual Assessment from the Perspective of the Technology Acceptance Model

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1. Introduction

Communication is a phenomenon as old as human history and is considered one of the fundamental needs of individuals. The social, cultural, and economic changes occurring in society directly shape not only interpersonal relationships but also the processes of technological innovation (Bayrak & Daşpınar, 2021). In this context, the rapid development of technology has forced businesses to take strategic measures to adapt to changing conditions. Especially in today's highly competitive market structure, it is critically important for businesses to maintain their sustainability in order to gain an advantage and stand out in the sector.

In today's business world, one of the most critical challenges is for companies to survive in a highly competitive environment and gain a competitive edge to rise to the top. Global firms that have adopted modern marketing approaches throughout history have managed to survive by adapting to competitive conditions through the use of modern marketing and societal marketing strategies. As customers become more educated and informed, their expectations change. This, combined with technological advancements, has led to a greater variety of similar products and services, making the market even more competitive. Therefore, the main priority for

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businesses has shifted to effectively meeting customer needs and expectations to build loyalty and, in turn, gain a competitive advantage (Albayrak, 2017).

The rapid development of digital media has led to its widespread adoption and popularity among individuals, causing fundamental changes in media consumption habits. The key factors that have supported this shift and contributed to the popularity of new media technologies are the speed, interactivity, portability, and ease of use they offer (İspir, 2024). Businesses in the food and beverage sector, which operates within the broader tourism industry, are particularly affected by globalization. The large number of establishments offering similar products and services has created an intense competitive environment (Moorthy et al., 2017). For this reason, the survival and success of restaurant businesses in this highly competitive landscape depend on their ability to differentiate themselves by developing innovative products and services (Cankül, 2019). The proliferation of smartphones has increased the influence of mobile applications on consumer behavior, a trend that is especially evident in the food and beverage industry. An international survey conducted in 2021 with 4,157 participants found that QR code payments were most frequently used in restaurants and bars (Avşar & Tandoğan, 2022).

The COVID-19 pandemic led to a heightened desire for individuals to avoid physical contact, stay away from shared spaces, and prioritize hygiene. This made technological solutions even more essential in daily life. As a result, communication shifted to digital platforms, solidifying the impact of digitalization on social life and leading to a reliance on digital communication (Bayrak & Daşpınar, 2021). A study by Iflazoğlu and Aksoy (2020) found that after the pandemic, consumer expectations for restaurant services were heavily focused on hygiene (Çafa et al., 2023). In this context, the importance of QR code menu applications is growing, as they minimize contact while increasing functionality.

2. Literature Review

QR Code

QR code was invented in 1994 by Denso Wave because traditional barcodes, which consisted of vertical lines of varying thickness, were insufficient (Bayrak & Daşpınar, 2021). Its original purpose was to track vehicle parts in the automotive industry for the Toyota company (Cata et al., 2013). In 2010, Toyota's patent rights were waived so that people could access the technology more easily, making it available to everyone (Çataloğlu & Ateşkan, 2014). The term «Quick Response» means «fast response or fast reply code» in English (Bilici, 2015) and «hızlı yanıt kodu» in Turkish (Çavuşoğlu, 2023). The principle behind a QR code is that it allows for quick access to a coded website with the simple approval of a smart device's camera. Because of its speed and efficiency, it is considered an important tool for users (Çavuşoğlu, 2023).

Figure 1. QR Code Technical Structure

Source : (Bayrak & Daşpınar, 2021).

In their study on QR codes, Bozkurt et al., (2018) highlighted four key technical findings:

- QR code technology is durable, as it is not easily damaged.
- QR code technology can store a high amount of data.
- QR code technology is both economical and easy to use.
- Unlike a regular menu, a QR code does not take up physical space.
- QR code technology can be scanned from 360 degrees.

Studies have shown the differences between traditional barcodes and QR codes. In this context, it can be said that a QR code can store data both vertically and horizontally (Aktaş, 2016).

Structure and Functions of QR Code Menus

The increase in the number and variety of businesses in the food and beverage industry day by day causes a competitive environment to emerge within the sector. For this reason, in order for businesses to survive and earn more, they need to adopt the technology and innovative approaches brought by the age. Among these technological developments is the digitalization of menus used in a modern sense (Ercan & Yılmaz, 2022). Menus used in restaurants are a marketing tool for businesses. In fact, the reasons why customers revisit the restaurant include the restaurant's features such as its location as well as its menu. In this way, QR code menus can attract more customers compared to traditional menus (Kılıç et al., 2023) the reasons why customers revisit the restaurant include the restaurant's features such as its fact, location as well as its menu. In this way, QR code menus can attract more customers compared to traditional menus (Kılıç et al., 2023). QR code menus are digital menu cards that store the food and beverages sold in restaurant businesses. Square coded menus on the tables of restaurant establishments are designed to be accessible to everyone with a digital camera on their phone or computer (Şahin & Hamarat, 2023). For this reason, QR code menus can be scanned with the cameras of mobile devices and defined as codes that work via the internet (Aymankuy & Demir, 2024).

Figure 2. Examples of QR Codes Designed in Different Ways

Source: (Şahin & Hamarat, 2023).

Menus in restaurants are surfaces touched by many people (Aymunkuy & Demir, 2024). The widespread adoption of QR code menus in the food and beverage industry during the COVID-19 pandemic of 2019 was driven by a need for businesses to enhance hygiene and minimize physical contact. This led to a significant increase in the use of QR code menus to replace traditional, physical menus (Çavuşoğlu, 2023). As a result, QR code menus became a valuable tool for reducing the risk of disease transmission, and the pandemic acted as a catalyst, pushing businesses to adapt to new conditions (Temizkan et al., 2021). During this time, individuals' primary concern shifted to how they could safely perform basic actions like eating and drinking, leading many to prefer ordering food for delivery rather than dining out (Temizkan et al., 2021). Shaikh (2020) argued that businesses that adapted to the changes in marketing brought about by the pandemic would emerge with less damage. The shift in consumer behavior toward online shopping during the COVID-19 pandemic can be explained by Davis's Technology Acceptance Model (TAM) (Davis et al., 1989).

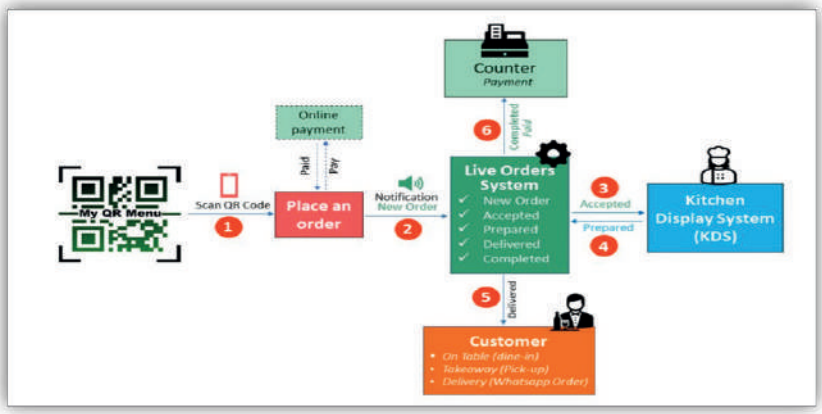


Figure 3. Ordering Process Conducted via QR Code

Source: (QR Menu Ordering System, 2025; Çavuşoğlu, 2023).

QR code-based menu applications are becoming increasingly common in food and beverage businesses, replacing traditional menus. This shift has both advantages and disadvantages for both businesses and customers. The following section explores these benefits and drawbacks, evaluating them as factors that can impact the experiences of both parties. While QR code menu systems have some disadvantages, they can be considered a comprehensive tool due to their numerous benefits related to their functionality and user experience. They also represent a significant element that must be considered regarding both business processes and the user's perspective.

Figure 4. Screenshot of the Screen Displayed After Scanning the QR Code of a Business X

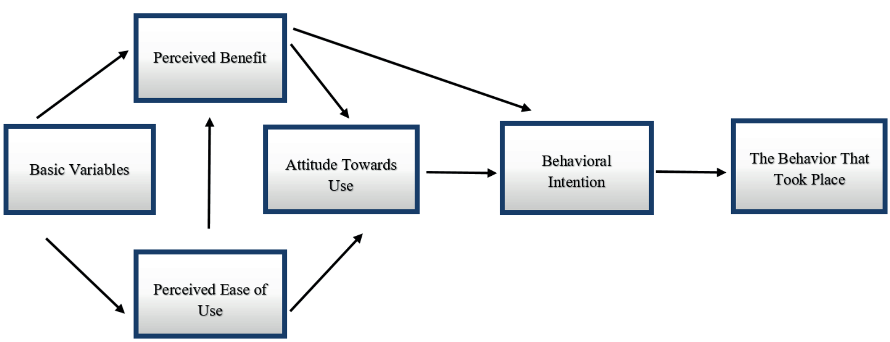
Source: Taken by the authors.

There are many advantages of businesses using the square code menu application, and these advantages are included as important findings revealed by studies conducted in the literature. Square code menus provide the opportunity to easily update the product and price information contained in the menu content compared to traditional menus, so they are less costly (Avşar & Tandoğan, 2022). In addition, another important aspect that increases the service quality of the system is that the language option in the application can be changed according to the language spoken by the incoming customer. In this respect, it positively affects the customer experience (Tandoğan et al., 2021). However, the QR code menu applications used increase the image of restaurant businesses in the eyes of customers, show that the business is innovative and therefore provide a competitive environment for the business (Şahin & Yiğitoğlu, 2022). On the other hand, there are disadvantages to using the QR code menu system. Findings regarding these disadvantages are highlighted in the literature. Customers who are accustomed to using traditional menus may object to using QR code menus (Avşar & Tandoğan, 2022). In addition, the fact that individuals in a certain age group do not have the technological devices they need to be able to read the square code can be an obstacle; technical problems experienced due to internet outages can negatively affect the use of the system by causing problems with reading the square code (Çavusoğlu, 2023). Despite this, the use of QR code menus not only provides systemic and financial advantages to businesses, but also provides advantages to customers who come to food and beverage businesses in terms of the use of QR code menus. These advantages are also among the important findings as a result of the literature review. QR code menu applications enrich the experiences of customers coming to the restaurant and provide various conveniences to customers; for example, customers who have made a reservation in advance have the opportunity to make food and beverage choices and create their orders in advance before coming to the restaurant, so that they can save time in the process. With this application, physical contact between the staff working in the business and the customers is minimized, providing a more hygienic environment. Thus, QR code menus allow the business to raise its hygiene standards. Another issue that QR code menus provide convenience for is that they can filter foods for individuals who are at risk of allergies, on a diet, or who cannot consume lactose and gluten. Thus, it provides convenience to customers in accessing the most suitable food for them. The ingredients and preparation methods of the food and drinks offered in the menu can be shared in detail (Çavuşoğlu, 2023). In this way, the customer who comes to the business with a certain expectation will be able to leave happily when leaving the business for reasons such as providing an environment that the business can make the customer feel pleasant and using the necessary technological products. Therefore, this situation will allow the customer to be more loyal to the business.

Technology Acceptance Model (TAM)

With the change in social structure, changes have also occurred in the eating and drinking culture (Kılıçalp & Özdoğan, 2019). The rapid diversification and development of technological products over time requires users to prepare themselves to adapt to these innovations. it obliges users to prepare themselves to adapt to these innovations. For this reason, it is of great importance for individuals to accept technology, correctly perceive the benefits offered by technology and develop a non-prejudicial attitude towards technological products (Serçemeli & Kurnaz, 2016). The reluctance towards technology has been a significant obstacle in individuals' adoption of new information technology products and systems, and this has led to a decrease in the efficiency expected from the systems. For this reason, various models have been developed that examine the psychological factors that explain users' acceptance or rejection of information Technologies (Bağlıbel vd., 2010). Among the models developed, there is also the Technology Acceptance Model (TAM), which was introduced to the literature by Davis in 1986 (Davis et al., 1989). The Technology Acceptance Model is divided into two main factors as perceived benefit and perceived ease of use. These factors are the factors used to explain indirect behaviors and direct attitude intentions towards the use of technology (Kılıçalp & Özdoğan, 2019). The Technology Acceptance Model (TAM), developed by Davis (1989), was created to examine the impact of online shopping on individuals (Turan, 2008). With the development and diversification of technology, internet usage has also taken shape. Thanks to the internet, users can save time and access information easily. However, although customers have more purchasing options available on the internet, customers do not trust online shopping as much as traditional shopping. For this reason, while Internet shopping is approached more timidly, the face-to-face method, which is the traditional shopping method, is preferred more by customers (Lin, 2007). A study examining individuals' trust attitudes towards electronic markets and marketing practices concluded that consumers do not want to be in risky environments and are hesitant to make such transactions, but they are enthusiastic about being in the electronic market. Due to their enthusiasm, it has been concluded that internet shopping will become widespread and that they also see shopping on the Internet as positive (Aksoy, 2006). This thought reveals that the situations that have emerged over the years are proof of this. As an example, Eryiğit & Özdemir (2023)'s studies on the changing understanding of e-commerce before and after the COVID-19 Pandemic have found that there has been a significant increase in the volume of e-commerce in Turkey and around the world after the COVID-19 Pandemic compared to previous periods, and this situation forms the basis for new developments with the change in the understanding of commerce.

Table 1. Technology Acceptance Model (TAM)



Source: Davis et al., 1989; Turan & Haşit, 2014.

The components of the Technology Acceptance Model are tried to be explained below.

- Perceived Ease of Use: Refers to the degree of beliefs that the effort a person spends on any use and creates while performing certain tasks does not require much effort with the increase in performance that it will provide to the individual (Davis, 1989; Serçemeli & Kurnaz, 2016).
- Perceived Benefit: It is defined as the perception that occurs in the consumer as a result of the shopping experience (Monsuwé et al., 2004; Bozpolat & Seyhan, 2020). According to another definition, it refers to the thoughts that are obtained as a result of the increase in performance in the work done by using technology (Davis, 1989).
- Attitude towards Use: It is a symptom of positive or negative emotions that occur as a result of any behavior exhibited by an individual (Bozpolat & Seyhan, 2020).
- Behavioral Intention: It is the entire effort and desire that an individual puts forth during the process of performing a behavior. At the same time, intention can also be defined as a state of readiness to exhibit behavior (Turan & Haşit, 2014). TAM is a determinant of an individual's rejection or acceptance of information technologies (Çivici & Kale, 2007).
- Realized Behavior: Refers to the frequency and intensity degree of the information technology products used by the individual (Çivici & Kale, 2007).

As a result of the literature research, many different studies related to QR codes were found. Although the studies were conducted on different professional groups such as educators, students, bankers and secretaries, no study related to QR codes was found as a result of the examination of the studies. On the other hand, studies have been conducted on internet consumers and internet shopping in accordance with this information, several research examples related to internet use are included in the study.

In his study, Shih (2004) used the TAM model to measure the perceptions of individuals who shopped via e-commerce. As a result of the study, it was concluded that e-commerce had a positive effect on perceived benefit and ease of use.

Alagöz & Hekimoğlu (2012), in a study conducted on university students to determine consumer attitudes and preferences regarding food ordering, reveal that the Consumer Acceptance Model, as well as the trust felt towards the e-retailer, are the main factors that shape the perception of the innovations implemented by the individual.

Arı & Yılmaz (2015) found that while the perceived benefit and ease of use positively affect attitude in online food ordering behaviors that they use the Technology Acceptance Model and perform on university students, personal norms and attitude increase the frequency of online food ordering. They found that the perceived benefit and ease of use increase the frequency of online food ordering.

Cheng et al., (2006) aimed to explain internet use in Taiwan, which was revealed by the Technology Acceptance Model, with the hypothesis they developed in their study. As a result of the studies, the developed hypotheses were supported by empirical findings and it was concluded that they could guide future studies.

3. Methodology

In this study, the document analysis pattern, which is one of the qualitative research methods, was adopted. Qualitative research is considered a scientific method. In all scientific studies, validity and reliability must be high (Tekeli et al., 2023). Document analysis is a scientific research method that uses primary sources and various documents to question and analyze research data (Sak et al., 2021). The fact that the findings obtained as a result of the research are compatible with the conceptual framework provides internal validity (believability). In order for the research to be reliable, the method part has been discussed clearly and clearly, and the findings obtained have been reported with an objective approach, independent of researcher assumptions and biases. The research aims to conceptually evaluate the effects of square code menus on customer behavior from the perspective of Technology Acceptance Model (TAM). During the research process, academic articles, papers and theses related to the subject were analyzed and evaluated through online databases. The selected publications were determined based on their suitability to the research topic and their scientific reliability. As a result of the analysis, common and different points were identified and the reliability of the research was ensured.

4. Findings

As a result of the literature review on QR codes, which are known to have become more widespread in use especially after the COVID-19 epidemic (Ercan & Yılmaz, 2022), many studies were accessed. The studies have been interpreted and evaluated by many researchers from different disciplines. This study, which aims to examine the use of QR code menus from the perspective of the Consumer Acceptance Model, interprets the studies obtained as a result of the literature review from the perspective of the

Consumer Acceptance Model. The findings are presented in detail below, in order of the years in which the studies were prepared.

Shin et al., (2012) found that the use of QR codes is not limited solely to informational purposes; individuals also use them for socializing and entertainment. Furthermore, they concluded that three key factors influence the acceptance of QR codes by individuals: information quality, system quality, and the level of system interactivity. Within the framework of the Technology Acceptance Model, high information and system quality fall under the dimensions of perceived ease of use and perceived usefulness, as they enable users to perceive the technology as both easy to use and beneficial. Considering that interactivity serves not only as a tool for information seeking but also as a means of social and entertainment purposes, it is concluded that users' attitudes toward technology positively enhance their behavioral intentions.

Cinnioğlu & Demirdelen (2018) aimed to determine the usability of QR codes used in restaurant businesses and to reveal the advantages and disadvantages of this application. The findings showed that businesses have recently started using QR code applications; however, their use has not yet reached a sufficient level. At the same time, although QR code applications are used to ensure customer satisfaction, it was concluded that disadvantages include the fact that not everyone is familiar with the application, that it is time-consuming, and that it is more costly compared to other types of menus. According to the Technology Acceptance Model, the purpose of increasing customer satisfaction is considered a fundamental element that strengthens perceived usefulness. The use of QR code menus supports perceived ease of use by facilitating accessibility. However, disadvantages such as low awareness among users and additional costs are considered factors that negatively affect the adoption process of the technology.

Şimşek & Kızıldemir (2019) conducted a study to reveal the advantages of QR code applications for both businesses and customers in restaurants using such systems. The findings indicated that QR code applications have not yet become widespread in businesses; however, for businesses that do use them, they provide advertising opportunities, while for customers, the main advantage is the ability to complete transactions quickly. On the other hand, problems arising from infrastructure and costs were identified as disadvantages for businesses. According to the Technology Acceptance Model, advertising and promotional opportunities, as well as the ability to perform transactions rapidly, are considered elements that enhance perceived usefulness. Conversely, problems related to cost and infrastructure have been identified as disadvantages that may negatively affect perceived ease of use and the adoption process of the technology.

Cankül (2019) aimed to identify the innovative applications used by businesses, focusing on restaurant enterprises. The results of the study revealed that, although restaurant businesses had largely implemented innovative applications in line with the conditions of the period, "online ordering" and "QR code" applications were not used frequently among these innovations. According to the Technology Acceptance Model, the limited use of technology may restrict the dimensions of perceived ease of use and perceived usefulness, thereby negatively influencing consumers' adoption processes of new applications.

In the study conducted by Patil & Karekar (2019), QR code–supported restaurant automation systems were examined. The findings indicated that the use of QR codes provides restaurants with a tool that enables time and cost savings in order and billing processes. From the perspective of the Technology Acceptance Model, this technology enhances perceived usefulness by offering customers faster service that meets their expectations, thereby supporting the adoption process. Accordingly, for the acceptance of the technology, the application should be developed in line with users' expectations and designed with functionality that ensures customer satisfaction.

Okat et al., (2020) conducted a study to investigate the impact of the COVID-19 pandemic crisis on restaurants. The findings revealed that businesses were not sufficiently prepared for a potential crisis and, consequently, had not taken the necessary precautions. It was also determined that, compared to small enterprises, larger businesses were better prepared for crises and focused on developing scenarios to address potential challenges. Another finding indicated that business managers expressed a preference for using QR code menus instead of traditional menu cards during the pandemic period. According to the Technology Acceptance Model, the adoption of QR code menus after the pandemic enhances perceived usefulness by reducing physical contact and ensuring hygiene. This, in turn, may lead consumers to develop positive attitudes toward the new service model, thereby contributing to a shorter adoption period for the technology.

Intal et al., (2020) aimed to examine the ways in which QR codes are used in restaurant businesses and the advantages they provide to restaurants. As a result of this study, a software development and implementation proposal was presented for QR code supported restaurant automation systems that would offer advantages to businesses. Within the framework of the

Technology Acceptance Model, the advantages provided by QR code menus increase perceived ease of use and perceived usefulness, thereby supporting the technology adoption process and contributing to the strengthening of users' behavioral intentions.

Vuksanovič et al., (2020) conducted a study in Serbia to examine the impact of QR code applications on tourists' destination satisfaction in the country's most popular destination. The findings revealed that tourists had a positive perception of QR code usage and indicated that they would be willing to use the application when visiting a different destination. However, the study also concluded that QR code usage alone does not affect tourists' overall satisfaction with the destination. According to the Technology Acceptance Model, QR code applications enhance tourists' perceptions of perceived usefulness and perceived ease of use, thereby strengthening their intention to adopt the technology. Nevertheless, while QR code usage strengthens behavioral intention, it does not have a direct impact on overall destination satisfaction.

Hazarhun & Yılmaz (2020) demonstrated in their study that updating menus in restaurants through the integration of technology positively affects businesses. From the perspective of the Technology Acceptance Model, these innovations increase perceived ease of use and perceived usefulness, positively influencing users' attitudes toward technology use and thereby strengthening their behavioral intentions. This, in turn, enhances the likelihood of technology adoption and supports restaurants in implementing innovative applications.

Avşar & Karakaş Tandoğan (2022) examined QR code menu usage from the perspective of restaurant managers. The findings revealed that QR code usage saves time, reduces physical contact thereby enhancing hygiene, and increases customer satisfaction due to faster service and lower costs. However, disadvantages of the QR code menu were identified, including customers' reluctance to adopt it because of their familiarity with traditional menus and the fact that not everyone owns a phone capable of reading QR codes. From the perspective of the Technology Acceptance Model, these advantages strengthen perceived ease of use and perceived usefulness, thereby positively influencing users' behavioral intentions.

Ercan & Yılmaz (2022) investigated QR code menu usage from the consumer perspective and found that consumers do not choose food and beverage establishments solely because they use QR codes. Within the framework of the Technology Acceptance Model, the mere presence of QR code menus in businesses does not have a direct impact on perceived usefulness or perceived ease of use, and therefore does not influence behavioral intention.

Kılıç et al., (2023) found that QR code menu usage contributes to both customers' behavioral intentions and their perceived usefulness. The study revealed that QR code menus increase customer satisfaction by providing ease of use and enabling hygienic ordering, which in turn can enhance business profitability. The ease of use of QR code menus contributes to both perceived usefulness and customers' intention to use the menus. Additionally, the perception of ease of use leads customers to view these menus as more beneficial, fostering positive attitudes and thereby supporting the development of behavioral intentions.

İskender et al., (2023) examined consumer opinions on QR code menu usage in restaurants during the COVID-19 period. The findings revealed that consumers perceive QR code menus as more convenient, faster, and hygienic compared to traditional menus, and therefore consider them environmentally friendly. On the other hand, disadvantages from the consumer perspective were also identified; for example, the design of QR code menus may require effort, which could be seen as a drawback. According to the Technology Acceptance Model, the perceived benefits of QR code menus being environmentally friendly and practical positively influence perceived usefulness and perceived ease of use, there by supporting positive attitudes and behavioral intentions. However, the disadvantages of QR code menus may limit ease of use and usefulness, potentially negatively affecting the technology adoption process.

Koay & Ang (2024) examined the factors influencing the intention to use QR code menus in businesses after the COVID-19 period. The study found that effort and performance expectancy, habits, and social influence have positive effects on the intention to use QR code menus. From the perspective of the Technology Acceptance Model, effort and performance expectancy help users perceive the technology as easier and more usable, supporting the development of positive attitudes toward perceived ease of use and perceived usefulness, thereby strengthening behavioral intention.

Table 2. Similarities and Differences Among the Studies

	Common Points Observed in the Studies	**Different Points Observed in the Studies**
Perceived Ease of Use	The perception of ease of use strengthens behavioral intention and attitude (Kılıç et al., 2023; Hazarhun & Yılmaz 2020).	Iskender et al., (2023) identified the lack of menu design and interaction as a disadvantage.
Perceived Benefit	QR code menus used increase customer satisfaction.	Only the presence of a square code does not increase behavioral intention; effective product contents and design are more effective in terms of influencing the customer (Ercan & Yılmaz 2022; Vuksanovič et al., 2020).
Attitude/ Behavioral Intention	QR code menus or technological innovations are associated with positive attitudes and usage intentions.	Vuksanovič et al., (2020) found that overall destination satisfaction is not fully affected by the use of QR codes.
Disadvantages	The absence of QR code reading feature in devices, habits or the mere presence of a QR code menu does not affect behavioral intention (Avşar & Karakaş Tandoğan 2022; Ercan & Yılmaz 2022).	In some studies, factors such as social influence and environmental perception affect the intention, while in some studies it is not directly connected to the Consumer Acceptance Model variables.

Source: Created by the authors.

5. Conclusion and Discussion

Theoretical Implications

This study aims to examine the effects of QR code menus on customer behavior from the perspective of the Technology Acceptance Model. With the rapid development of technology, emerging changes have compelled businesses particularly food and beverage establishments to keep pace with this speed. Due to the fact that consumer perception changes day by day and consumers constantly demand innovations, it is argued that the businesses that consumers will prefer should also have a structure that follows technology closely. Accordingly, the study evaluates consumers' adoption processes of technological innovations and how these processes affect customer behavior. In particular, following the COVID-19 pandemic, people's fear of illness has increased social distancing, and consumption has increasingly shifted to e-commerce, as indicated by previous studies. These studies clearly show that businesses adapt to emerging technologies to take precautions against such pandemics and to avoid losing customers. Accordingly, the more hygienic nature of QR code usage influences customers' preference for establishments that implement them. Furthermore, study findings indicate that prior to the pandemic, QR code menus were used less frequently, whereas their usage has increased significantly in recent times. The use of QR code menus not only facilitates the service provided to customers but is also regarded as a multidimensional tool that enhances both the customer experience and business performance. The use of QR code menu applications is observed to provide significant benefits for customers. Findings from previous studies indicate that individuals value saving time, which makes QR code usage particularly important for them. Although users are aware of the advantages offered by the technology, they cannot fully exploit its potential due to limited widespread availability and insufficient promotion. The findings of this study also support the interaction between the components of the Technology Acceptance Model and QR code menu usage. According to the results obtained from the studies, when examining the attitudes of customers visiting food and beverage establishments within the framework of the Technology Acceptance Model, it is concluded that perceived ease of use and perceived usefulness directly influence consumers' intention to use. The usage of QR code menus is influenced not only by the functional features of the technology but also by users' perceptions, experiences, and attitudes toward technology. Accordingly, it is concluded that QR code menu usage increases business efficiency and represents an important technological innovation.

Practical Implications

In this context, some suggestions can be made for businesses and future studies. In order to increase the perceived ease of use, food and beverage business managers can provide informative training to their staff on the use of QR codes, and also provide visual guides to customers coming to the business on the use of QR codes. In this way, the acceptance process of the QR code can be accelerated for both staff and customers. By improving the shortcomings caused by the internet used for the use of the square code menu and the fact that the prepared square code system does not work well enough, a user-friendly application interface that positively affects the customer's experience can be designed. In order for users to feel more special, customization options can be added for customers' personal preferences and possible allergies. In this way, a happy customer profile can be created and customers' loyalty to the business can be increased. Technological support mechanisms that read QR codes can be provided in businesses so that all age groups can use the QR code menu application. In order for future studies to be more comprehensive, the studies should not be limited to technical research but should also include evaluating the customers' attitudes from a psychological and sociological perspective and investigating their behavioral situations. In this way, how individuals' prejudices towards the QR code menu system are reflected in their behaviors and thoughts can be evaluated. Traditional menus and QR code menus can be compared and examined in terms of Consumer Acceptance Model. By providing interviews with different age groups, individuals' perspectives on the square code menu system can be examined according to the Consumer Acceptance Model. In this way, whether it is necessary for businesses to follow new developing technologies and the reflection of this situation on businesses can be evaluated academically.

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Chapter 11

The Role of Local Food Networks in the Context of Regenerative Gastronomy Tourism: The Example of *Slow Food Yaveş Gari Bodrum*

Feray Yentür[1]

1. Introduction

The regenerative tourism approach aims for tourism activities to protect, repair, and revitalize the environment instead of consuming it, to establish mutually beneficial relationships with local communities, and to strengthen cultural heritage (Bellato et al., 2023). This approach aligns with goals such as ensuring ecological balance, promoting social integration, and sustainably transmitting cultural heritage. Regenerative tourism proposes reconnecting with nature and restructuring tourism as part of nature (Sageena and Kumar, 2025).

Gastronomy tourism is a multifaceted experience that encompasses not only the discovery of local flavors in a destination but also an understanding of the production methods, culinary culture, and social structure unique to that geography (Deniz, 2024; Rivza et al., 2022). Offering dishes that reflect the region's history, draw from its culture and geography, and are prepared with local and sustainable ingredients creates a gastronomic experience that is both unique and meaningful (Sökmen et al., 2024). In this way, tourists visiting the destination not only discover local flavors but also connect with the local community, its culture, and its values. In this context, gastronomy tourism is evolving from a mere experience of local food to a tool that reestablishes the connection between nature, producers, and tourists (Hall and Gössling, 2016; Derek, 2021).

Local food networks, also known as alternatives, community-supported agriculture groups, citizen-based food initiatives, or sustainable food

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networks, refer to network structures that support small-scale and local food systems, formed in opposition to industrial and large-scale standardized food systems within a specific geographical region (Jarosz, 2008; Karakaya Ayalp, 2021; Kizos and Vakoufaris, 2011; Renting et al., 2012). These systems emphasize ecological sustainability, social equity, and local economic resilience (Süzer and Doğdubay, 2022; Tregear, 2011). These systems often utilize short supply chains such as farmers' markets, community-supported agriculture, and food hubs to reduce intermediaries and strengthen direct relationships between producers and consumers (Demirbaş, 2024; Nizam Bilgiç, 2021). Collectively, local food networks function as value-driven, geographically rooted systems that contribute to a sustainable food future (Kalav Köken, 2022; Perdana et al., 2022).

Slow Food Yaveş Gari Bodrum, a prominent example of this understanding in Türkiye, offers a significant application area for regenerative gastronomy tourism through its events that protect local food systems, preserve traditional production techniques, and provide community-based gastronomic experiences (slowfoodbodrum.org). This study aims to analyze the feasibility of regenerative gastronomy tourism in Türkiye, using the example of Slow Food Yaveş Gari Bodrum.

2. Theoretical Background

Ecological concerns of individuals and societies, increasing awareness of the preservation of tangible and intangible cultural heritage, and the idea and practice of sustainable tourism concepts have strengthened the notion of the need for a green and sustainable economy (Gibson-Graham et al., 2013). Regenerative tourism, a higher application area of sustainable tourism, is a transformative tourism approach that aims to achieve development and generate positive impacts in tourism destinations by supporting innovative approaches toward communities and ecosystems (Day, 2024; Iddawala and Lee, 2025; Korstanje, 2025). Overcrowding at destinations, escalating ecological problems, and excessive consumption dictated by the capitalist system have contributed to the emergence of tourism concepts that embrace regenerative and innovative approaches (Cave and Dredge, 2021; Dilek and Dilek, 2024).

Gastronomy tourism plays a significant role in both sustainable tourism and regenerative tourism. It enables the discovery of local culinary history, the learning of past traditions, and the preservation of stories passed down from generation to generation (Güzel and Apaydın, 2016; Manola and Koufadakis, 2020; Nesterchuk et al., 2022; Tovmasyan, 2019). Gastronomy tourism offers more employment opportunities for local people and invests in local products, producers, and suppliers (Diaconescu et al., 2016; Gajic, 2015; Visković and Komac, 2021). It helps in the adoption of new methods in agriculture to diversify traditional agricultural products (Aulet et al., 2019; Bayram, 2018; Bucak and Aracı, 2013; Kiráľová and Hamarneh, 2017). In this sense, gastronomy tourism contributes to the regional development and restoration of the destination through good practices (Akar, 2024; Baysal and Bilici, 2024; Kan et al., 2016).)

The difference between regenerative gastronomy tourism and sustainable gastronomy tourism is that while preserving the existing culinary culture and food cycle, it also aims to improve and promote the restoration of cultural and ecological systems (Ravichandran, 2023). With this understanding, the aim is to ensure that gastronomy becomes not only a means of cultural transmission but also a tool for reconnecting with nature. The regenerative gastronomy approach recognizes that local flavors are not just products to be consumed, but also a reflection of collective identity, a means of building social connections, and an important driver for local economies (Fraser et al. 2016; Kloppenburg et al., 2007; Rotz et al. 2019). In this context, the preservation of local cuisines, the promotion of geographically indicated products, the strengthening of producer-consumer relationships, and the sustainable transfer of agricultural and cultural heritage are among the fundamental components of regenerative gastronomy tourism (Keskin and Aktaş, 2024). In addition, the adoption of community-based approaches and the inclusion of tourists visiting the destination as active learners who contribute after learning, rather than passive consumers, are among the prominent features of this understanding. In the literature, it is observed that practices based on this understanding are increasing (Islam et al., 2024; Mayaka et al., 2017; Park et al., 2017; Sayın, 2023). It is particularly emphasized that the regenerative practices of global networks with a wide sphere of influence, such as the Slow Food movement, support and further strengthen local levels.

The Slow Food movement, which began in Italy in 1989 under the leadership of Carlo Petrini, is the world's largest global food movement working toward three fundamental principles: good, clean, and fair food. Slow Food represents good, traditional, heirloom seeds and locally produced, healthy foods made with clean, pesticide-free, hormone-free, GMO-free agricultural products, and a way of eating that nourishes the human spirit and body, just as people ate generations ago (slowfood.com). If it's fair, it means fair pricing for both producers and consumers, as well as fair income and sharing with as few intermediaries as possible. Slow

Food undertakes important tasks such as protecting cultural and biological diversity, revitalizing and sustaining local and heirloom seeds, and continuing traditional diets through trainings that encourage the transfer of traditional knowledge and skills, events that influence policies in the public and private sectors, and producer meetings organized to achieve these goals. This is done by encouraging the establishment of markets where consumers can find these products (slowfoodturkey.org). The Slow Food movement's goal of transforming all these food systems aligns with the objectives of sustainable gastronomy and regenerative gastronomy. The Slow Food movement's ecosystem, communities, and the Regener-action toolkit it created to help improve human health serve as a guide on steps that can be taken to renew the world thru food (regeneractiontoolkit. slowfood.com).

3. Methodology

In this study, the qualitative case analysis method was adopted. The activities of Slow Food Yaveş Gari Bodrum were examined through document analysis based on internet data, event reports, and media scans; additionally, findings from semi-structured interviews with community leaders Deniz Kurtsan and Hadiye Nalbant Tepelioğlu were used as supporting evidence.

4. Findings

In this section, the activities of the Slow Food Yavaş Gari Bodrum volunteer community were examined; contributions that can be evaluated in terms of regenerative gastronomy tourism were assessed under three main headings: emphasis on local products and producers, community participation and cultural renewal, and ecological and ethical sensitivity. Each theme was examined within the context of events organized by the community and gastronomic approaches, and its compatibility with regenerative gastronomy tourism was analyzed.

4.1. Events Prioritizing Local Products and Producers

The "Slow Cheese Bodrum" event, one of the most notable activities of Slow Food Yaveş Gari Bodrum, offers a platform where local cheese producers introduce their region-specific cheese varieties, producer-consumer meetings take place, and direct contact is made with tourists. As part of the event, the production process of traditional products such as *kaya tulumu*, *çökelek*, and goat cheese is demonstrated to visitors; participants interact directly with producers, gaining firsthand knowledge of local practices. The Kitchenware Exhibition, held concurrently with this event, sheds light on the region's ethnographic dietary habits. In addition to regularly organized events, there are also activities focused on the region's different products. The Dilmit Olive Festival (25.11.2023), Olive Tree Pruning Training (25.01.2024), and Bee-Friendly Seedling Planting Festival (16.01.2023) are examples of these activities (instagram.com/slowfoodbodrum). Similarly, the gastronomic value of geographically indicated products such as whole-grain *Bodrum Gemici Peksimeti* made with three different grains native to the region, *gambilya beans*, *lokum rice*, *Muğla tarhana*, *Milas ısırganlı eriştesi*, dilmit olives, sesame and almond roasted figs (gavrık figs), and Köyceğiz Dalyan bottarga, as well as Bodrum mandarins, is emphasized, and awareness campaigns are conducted to raise public awareness and educate people about the protection of these products as cultural heritage. Efforts to add locally sourced products to the Ark of Taste list created by Slow Food communities are important for protecting and promoting local products that are under threat. In this context, the Terra Madre events held during Local Goods Week *(Yerli Malı Haftası)*, as well as *Bodrum Gemici Peksimeti*, Muğla tarhana soup, and gambilya bean soup, are distributed free of charge at local markets in Bodrum and Milas every December. Thus, the visitor is encouraged to keep coming to the market, and the farmer is encouraged to continue local production; at the same time, the market's attractiveness and popularity are increased, transforming it into a center of attraction and ensuring its sustainability. In addition to these, nutrition education programs organized in schools, visits to local markets and farmers, farmer training, and studies promoting the use of local products in food and beverage businesses operating in the region are other activities that prioritize local products and producers. The community also effectively uses social media and communication channels. Live broadcasts on social media channels about ink fish cleaning and cooking, carob flour and molasses healthy cookie making with Yalıçiftlik and Kızılağaç villages' carobs, local purple artichoke cleaning and cooking, and Bodrum mandarin marmalade making, as well as the books 'Bodrum Mandarin Flavors' and 'Bodrum Markets and Flavors' prepared jointly with the Bodrum Municipality, are examples of this.

4.2. Community Engagement and Cultural Renewal

Slow Food Yaveş Gari Bodrum, while organizing tourist events, also adopts a community approach that includes local people in the process. In other words, not only tourists but also the local population are active participants in the events. This structure, which includes producers, local chefs, women's cooperatives, and individual volunteers, creates a collective memory that supports cultural renewal and continuity. Participants are not just consumers; they are in a position of learning, experiencing, and contributing. This situation highlights both the contribution and positive impact of tourism on local identity, and demonstrates the regenerative power of community-based tourism. Combining with Slow Food's philosophy of reaching consumers with the fewest intermediaries, this approach contributes to local development within the economic cycle while also facilitating cultural transmission. In particular, working with the Slow Food Chefs' Alliance to reach over six hundred hotel chefs in the region, bringing them together with producers, and encouraging them to add these products to their menus plays a significant role in increasing the impact factor of the activities. As another example, before the pandemic, seminars on *'Local and Healthy Eating or Fast Food'* were held in collaboration with the Muğla Metropolitan Municipality Department of Agricultural Services, with the support of oncologist Associate Professor Dr. Yavuz Dizdar. These seminars were conducted in 180 schools, with the aim of protecting local products and genetic heritage, and motivating future generations to consume healthy foods.

4.3. Ecological and Ethical Sensitivity

The "good (seasonal, delicious, and nutritious), clean (non-GMO, chemical-free), and fair (pricing that reflects the producer's labor and the consumer's value)" approach, which is among the core principles of Slow Food Yaveş Gari Bodrum, promotes an environmentally sustainable understanding of production and consumption. The production techniques highlighted at the events are generally environmentally friendly practices based on heirloom seeds and seasonal production. In Türkiye, which is particularly affected by the climate crisis in terms of agricultural production, the volunteers of Slow Food Yaveş Gari Bodrum are working to promote product types that are compatible with the local climate, resistant to local agricultural diseases, and can withstand drought. The activities and studies carried out to increase the number of Dilmit olive trees in the region are an example of this. The conservation of the region's vegetation and the encouragement and support of villagers who make a living from coastal fishing and animal husbandry will be another topic discussed under this heading. Additionally, the principle of fairness is observed in pricing; the producer's labor is considered, as is the consumer's accessibility. Earth markets, farmers' markets, or local food outlets established with this fair sharing approach are thus not only becoming a space for a gastronomic experience, but also an ethical shopping venue.

5. Discussion

This example is important because it presents initiatives that demonstrate how regenerative gastronomy tourism can be implemented in practice in Türkiye. Slow Food Yaveş Gari Bodrum uses gastronomy as a narrative and repair tool, while also ensuring that tourists are not passive consumers, but active learners and individuals who contribute to the local community. In this respect, it contributes not only to the branding of the destination but also to the reconstruction of local identities.

The Slow Food Yaveş Gari Bodrum example demonstrates that the current practices of gastronomy tourism need to be re-evaluated. This community not only promotes local flavors in line with the principles of regenerative tourism but also supports production methods that are in harmony with the surrounding nature, paves the way for collaborations that will enable collective value creation within the community, and organizes events to encourage the cultural continuity of these activities. Through these activities, it contributes to the re-evaluation of traditional production methods, the conscious involvement of consumers in the process, and the sustainability of the destination not only economically but also socially and culturally. Implementing such practices in a destination like Bodrum, which experiences heavy tourist traffic, is significant as it demonstrates that tourism can also play a restorative role. Additionally, the fact that Slow Food Yaveş Gari Bodrum operates within an international network demonstrates that efforts at the local level are also supported globally, highlighting the multifaceted nature of regenerative gastronomy tourism.

6. Results and Recommendations

Slow Food Yaveş Gari Bodrum serves as an example for the feasibility and dissemination of regenerative gastronomy tourism in Türkiye. It is recommended that similar practices be implemented in different regions with a regenerative understanding, and that they be supported, especially through producers, cooperatives, municipalities, and universities, and that new local food networks be established. Organizations like Slow Food are important not only economically but also for their long-term benefits for social and ecological development.

This study revealed that the activities of the Slow Food Yaveş Gari Bodrum community can be evaluated within the scope of regenerative gastronomy tourism. The analysis and interviews conducted show how the Slow Food approach aligns with and overlaps with the principles of regenerative gastronomy tourism in terms of protecting local products, preserving cultural heritage, supporting community-based production practices, and promoting ecological awareness. In regions under pressure from mass tourism, such as Bodrum, it is necessary to aim for social and cultural restoration in addition to economic gain for the sustainability of tourist attraction. Slow Food Yaveş Gari Bodrum is creating a multi-actor transformation process by applying this approach on the ground, involving local people, producers, and tourists.

Based on this study, the following suggestions can be offered for the widespread adoption of regenerative gastronomy tourism in Türkiye:

• Local governments and actors shaping tourism policy should provide financial assistance and logistical support to community initiatives such as Slow Food and similar organizations.

• Gastronomy tourism policies should not be limited to simply promoting the region; they should also focus on the sustainability of local food systems.

• Centers should be established in tourist destinations to enable the organization of educational programs and workshops that will preserve traditional knowledge.

• Universities and research institutions should conduct interdisciplinary research in collaboration with civil society organizations to preserve local gastronomic values.

• At the local level, producers should be supported in forming cooperatives and unions; their participation in national and international networks should be encouraged.

The study's focus on a single case limits the generalizability of the findings to Türkiye. Due to the data used in the study being obtained from document analysis and a limited number of semi-structured interviews, quantitative indicators such as the economic impact of regenerative gastronomy tourism, its impact on tourist satisfaction, or environmental gains could not be evaluated. Addressing the topics mentioned in future research, utilizing quantitative research methods, and collecting data from a wider range of participants could broaden the scope of the findings. Thus, by measuring economic, social, and environmental indicators, the tangible impacts of regenerative gastronomy practices can be evaluated. By comparatively analyzing different Slow Food communities or similar organizations, the regional diversity or differences in regenerative gastronomy tourism in Türkiye can be revealed. Additionally, it is recommended to conduct tourist-focused studies to understand the experience, motivation, and satisfaction levels of tourists visiting the destination.

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Chapter 12

The Role of Ecological Art in Creating Sustainability Awareness in Tourism

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1.Introduction

Environmental damage as a result of industrialization has necessitated the development of environmental policies for a sustainable life (Akkol, 2018:427). The changing sensitivity towards nature over time has also led to changes in art, creating a strong connection between art and life (Akkol, 2018:427). In fact, a study examining exhibitions of ecological artworks revealed that art contributes to the development of ecological environmental awareness and establishes a connection between art and society (Çınar, 2019). Thus, it is possible to say that the power of art in preserving the existence of sustainable resources in tourism is undeniable. A study conducted by Uğuz (2023) on the relationship between tourism and art suggested that culture-art policies should be established, that art and tourism can contribute to the Visual of the city, and that destinations can be turned into centers of attraction through art-based events. However, art has not been considered in the literature as a tool for ensuring sustainability in tourism through the lens of ecological art. This study will discuss whether ecological art can

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play a role in ensuring the sustainability of tourism resources. Based on the literature, the research question was designed as *"Can ecological art contribute to the development of sustainability awareness in tourism?"*. The study's aim is to determine whether ecological art activities can contribute to sustainability awareness in tourism. The study's emphasis on ecological art, which will raise awareness of environmental, social, and cultural sustainability in tourism, is crucial for achieving and increasing customer satisfaction in a service sector like tourism, which requires scarce resources. The lack of a study in the literature that addresses ecological art and sustainability in tourism together demonstrates the uniqueness of this study. Therefore, it is believed that this study will contribute to the literature. The Social Learning Theory discussed in this study is related to the environment, but no studies related to the environment exist in the literature. This constitutes another unique aspect of the study. Furthermore, based on the findings, it is believed that raising awareness among local residents and tourists about preserving and transmitting environmental and sociocultural values across generations will generate a social benefit. In addition, the study is expected to contribute to the economy, as it will increase the satisfaction of tourists and locals in tourism destinations, and consequently, the income of service providers. The inclusion of sources accessible to the researchers constitutes a limitation of the study.

2.The Relationship Between Ecological Art, Sustainability, Tourism and Social Learning Theory

According to Stankiewicz and Krug (1997), ecological art is defined as the combination of art and ecology, aimed at identifying environmental problems and developing solutions, and conveying a message of sustainability to people through metaphors. Mamur (2017)'s study, which examines ecological art from the perspective of environmental education, emphasizes that artists draw attention to environmental problems through metaphors in the connection they establish between nature and social life. It also highlights the need for cultural restoration, in addition to ecological knowledge, in raising awareness of nature conservation. In this regard, it is emphasized that art can have a sufficient impact in raising awareness of nature conservation.

Ecological art projects are carried out to raise awareness of nature conservation (Çınar, 2019:203). Akkol (2018)'s research on the changing perception of nature and ecological art concluded that artists who create ecological artworks to draw attention to the destruction of nature highlight the need to raise awareness of nature conservation. In other words, it can be said that activities are carried out within the scope of ecological art, using art as a tool to protect nature and raise awareness of sustainability. Within the scope of these activities, conveying messages to individuals through the works created by others indicates social development and learning. In other words, individuals can contribute to the environment in the context of ecological art by modeling and learning from the behaviors exhibited by others to create works. According to Social Learning Theory, which explains the processes by which individuals learn from their environment, cognitive processes are stated to play a role in the formation of new behavioral patterns (Bandura, 1977). This is because the basis of Social Learning Theory is observation and imitation of the behavior of others (Bandura, 1977). According to the theory, knowledge and skills are not acquired solely through experience. Individuals' behaviors shaped by knowledge and skills are also shaped equally and non-simultaneously by external environmental, cognitive, and personal factors, a phenomenon known as mutual determinism (Wood & Bandura, 1989). In this regard, the factors of indirect reinforcement, indirect punishment, indirect motivation, and indirect affectivity play a role (Korkmaz, 2003). Obtaining a reward for a behavior represents indirect reinforcement; punishment for a behavior by a model represents indirect punishment; the desire for that behavior when the model experiences a positive outcome as a result of a behavior is referred to as indirect motivation; and empathy while observing the behavior of the model represents indirect affectivity. In this study, the role of ecological art in raising sustainability awareness in tourism is most closely aligned with indirect motivation and indirect affectivity. Because this research examines whether sustainability awareness in tourism is established, within the scope of indirect affectivity, individuals can empathize with the owners of ecological artworks and find meaning in the artwork. Furthermore, with indirect motivation, the acceptance of the artwork, created with the environmental sensitivity of the owner of the ecological artwork, can lead to similar sensitivity in others. Furthermore, according to Rutledge (2000), learning does not necessarily lead to a change in behavior; learning can occur through a perceptual dimension without an observable change in behavior. Therefore, the findings of this study will be interpreted in relation to the role of ecological art in creating sustainability awareness in tourism in the light of Social Learning Theory.

3.Methodology

This research employed a mixed-use design. Based on the literature, the research question was designed as *"Can ecological art contribute to the development of sustainability awareness in tourism?"*. The aim of this research is to determine the role of ecological art activities in raising sustainability awareness in tourism. The emphasis placed on fostering an awareness at the intersection of art and tourism that will benefit both art and tourism demonstrates the research's significance. In this respect, the findings are expected to contribute to practitioners and scholarly research. The fact that no study in the literature has addressed the issues of ecological art and sustainability in tourism together demonstrates the study's originality. Therefore, it is believed that this study will contribute to the literature. The theoretical basis of the research is Social Learning Theory. Social Learning Theory is related to the environment, and no studies related to the environment exist in the literature. This constitutes the originality of this research, as it is believed that this study will contribute to the literature. As a result of this research, it is thought that various activities can be carried out by increasing ecological art activities, especially for children, in order to increase sustainability awareness and thus a social and economic contribution can be made. A limitation of the research is that only the opinions of academics from the Faculty of Tourism are obtained. Another limitation is that the research examines ecological art solely from an environmental sustainability perspective and obtains its findings through metaphorical analyses conducted in light of the ecological artworks included in the interview form. Since the research aim is to determine whether ecological art activities can contribute to sustainability in tourism, the population of the research is comprised of academics from the Faculty of Tourism. The research sample consisted of individuals contacted through a convenience sampling technique among academics working at the Faculty of Tourism. Since the study employed a mixed-use design, a survey was first conducted to determine the participants' sensitivity to environmentally friendly products within the context of the quantitative design. The questionnaire, developed by Kapferer and Laurent (1985) and used by Güven et al. (2024), was selected due to its suitability for the purpose of this study and translated into Turkish with the help of two experts. During the translation phase, the scale was first translated from English to Turkish and then from Turkish to English, and double-checked with the help of experts. Subsequently, within the context of the qualitative dimension, participants' opinions on the contribution of ecological art to sustainability in tourism were obtained using an interview form, which was prepared by the authors in accordance with the purpose of the study and finalized after receiving the opinions of two experts. Semi-structured interviews were conducted during this phase. In the first step of the qualitative data collection phase, pilot interviews were conducted with two participants on September 19, 2025. Following the interviews, which lasted approximately 20 minutes, it was concluded that the visuals on the interview form needed to be modified. This strengthened the objectivity in selecting the visuals included in the final interview form in accordance with the purpose of the research. The final data were collected between September 29th and October 7th. The interviews, which lasted an average of 25 minutes, were audio-recorded with permission, and the verbatim note-taking technique was used.

Since the qualitative research sought to gather participants' opinions on the topic, this research employs a phenomenological design. A semiotic analysis, also known as the projection method, was conducted during the analysis of the visuals shown to the participants in the semi-structured interviews conducted in the qualitative dimension of the research. The basis of semiotic analysis is based on Descartes' approach, which advocates that to solve a problem, one begins by breaking it down into its smallest parts and then examines it in its simplest form (Güneş, 2013). Semiotics is seen as the doctrine of values or a method that can analyze the values contained in texts. It offers ways and methods to arrive at different values regarding the different perceptions of these values (Erkman 1987:12). With semiotic analysis, perception styles; (Erkmen, 1987:13). Semiotic analysis is intertwined with distinctness, reasonableness and creativity (Klinkenberg, 1966:9). In this study, in the semiotic analysis phase, scoring tables were created for Visual 1 and Visual 2 in the light of expert opinions. The score levels were determined by the average of the opinions received from 3 experts. The visuals were examined and scored by the participants in the light of 10 criteria. The average of the scores given by the participants for each criterion was compared with the average of the expert opinions to ensure validity and the meaningfulness of the visuals was tested. Since the semi-structured interview questions asked the participants to make analogies, there were 2 questions to conduct metaphor analysis. Content analysis was applied in the overall qualitative dimension. The two visuals in the final version of the interview form were prepared by the authors using commands given to ChatGPT, inspired by real ecological artworks. The first Visual prepared via ChatGPT with the command "Create an Visual as an example of an ecological artwork" is as follows:

Visual 1: Example of ecological artwork

To analyze the Visual above, a scoring table was created within the scope of semiotic analysis. The table, which was scored based on expert opinions for Visual 1, is shown below.

Table 1: Semiotic analysis template of Visual 1

	Sign / Theme	(criterion description)	1 (very low)	3 (medium)	5 (very high)	*Participant Score (expert opinions -3 people)*
1	**Naturality/ Materiality**	The direct visibility and dominance of the materials used (shells, leaves, stones, gravel).	The materials are weak/rarely visible.	Natural materials are evident, but there are even elements.	Natural materials are clearly dominant and the main focus.	5+4+5/3=4,66
2	**Compositional Aesthetics**	The aesthetic integrity and visual harmony of the layout (frame, central leaf, semicircular shells).	The composition is disorganized/ cluttered.	Moderate order/harmony.	There is a tight, balanced, and aesthetically pleasing layout.	4+4+5/3=4, 66
3	**Symbolic/ Symbolism**	The cultural/sensory symbolic connotations of objects such as leaves and shells (e.g., life, transience).	Symbolism is not immediately apparent.	Some symbolic connotations.	Objects carry strong and clear symbolic meaning.	2+3+3/=2,66
4	**Nature-Human Relationship (Human Intervention)**	Whether the materials were arranged in their natural state or through human intervention; the visibility of the intervention.	There is almost no sense of intervention.	Clearly organized, but natural appearance preserved.	Human placement is evident; the intervention is obvious and deliberate.	4+5+5/3=4,66
5	**Localization/ Spatial Context**	The extent to which the Visual refers to a specific place (forest, regional identity).	There are no clues to the setting.	References to forest/other natural contexts.	The place (forest) is strongly felt; the context is clear.	2+3+3/=2,66
6	**Sustainability Visual**	Does the use/work evoke sustainability or recycling?	There is no sustainable Visual at all.	Partially sustainable impression.	Strong sustainable/recycling Visualry.	4+5+5/3=4,66
7	**Authenticity/ Traditionality**	Does the materials and methods used convey a sense of locality/authority (folk, local practice).	There is a weak sense of authenticity.	Moderate authenticity.	Very strong local/authentic feel.	2+1+2/3=1,66
8	**Touristic Connotation/ Commercialization**	The Visual's associations with elements of touristic promotion or commercialization.	There is no touristic/ commercial element.	Some touristic connotations.	There is a clear emphasis on tourism/commercialization.	1+2+1/3=1,66
9	**Emotional Impact/ Aesthetic Pleasure**	The aesthetic pleasure or emotional response it evokes in the viewer (strong-weak).	Weak, no emotional impact.	Moderate aesthetic/ emotional.	It creates a strong aesthetic pleasure and emotional impact.	4+5+5/3=4,66
10	**Popularity/ Readability**	The Visual's ability to offer multiple readings (different interpretations); the ambiguity of the message.	Single meaning, few alternative readings.	Several alternative interpretations are possible.	Multiple and rich layers of meaning are present.	3+2+3/3=2,66

The second Visual, created via ChatGPT with the command "Create an Visual of your first ecological art painting or similar ones being exhibited in Nevşehir/Cappadocia, a tourist destination in Turkey," is as follows:

Visual 2: Ecological artwork exhibition in a tourist destination

To analyze the Visual above, a scoring table was created within the scope of semiotic analysis. The table, whose scores were determined based on expert opinions for Visual 2, is shown below.

Table 2: Semiotic analysis template of Visual 2

	Sign / Theme	(criterion description)	1 (very low)	3 (medium)	5 (very high)	*Participant Score (expert opinions -3 people)*
1	**Naturalness/ Material Use**	The visibility of materials such as natural stone, clay, leaves, wood, etc.	Artificial elements predominate.	Balanced between natural and artificial.	Natural materials are very dominant.	5+4+5/3=4,66
2	**Compositional Aesthetics**	The layout of the layout and the visual harmony of the exhibition space.	Disorganized/complex.	Moderate harmony.	Strong symmetry/ harmony/aesthetic order.	4+5+5/3=4,66
3	**Symbolic/ Cultural Meaning**	The symbolic connotations of objects and arrangements (e.g., abundance, locality, tourism).	No symbolism.	Certain symbols are felt.	Rich symbolic/ mythological connotations.	4+5+5/3=4,66
4	**Nature-Human Interaction**	Whether the materials originate from nature or were shaped by human intervention.	Intervention is weak, nature is abandoned.	Balanced.	Human intervention is strong and deliberate.	5+4+5/3=4,66
5	**Spatial Context/ Cappadocia Identity**	The extent to which the visual evokes Cappadocia (fairy chimneys, earth tones, local stones).	It doesn't send anything.	A few clues are present.	Strong Cappadocia reference.	4+5+5/3=4,66
6	**Sustainability Visual**	The environmental, recycling, and environmentally friendly message	It doesn't give anything.	Partially present.	Very strong sustainability message.	5+4+5/3=4,66
7	**Authenticity/ Tradition**	Conveyed by the exhibition/space. The sense of local culture (clay, stonework, folkloric traces).	No authenticity.	Moderate.	Very strong local/ authentic feel.	3+2+3/3=2,66
8	**Festival – Exhibition/Social Participation**	The event atmosphere, the association with human presence and community participation.	Like a singular work.	A moderate sense of involvement.	Strong festival/ exhibition/participation atmosphere.	4+5+5/3=4,66
9	**Touristic/ Promotional Connotation**	The extent to which the exhibition is perceived as a tourist attraction.	Not touristy at all.	Some touristic connotation.	Very clearly a tourist attraction.	5+4+5/3=4,66
10	**Emotional Impact / Experiential Sense**	The ability to evoke feelings of awe, peace, and fascination in the viewer.	The impact is weak	Moderate emotional impact.	Strong aesthetic and emotional experience.	4+5+5/3=4,66

Ensuring the credibility of findings and results is crucial in qualitative research (Noble & Smith, 2015). In this study, the reliability of the scale used in the first step was determined by providing the average levels of criteria related to the visuals during the semiotic analysis phase. Finally, the validity of the coding during the content analysis phase should be proven. The reliability of the findings obtained as a result of the research was verified by two experts familiar with the research topic and method. Furthermore, to test the validity and reliability of the coding in the study, codes were checked using the MAXQDA Qualitative Data Analysis Program, that is, inter-coder agreement was conducted. The coders were designated as Coder 1 and Coder 2. Before comparing the codes, the list of codes was given to the other coder without revealing the coded sections. The 88 codings made by Coder 1 and the 83 codings made by Coder 2 were compared on the documents. The presence of codes in the documents was determined to be 94.81%. This determined that both coders used the same codes at the same level. The code frequency in the compared documents was found to be 93.51%. This means that the number of codes across the documents was found to be similar. The code overlap rate between documents was found to be 97.08%. This means that the same codes were marked in the same sections in the compared documents. Table 1 below shows the validity and reliability of the overlap rate of the coding.

Table 3: Kappa Values of Codes

		Coder 1		
		1	**0**	
Coder 2	**1**	a = 166	b = 5	171
	0	c = 0	0	0
		166	5	171
Kappa = (Po - Pc) / (1 - Pc) = 0.97				

Source: Obtained by the authors using the MAXQDA Qualitative Data Analysis Program.

Cohen's Kappa statistic tests the validity and reliability of different codes made by coders (Guest et al., 2012; Yardley, 2008). According to Brennan and Prediger (1981), a Kappa value above 75% is considered acceptable. According to Creswell (2016), a value above 80% is considered sufficient for the validity and reliability of codes. In this case, it is possible to say that the qualitative findings of the study are valid and reliable.

4. Findings

Within the scope of the research, findings regarding the reliability of the scale were first identified. Table 4 below shows the reliability results of the scale. Reliability testing was not mandatory in this study but was included for statistical rigor. The reliability of the scale was determined to be .793, which is sufficient.

Table 4: Reliability results of the scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,787	,795	16

Table 5 below shows the mean values of the statements in the environmental product scale. According to the statements in the scale, the statements with the highest mean scores are "2-I am interested in environmentally friendly products (3.85)", "6-Buying an environmentally friendly product makes me happy", and "9-I can tell something about someone by looking at the environmentally friendly product they choose", while the statements with the lowest mean scores are "3-I am not interested in environmentally friendly products."

Table 5: Mean values of the scale

	Mean	
	Statistic	Std. Error
I1	3,5714	,42857
I2	**3,8571**	**,40406**
I3	**2,2857**	**,52164**
I4	3,2857	,28571
I5	3,1429	,34007
I6	**3,8571**	**,40406**
I7	2,7143	,60609
I8	2,5714	,57143
I9	**3,8571**	**,26082**
I10	3,1429	,50843
I11	3,2857	,52164
I12	3,0000	,30861
I13	2,4286	,42857
I14	2,5714	,36886
I15	2,4286	,52812
I16	2,8571	,40406
Valid N (listwise)		

Table 6 below shows the mean values for the Visuals included in the study. The mean values for each criterion for the Visuals were compared with the mean values of three expert opinions. Visual 1 was found to have above-average values for naturalness, symbolism, authenticity, touristic connotation, and polysemy. Visual 2 was found to have above-average values for authenticity. These findings suggest that the metaphor analyses provide sufficient validity.

Table 6: Average values of visual criteria

	Semiotic Analysis Results of Visual 1 (average values)			**Semiotic Analysis Results of Visual 2 (average values)**		
	Visual Criteria	**Average of Expert Opinions**	**Average Participant Scores**	**Visual Criteria**	**Average of Expert Opinions**	**Average Participant Scores**
1	**Naturality/ Materiality**	4,66	**4,71**	**Naturalness/ Material Use**	4,66	3,71
2	**Compositional Aesthetics**	4,66	4,14	**Compositional Aesthetics**	4,66	3,71
3	**Symbolic/ Symbolism**	2,66	**3,42**	**Symbolic/ Cultural Meaning**	4,66	2,42
4	**Nature-Human Relationship (Human Intervention)**	4,66	3,85	**Nature-Human Interaction**	4,66	3,57
5	**Localization/ Spatial Context**	2,66	4,00	**Spatial Context/ Cappadocia Identity**	4,66	2,42
6	**Sustainability Visual**	4,66	3,42	**Sustainability Visual**	4,66	3,00
7	**Authenticity/ Traditionality**	1,66	**3,42**	**Authenticity/ Tradition**	2,66	**2,71**
8	**Touristic Connotation/ Commercialization**	1,66	**2,14**	**Festival/ Exhibition/ Social Participation**	4,66	2,57
9	**Emotional Impact/ Aesthetic Pleasure**	4,66	2,57	**Touristic/ Promotional Connotation**	4,66	3,14
10	**Popularity/ Readability**	2,66	**3,42**	**Emotional Impact/ Experiential Sense**	4,66	2,57

Participants' metaphorical inferences regarding Figure 1 are presented below as subcodes. As a result of the coding, Visual 1 was mostly defined with the metaphor of "life."

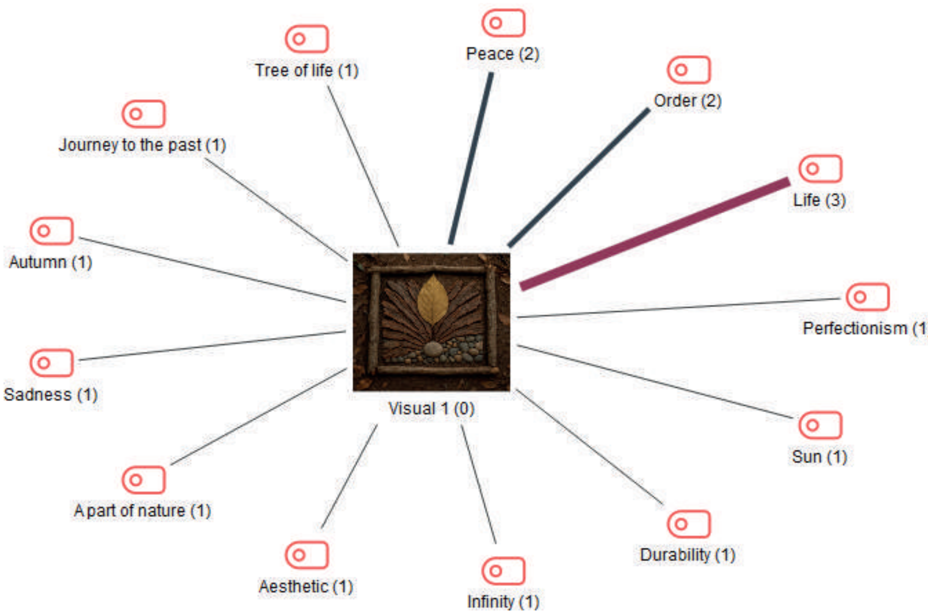

Figure 1: Metaphor analysis of Visual 1

Participants' metaphorical inferences regarding Visual 2 are presented below as subcodes. While there was no prominent definition for Visual 2 as a result of the coding, participants expressed it with connotations such as life, leadership, and human intervention.

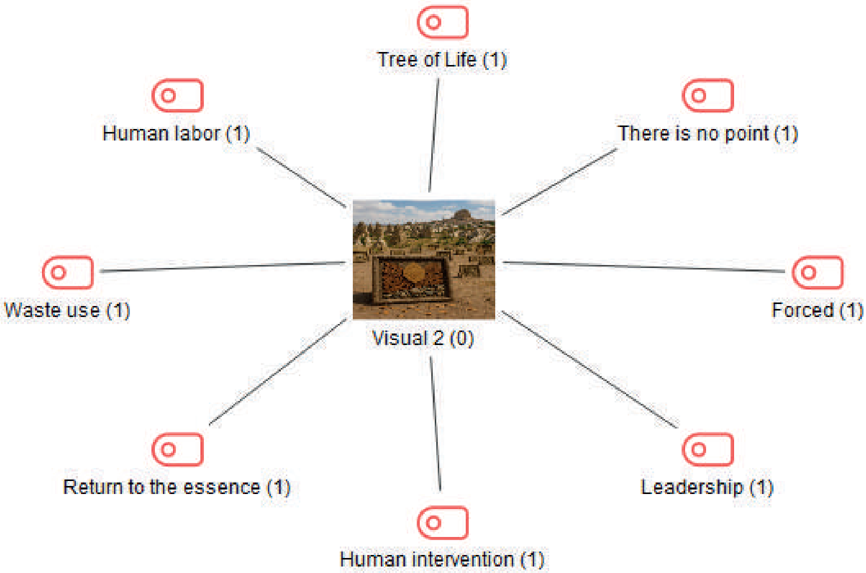

Figure 2: Metaphor analysis of Visual 2

Table 7 below shows the code matrix. Because the codes for Visual 1 and Visual 2 were evaluated within the scope of semiotic analysis, they are not reproduced here. In light of this table, it is possible to see the weighted distribution of codes based on the interviews conducted with the participants. While a relatively balanced distribution is observed among the codes, one participant (Participant 3) stands out.

Table 7: Code matrix scanner results

CODE SYSTEM	1 - Interview	2 - Interview	3 - Interview	4 - Interview	5 - Interview	6 - Interview	7 - Interview	TOTAL
Neutral Interaction with Tourists				●				1
Damage to Destination Identity	●		●	●		●		4
Destination Development		●	●		●		●	4
Ensuring Sustainability	●			●				2
Tourist Dissatisfaction	●		●				●	4
Tourist Satisfaction		●	●		●	●	●	5
Obstructing Sustainable Understanding		●	●		●	●	●	6
Poor Quality Tourism Experience	●		●					4
Enriching the Tourism Experience		●	●	●	●	●	●	8
General Contribution to Tourism	●	●			●	●	●	5
Advantages of Use in Tourism	●	●	●	●	●	●	●	8
Destruction of Nature	●			●			●	3
Contribution to Nature	●	●		●	●	●	●	9
Σ TOTAL	8	8	15	7	8	8	9	63

Figure 3 below shows participants' positive associations with ecological art and sustainability in tourism. The most prominent positive association among the 41 codings is the contribution ecological art makes to nature.

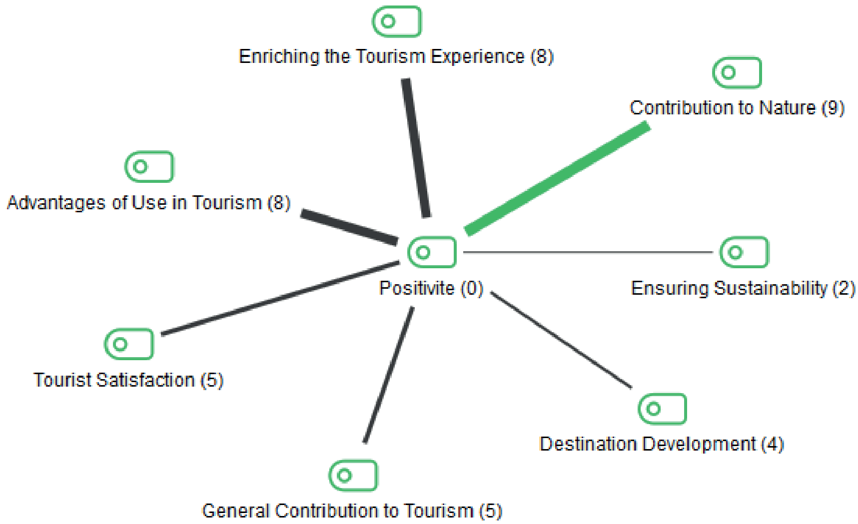

Figure 3: Positive associations of sustainability in ecological art and tourism

Participant interviews revealed that ecological art might have a negative relationship with the understanding of sustainability in tourism, with the following comments: *"As the name suggests, if art is nature-based, it certainly has a positive impact on nature. If recycled materials and environmentally friendly practices are used in artworks, and if minimal impact factors are considered, it can be integrated with nature."* and *"I don't think there will be a negative impact. However, as in all matters, the balance between conservation and use is important here. I believe such activities should not be commodified."*

Figure 4 below shows the participants' negative associations with ecological art and sustainability in tourism. The most prominent negative association, out of a total of 21 codings, is that ecological art can hinder the sustainability approach.

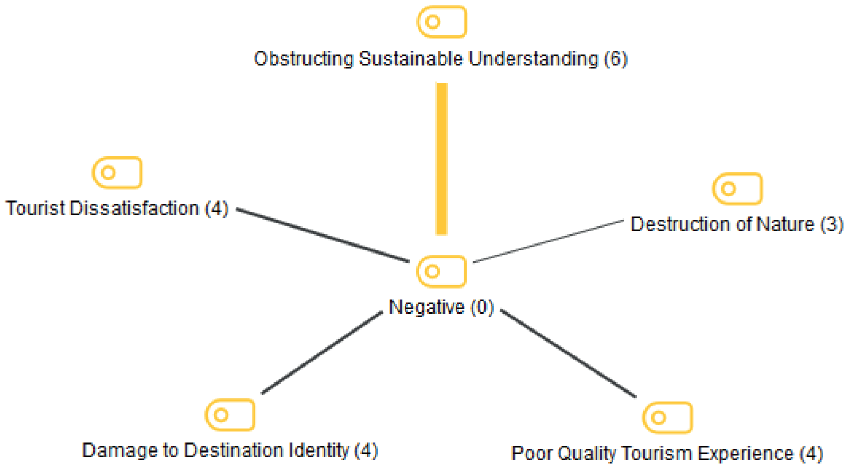

Figure 4: Positive associations of sustainability in ecological art and tourism

Participants' interviews revealed that ecological art may have a negative relationship with sustainability in tourism: *"I single out the human element in ecology; human intervention increases the carbon footprint. On the other hand, if an ecological artwork, like pop art, focuses on marketing objectives and cannot escape the marketing-based meaning of the word ecology, it can have a negative impact on nature."*

Table 8 below shows the demographic characteristics of the participants. The majority of participants were male and between the ages of 36 and 45. Participants were from all departments within the Faculty of Tourism.

Table 8: Demographic characteristics of participants

		Number (n)	Percentage (%)
Gender	Female	3	42,86
	Male	4	57,14
Age	18-25	1	14,28
	26-35	2	28,57
	36-45	3	42,86
	46-55	1	14,28
Section	Tourism Management	2	28,57
	Gastronomy and Culinary Arts	3	42,86
	Tourism Guidance	1	14,28
	Recreation Management	1	14,28

5.Discussion

The physical environment is an element that must be protected for the future of the tourism industry, whose supply is largely comprised of natural resources. Indeed, Turkey's economy is largely dependent on tourism. Even technology, a fundamental need for the future, must be integrated into human life without depleting natural resources. Bookchin (1996:41) emphasized that technology should not be discarded due to its potential harms but should be integrated into nature and society. This research examines ecological art as a tool for protecting the physical environmental resources that add value to tourism. Social learning theory explains the potential power of ecological art to raise awareness in individuals. According to social learning theory, individuals can develop a consciousness or adopt a behavior by being influenced by their environment. The results of this research indicate that ecological artworks often play a positive role in fostering sustainable tourism awareness. However, it is emphasized that ecotourism activities cannot always fully contribute to sustainability (Wall, 1997:483), and therefore, comprehensive planning is needed, taking into account industry conditions (Salman et al., 2024; Weaver & Lawton, 2007:1168). Furthermore, it is emphasized that integrating smart technologies into cities (Zhang & Deng, 2024) and identifying and preserving traditional values (Zainal, 2024) can contribute to sustainability within the context of ecotourism.

6. Conclusion and Recommendations

The emphasis placed on fostering an awareness at the intersection of art and tourism that will benefit both art and tourism demonstrates the research's significance. In this respect, the findings are expected to contribute to practitioners and scholarly research. The fact that no study in the literature has addressed the issues of ecological art and sustainability in tourism together demonstrates the study's originality. Therefore, it is believed that this study will contribute to the literature. The theoretical basis of the research is Social Learning Theory. Social Learning Theory is related to the environment, and no studies related to the environment exist in the literature. This constitutes the originality of this research, as it is believed that this study will contribute to the literature. As a result of this research, it is thought that various activities can be carried out by increasing ecological art activities, especially for children, in order to increase sustainability awareness and thus a social and economic contribution can be made.

As a result of this research, almost all of the interviews conducted with participants addressed both the positive and negative aspects of ecological art. Seven participants were interviewed as part of the research. A total of 63 codings were generated as a result of the content analysis. The most prominent positive association among the 41 codings, based on positive themes, is the contribution that ecological art makes to nature. The most prominent negative association among the 21 codings, based on negative themes, is that ecological art can hinder sustainability approaches. In addition, there is 1 coding that emphasizes that ecological art activities will play a neutral role in tourists' perceptions of the destination. However, during the metaphor analysis phase included in the research, it was determined that positive metaphors were used for the ecological art examples presented to the participants. The recommendations made as a result of the research are listed below:

- This research, whose findings are discussed in light of social learning theory, has determined that ecological art plays a mostly positive role in raising sustainability awareness in tourism. This is because, according to social learning theory, individuals can transmit a certain behavior or awareness to their environment. The findings of this research also support the metaphorical inferences of individuals viewing ecological artwork. It is believed that future research can explore this topic from different perspectives, drawing on support from different theories.
- Ecological awareness can emerge through the shaping of certain habits and perspectives over time. Therefore, efforts to raise children's awareness of nature are important for sustainability. Through art education programs linked to ecological issues, children can develop positive relationships with nature (Hollis, 1997). Therefore, in order to raise awareness of the purpose of ecological art, in addition to raising tourism awareness, individuals should be provided with practical training about biodiversity in schools from an early age, encouraging them to interact with the earth, and thus instilling knowledge about nature conservation.
- Only faculty members from the Faculty of Tourism were included in the sample for this study. However, it is believed that comparative results can be obtained with a larger sample that also includes faculty members from the Faculty of Fine Arts. This will allow for a clearer definition of the possible connection academics may have established between artistic activities and the physical environment, and its implications for tourism to be discussed.
- In this study, ecological art is examined from an environmental perspective. However, ecological art; Its interaction with dimensions

such as the social, cultural, economic, and political environment is also important. Therefore, it is believed that the conceptual framework can be expanded in future research.

- Sample ecological artworks were included in the interview form during the data collection phase. A metaphor analysis conducted with these ecological artworks concluded that Visual 1 evokes life, while Visual 2 does not evoke a significant association. Therefore, it is believed that a similar study could yield different findings using different ecological artworks.
- This research is based on social learning theory, which explains individuals' learning behaviors from their environments. It is believed that future research could explore this issue by using different theories, such as Social Identity Theory.
- This research, like other studies on similar topics in the literature, was conducted using a qualitative design. However, it is believed that a scale could be developed to address issues such as ecological art awareness and knowledge levels, allowing for the testing of different research problems at a multidisciplinary level.
- In order to strengthen the awareness created by ecological art about protecting the environment, it is thought that various exhibitions and museum activities can be increased in tourist destinations such as Izmir, Muğla and Istanbul, which are beyond the carrying capacity, on the border and have high touristic appeal.

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Chapter 13

Food Waste Management for Sustainable Gastronomy Tourism: The Case of Kemer, Antalya

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1. Introducton

The concept of sustainable development first appeared in the literature with the Brundtland Report, issued in 1987 (Kahraman and Türkay, 2012). In this report, sustainable development is described as "development that meets the needs of the present without undermining the capacity of future generations to meet their own needs" (Johnston et al., 2007). Subsequently, in the strategy document *"We Care for Our World: A Strategy for a Sustainable Life"*, jointly **released** by UNEP and WWF in 1991, the emphasis was placed not only on meeting human needs but also on maintaining the equilibrium of the ecological system (Legrand et al., 2009).

Building on these developments, the concept of sustainability was categorized under three main pillars during the United Nations Earth Summit in 2005: economic development, social development, and environmental protection. Economic development highlights the efficient and responsible utilization of natural resources, while social development refers to the advancement of individuals and communities that operate with environmental awareness. Environmental protection, in turn, encompasses the restoration of ecosystems damaged by human activity and the re-establishment of the natural balance (Sloan et al., 2009; Kuter and Ünal, 2009).

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Within this multidimensional framework, the food industry has emerged as a critical domain for applying sustainable development principles. Food waste constitutes a complex challenge with environmental, economic, and social repercussions. It results in the unnecessary depletion of natural resources (water, soil, energy), escalates production costs, and contributes significantly to greenhouse gas emissions (Notarnicola et al., 2017; Leverenz et al., 2021). Furthermore, it undermines food security and the equitable distribution of resources (Tekiner et al., 2021).

Accordingly, food waste management plays a pivotal role in realizing the Sustainable Development Goals. In Turkey, the Waste Management Regulation (2015) establishes a legal framework for this issue, while biological recycling techniques, particularly composting, offer both ecological and economic advantages (Erdin, n.d.; Eskicioğlu, 2013). Moreover, sustainable practices in the hospitality industry such as strategic menu design, portion size regulation, digital monitoring systems, and food donation initiatives represent effective approaches to reducing waste (Papargyropoulou et al., 2019; Pleissner, 2018; Hollis, 2018). Nevertheless, an important question remains: To what extent are hotels in Türkiye adopting these practices, and are current efforts sufficient to meet the objectives of sustainable tourism and the UN Sustainable Development Goal 12.3?

Food waste is particularly widespread in accommodation establishments operating with all-inclusive buffet systems, where large-scale production and excessive consumption patterns frequently result in significant losses. Although sustainability certified hotels are expected to demonstrate effective management practices in this regard, existing strategies often remain limited or insufficient in practice. Accordingly, the primary purpose of this study is to critically examine the extent of food waste in a sustainability certified hotel within the tourism industry and to question the adequacy of current practices. The research aims to uncover the underlying causes of food waste, identify the stages of production where it is most prevalent, and evaluate the degree of staff involvement in addressing these challenges. Furthermore, the study investigates how guest behavior is managed and whether the methods employed are effective in guiding sustainable consumption. By adopting this perspective, the study not only analyzes waste reduction strategies and employee participation but also highlights the gaps and shortcomings that hinder the overall effectiveness of food waste management practices.

2. Litetrarure Review

Studies highlighting the critical role of the food sector in terms of sustainability provide a long-standing body of knowledge. Yağcı et al. (2006) emphasized that the potential for food waste valorization in Turkey was not sufficiently utilized, pointing out early gaps in this field.

In a European context, Notarnicola et al. (2017) examined the environmental impacts of food consumption, while Pleissner (2018) highlighted the contribution of utilizing food waste as biogas, animal feed, or compost to the circular economy. In the same year, Hollis (2018) demonstrated that sustainable restaurant practices can enhance operational efficiency.

Research conducted by Papargyropoulou et al. (2019) investigated the extent and causes of food waste in the accommodation and food service sector in Malaysia. Findings obtained through five comparative case studies using a mixed-methods approach revealed that approximately one-third of the food produced was wasted, nearly half of which was preventable. Preparation stages emerged as the largest source of waste, followed by buffet leftovers and customer plate waste. Food waste generated an economic loss equivalent to approximately 23% of the purchased food value. The study indicated that food waste arises both from business policies and processes as well as consumer habits, emphasizing that prevention strategies should encompass both operational management and customer behavior.

Taş and Olum (2020) reported that buffet systems in the Turkish tourism sector significantly increase food waste, whereas a study conducted in Germany in 2020 showed that regular measurement and "just-in-time" strategies in breakfast buffets could reduce waste by more than 60%. In an experimental study, Emerald (2021) found that simple messages such as "take only what you can eat" significantly reduced plate leftovers. In the same year, Leverenz et al. (2021) highlighted the contribution of legal monitoring obligations to sectoral transformation, while Tekiner et al. (2021) pointed out policy gaps in Turkey.

Betz et al. (2021) systematically reviewed over 180 waste reduction strategies in the food service sector, highlighting portion control, staff training, consumer information labels, and digital waste tracking systems. However, they noted that post-service losses, such as buffet and plate waste, remained insufficiently addressed.

More recently, Kozak (2020) argued that the dissemination of good practices could support sectoral transformation, and Öztürk et al. (2023)

demonstrated that training, awareness, and data monitoring could significantly reduce waste. Their findings revealed that in Turkey, food waste is particularly high during breakfast and dinner, yet staff training and menu planning play a critical role in mitigating these losses. Temizel et al. (2024) emphasized that buffet systems are one of the primary sources of food waste and that guest preferences and awareness directly influence the amount of waste, highlighting the importance of portion control and guiding guest behavior.

Overall, previous studies highlight that digital monitoring, portion control, and behavioral interventions are effective in reducing food waste in various contexts. However, research in Turkey has predominantly focused on policy gaps or survey-based assessments, providing limited insight into the operational realities of food waste management in hospitality settings. To address this gap, the present study was conducted in a sustainability-certified hotel in Kemer, Antalya, employing semi-structured interviews and direct observations across multiple kitchen and service departments. This methodological approach enabled a comprehensive understanding of how food waste is generated, the specific stages and practices contributing to it, and the roles and awareness of staff involved. By capturing both operational processes and personnel perspectives, the study offers original contributions to the literature and practical guidance for the implementation of effective food waste reduction strategies in hotel environments.

3. Research Methodology

This study adopted a qualitative research design to explore food waste management practices in the hospitality industry. A five-star hotel in Turkey, holding an internationally recognized sustainability certification, was selected as the case study. Data collection was carried out through on-site observations and semi-structured interviews. As part of this process, the hotel's kitchen, service, storage, and waste management units were systematically examined, where detailed observations were conducted on practices concerning the generation, segregation, disposal, and recycling of food waste. In addition, the effectiveness of existing measures and the challenges encountered were assessed through interviews conducted with chefs, hotel managers, and other relevant staff members. The collected data were analyzed using thematic analysis, enabling the identification of recurring patterns and themes, and the findings were synthesized to provide a comprehensive understanding of the current situation and its implications for sustainable food waste management in the tourism industry.

4. Scope and Limitations of the Research

This research investigates food waste management practices in an all-inclusive hotel located in the Kemer district of Antalya. The study sample comprised 20 participants directly involved in kitchen operations, including the head chef, assistant chefs, section chefs, pastry chefs, purchasing staff, quality control personnel, and cleaning staff. Data were collected through semi-structured interviews, and participants' experiences, observations, and suggestions regarding food waste were examined in depth. The interviews focused on production, purchasing, and quality control processes, and the findings were evaluated within the framework of portion control, menu planning, waste separation, the use of digital systems, staff training, and guest behavior.

The scope of the research is limited to a single hotel operating in the Kemer district of Antalya, and the findings are based on the knowledge and experiences of the participants. Therefore, the results cannot be generalized to other destinations or hospitality businesses with different service concepts. In addition, the study specifically addresses food waste management and does not cover other dimensions of sustainability, such as water consumption, energy use, or carbon footprint. This constitutes a key limitation of the study.

5. Findings and Discussion

The personal and professional characteristics of participants obtained through interviews are presented in Table 1.

Table 1. Participant Information

Participant	Position/Title	Interview Date	Education Level
K1	Bar Chef	09.08.2025	High School
K2	Dietitian	09.08.2025	Bachelor’s
K3	Steward Chef	09.08.2025	Primary School
K4	Sous Chef	09.08.2025	Primary School
K5	Sous Chef	09.08.2025	Primary School
K6	Sous Chef	09.08.2025	High School
K7	Restaurant Chef	09.08.2025	Associate Degree
K8	Sous Chef	09.08.2025	High School
K9	F&B Manager	09.08.2025	High School
K10	Assistant Restaurant Chef	09.08.2025	High School
K11	Hot Kitchen Chef	09.08.2025	High School
K12	Breakfast Chef	09.08.2025	Primary School
K13	Pastry Chef	09.08.2025	Primary School
K14	Pastry Section Chef	09.08.2025	High School
K15	Cleaning Staff	10.08.2025	Primary School
K16	À la Carte Chef	10.08.2025	Associate Degree
K17	Snack Chef	10.08.2025	Primary School
K18	Executive Chef	10.08.2025	Primary School
K19	Hot Kitchen Chef	10.08.2025	High School
K20	Staff Section Chef	10.08.2025	High School

As shown in Table 1, participants held various positions across kitchen operations, including executive chefs, sous chefs, restaurant chefs, pastry chefs, dietitians, bar chefs, and cleaning staff. Since food waste management extends beyond production and involves all service stages, participants were selected to represent the full operational process. Most participants had primary or high school education, with only a few holding associate or bachelor’s degrees. This distribution suggests that education level may directly influence staff awareness, knowledge, and skills in food waste management. The inclusion of specialized roles, such as dietitians, provides valuable insights for comparing technical knowledge with operational practices.

The interview responses were thematically categorized, and key common findings are presented in Table 2. This table highlights different perspectives on food waste management and forms the basis for subsequent analysis.

Table 2. Key Findings on Food Waste Management from Participant Interviews

Theme	Common Findings (Grouped Participants)	Example Participants
Sustainability Policies & Certifications	Most hotels have sustainability certifications (ISO 22000, environmental/energy management systems), yet some chefs (K1, K12, K14) lack awareness of these policies or certifications.	K1, K3, K7, K2, K6, K10, K14
Waste Separation & Monitoring	Waste is mostly separated by stewards or kitchen teams into glass, plastic, organic, etc. Some locations use Excel or municipal reporting.	K1, K3, K7, K2, K5, K9
Portion Control & Menu Planning	Buffet systems complicate portion control (K1, K7, K9). Some kitchens plan menus according to guest numbers (K2, K3, K5, K6). Pastry chefs (K12, K13) partially reduce waste through pre-portioned servings.	K1, K3, K7, K2, K5, K6, K12, K13
Training & Awareness	Trainings are mostly provided by food engineers or quality personnel. Frequent short sessions increase awareness (K3, K5). Some staff only receive written reminders (K1, K12, K14).	K3, K5, K6, K10, K4, K12, K14
Guest Behavior & Challenges	Buffet guests often take more than they can consume (K1, K9). Waste varies by guest profile (K4, K13). Staff "saving the day" mentality and high workload create additional challenges (K6, K14).	K1, K3, K7, K6, K9, K13, K14

The findings indicate significant gaps in food waste practices. Although hotels hold environmental and energy management certifications, staff tend to associate sustainability measures primarily with non-organic waste, such as plastics or paper. This limited focus is likely due to the absence of mandatory food waste measurement and reporting in certification guidelines. Literature emphasizes that sustainability certifications should encompass comprehensive food waste management, not just general waste (Notarnicola et al., 2017; Tekiner et al., 2021). European cases demonstrate that integrating food waste management into operational processes generates both environmental and economic benefits beyond mere certification compliance (Betz et al., 2021). Leverenz et al. (2021) further show that even self-reported food waste measurements in hotel kitchens significantly improve waste reduction and operational efficiency.

Participants noted the absence of digital monitoring systems for food waste. Accurate measurement and tracking are critical to identifying sources and amounts of waste (Leverenz et al., 2021; Read & Muth, 2021). AI-supported digital systems, in particular, allow detailed tracking by type and quantity, providing actionable insights on stages with high waste intensity. Such applications have been shown to achieve substantial waste reductions and generate significant cost savings when implemented effectively (Leverenz et al., 2021).

In Turkey, the lack of regulatory requirements for measuring and monitoring food waste often results in superficial implementation of certifications (Tekiner et al., 2021). Initiatives such as the “orange flag” program have demonstrated that staff awareness improves when certification compliance is incentivized (Çetinoğlu & Ünlüönen, 2020). Similarly, UNEP’s Global Food Waste Index Report (2024) emphasizes that systematic measurement, reporting, and management of food waste are necessary alongside general waste for effective certification and policy frameworks. Therefore, expanding certification standards to include food waste and supporting them with national policies enhances reporting effectiveness and helps control production losses (Doğdubay & Sarıoğlan, 2010).

Portion control in buffet systems emerged as a key challenge. Menu planning based on guest numbers and pre-portioned production are positive practices (Öztürk, Seçim & Seçuk, 2023). However, buffet systems inherently produce surplus, and guest consumption behaviors further increase waste (Temizel, Aydınlı & Solak, 2024). Consequently, awareness initiatives should target not only staff but also guests, emphasizing behavioral interventions alongside operational measures. Overall, food waste management is a multidimensional process requiring technical, operational, and behavioral strategies (Öztürk, Seçim & Seçuk, 2023; Temizel, Aydınlı & Solak, 2024).

These findings demonstrate that effective food waste management cannot be limited to kitchen operations. Policies, technological tracking and reporting systems, staff training, and guest behavior must be addressed holistically. Post-service losses, often neglected in literature, such as buffet and plate waste, are made visible through field data. Therefore, this study provides an original perspective for both academic literature and industry practice, integrating structural and behavioral aspects of food waste management.

Table 3. Five Key Stages for Preventing Food Waste in Hotels

Stage	Description
1. Monitoring & Measurement	Use of digital systems (e.g., Leanpath, Winnow) to track waste quantities.
2. Staff Training	Increasing awareness of kitchen, service staff, and guests.
3. Portion Control	Setting standard portion sizes and adjusting according to guest preferences.
4. Reuse	Repurposing leftovers or waste materials (e.g., vegetable peels) for other uses.
5. Donation & Social Transfer	Directing edible surplus to charitable organizations.

Monitoring and measurement constitute the starting point of waste management. Digital systems like Leanpath and Winnow enable transparent tracking at the source, as subsequent interventions are limited without accurate data (Leverenz et al., 2021). Staff training encompasses both operational personnel and guests, promoting behavioral change to complement technical measures. Although consumer behavior is influenced by cultural habits, awareness campaigns can facilitate meaningful change, as supported by previous studies (Aschemann-Witzel et al., 2015; Öztürk et al., 2023).

Portion control is critical in buffet systems. Menu planning based on guest numbers and frequent small-quantity service ("smaller, more frequent") are effective strategies, with literature demonstrating significant waste reduction (Papargyropoulou et al., 2019; Temizel et al., 2024). Reuse of leftovers or by-products, such as staff meals or transforming vegetable peels, provides both economic and environmental benefits (Pleissner, 2018). Donation of edible surplus not only prevents waste but also contributes to social responsibility and community welfare (Çetinoğlu & Ünlüönen, 2020).

6. Conclusion

This study examined food waste management practices in a sustainability-certified hotel in Kemer, Antalya, revealing both operational strengths and critical gaps. The findings indicate that while general waste separation systems, such as color-coded bins, containers, and municipal reporting, are commonly implemented, dedicated measures specifically addressing food waste are lacking. Moreover, globally recognized digital food waste tracking systems were not utilized, limiting precise monitoring and measurement. Portion control appears more manageable in bakery and à la carte operations, contributing to reduced food waste, whereas buffet systems present significant challenges due to overproduction and guest consumption behaviors.

The research highlights that staff awareness and knowledge are pivotal for effective food waste management. Despite the hotel's possession of internationally recognized sustainability certifications, some personnel were unaware of these credentials, and training programs rarely addressed food waste directly. Guest behavior was identified as another critical factor, with cultural habits, consumption psychology, and staff attitudes influencing waste generation. These findings underscore that food waste management is a multidimensional issue, requiring the integration of technical, behavioral, and managerial strategies. From a theoretical perspective, this study contributes to the literature by demonstrating that food waste management in hospitality settings cannot be addressed solely through operational policies or infrastructure. The research reinforces prior findings that both employee and guest behaviors significantly impact waste levels, highlighting the importance of integrating behavioral and process-based approaches into sustainability frameworks (Cozzio et al., 2021; Temizel et al., 2024). The results also emphasize the limitations of relying exclusively on certifications without accompanying awareness, monitoring, and practical interventions. Practically, the study offers actionable insights for hotel operations. Systematic implementation of monitoring and measurement tools, including digital tracking systems, can provide real-time data to guide waste reduction strategies. Structured staff training programs focusing on food waste, combined with guest awareness campaigns, can enhance behavioral compliance. Furthermore, operational strategies such as portion control, menu planning, and the reuse of edible surplus prior to consumption can prevent significant waste. Managerial commitment and a holistic approach that integrates technical, behavioral, and policy measures are essential for sustainable food waste reduction.

In conclusion, effective food waste management requires a multidimensional approach that combines technological solutions, staff and guest engagement, and managerial oversight. Addressing these components collectively can enhance operational sustainability, reduce environmental impact, and generate economic benefits for hospitality establishments.

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Chapter 14

Healthy Choices, Conscious Consumption: A Review on Food Literacy

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1. Introduction

Food is essential for meeting biological needs. It also represents a fundamental element that influences individuals' quality of life through cultural, social, and economic dimensions. In today's context, the increasing consumption of processed foods, the prevalence of obesity, and diet-related chronic diseases have heightened the importance of equipping individuals with the knowledge and skills necessary to make healthy choices. At this point, food literacy becomes particularly significant (Azevedo Perry et al., 2017; Slater et al., 2018).

Food literacy is a multidimensional competence. It involves the ability to access, understand, evaluate, and apply food-related knowledge to make healthy daily decisions (Vidgen and Gallegos, 2014; Truman et al., 2017). Although various definitions exist in the literature, the concept is generally associated not only with knowledge, skills, and behaviors but also with cultural and environmental contexts (Cullen et al., 2015). Studies conducted in Türkiye also support this framework. For instance, the Food and Nutrition Literacy Scale (GBOÖ), developed by Tanış Özçelik and colleagues, was designed to measure the food literacy levels of primary school students and was found to be valid and reliable (Tanış Özçelik et al., 2024).

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At the national level, the Ministry of Agriculture and Forestry, in collaboration with the FAO, prepared the Türkiye Food Literacy Strategy and Action Plan (2022–2028). This initiative aims to raise awareness across society and promote food literacy through education (FAO, 2023). In the educational sphere, the Ministry of National Education has implemented the "Healthy Nutrition in My School" Project, which seeks to increase students' awareness of food and nutrition, defining food literacy as the ability to make healthy choices (MEB, 2025).

Therefore, food literacy is critical not only for individual health but also for public health, sustainable food systems, and effective nutrition policies. This study discusses the definition, components, and national/international applications of food literacy, highlighting its contemporary significance.

Figure 1. Notable issues within the scope of food literacy

Source: Image created by the author on Canva

2. Conceptual Framework

Food literacy is not limited to making correct food choices. It also includes the ability to create a food budget, plan meals that maintain health, and make safe food-related decisions (Gedik et al., 2022). Originating from health literacy, food literacy has been defined in various ways, yet there is no consensus on its exact scope and meaning (Haznedar and Bilgiç, 2022; Cullen et al., 2015). Jones (1992) described it as the ability to consciously sustain healthy eating habits, while Thomas and Irwin (2011) emphasized the knowledge and skills necessary for informed food choices. Vidgen and Gallegos (2014) identified four core competencies: planning and management, making appropriate choices, preparing food, and consuming it. In this sense, food literacy is not only about acquiring knowledge but also about applying it in daily life to develop balanced eating habits (Kolasa et al., 2001; Fordyce-Voorham, 2011).

Beyond these individual competencies, food literacy also includes the ability to communicate with experts and critically evaluate information. Three categories have been identified: critical, interactive, and functional food literacy. Critical food literacy involves analyzing information, interactive literacy refers to engaging with experts, and functional literacy represents basic reading and writing skills needed to access information (Koçaslan, 2021; Yılmaz, 2023). In recent years, the concept has increasingly been linked to sustainability. Environmentally conscious decision-making in food production and waste management is possible through sustainable food literacy (Haznedar and Aktaş, 2022). Teng and Chih (2022) conceptualized sustainable food literacy in four dimensions: sustainable food knowledge, food skills, attitudes, and action strategies. These dimensions highlight not only knowledge acquisition but also the development of attitudes and behaviors that enable sustainable dietary practices.

Closely related to this framework is the notion of healthy and sustainable eating behavior. This involves shaping dietary habits to protect personal health while supporting the long-term balance of environmental resources. It includes consuming diverse food groups, preferring local and seasonal products, limiting processed and animal-based foods, and reducing food waste (Akman and Şakar, 2025). By adopting such behaviors, individuals can support their health and contribute to efficient resource use, reduced environmental impacts, and the establishment of a sustainable food system for the future (Kaplan, 2023).

Empirical studies further illustrate this connection. Özenoğlu et al. (2021) examined healthy and sustainable eating behavior through food choices in restaurants. Restaurants provide an environment where such behaviors can be observed and evaluated, offering an ideal setting to assess choices when faced with different options (Süzer, 2024). Similarly, Selçuk et al. (2023) defined healthy and sustainable eating behavior as the preference for balanced meals that protect health while adopting practices that support environmental sustainability.

While Vidgen and Gallegos (2014) emphasize functional skills such as planning and preparation, Cullen et al. (2015) extend the scope by integrating cultural and environmental contexts. This contrast illustrates how food literacy can be framed either as a set of individual competencies or as a socially embedded construct. Teng and Chih (2022) explicitly link food literacy to sustainability through knowledge, attitudes, and action strategies. In contrast, the Turkish Food Literacy Strategy (2022–2028) prioritizes institutional and educational interventions, reflecting a policy-driven approach. This divergence highlights the need to bridge individual-level skills with systemic policy initiatives.

Taken together, these perspectives suggest that food literacy and healthy, sustainable eating behaviors are deeply interconnected. Food literacy provides the foundational knowledge, skills, and attitudes, while sustainable eating behaviors represent the practical application of these competencies in everyday life.

3. Purpose

The aim of this paper is to theoretically examine the concept of sustainable food literacy and to construct a conceptual framework that explains its relationship with sustainable and healthy eating behaviors. By comparing diverse approaches in the literature, the study seeks to position food literacy not merely as a matter of knowledge acquisition, but as an integral component of sustainable living practices.

4. Methodology

This study is a preliminary qualitative literature review that aims to establish the conceptual framework of sustainable food literacy. The research was conducted to explore how the dimension of sustainability is addressed within the food literacy literature and to provide a theoretical foundation for further empirical investigation. A systematic search was carried out in the Web of Science and Scopus databases using the keywords "food literacy" and "sustainable food literacy." The search covered the years 2017–2025, and a total of 20 academic studies explicitly emphasizing sustainability were included in the review. Studies focusing solely on nutrition education or health literacy without a sustainability perspective were excluded. The collected studies were analyzed through descriptive content analysis, which involved categorizing the aims, methods, findings, and conceptual contributions of each article. The analysis revealed that food literacy is a multidimensional construct encompassing knowledge acquisition, critical awareness, sustainability orientation, and behavioral application. This study serves as an initial step toward building a conceptual basis for sustainable food literacy and is intended to be expanded into a full-length research paper supported by quantitative methods in future stages.

5. Findings

Healthy and sustainable eating are closely related concepts; however, public understanding of the sustainability dimension remains limited (Nanayakkara et al., 2017; Hazley & Kearney, 2024). This highlights the need to emphasize both health and environmental benefits simultaneously to raise public awareness. Food literacy is a fundamental tool that enables individuals to make informed dietary decisions. Powell and Wittman (2018) demonstrate that Canada's 'Farm to School' programmes promote local and sustainable food consumption by increasing food literacy, thereby contributing to food sovereignty. Krause et al. (2018), in their systematic evaluation of nutrition and food literacy, distinguish between knowledge acquisition (nutrition literacy) and the application and critical evaluation of that knowledge (food literacy). Together, these studies underscore how improved food literacy can support healthier eating patterns and contribute to more sustainable food systems.

Table 1. Literature table on food literacy

Source	Purpose	Important Findings
Nanayakkara et al., 2017	This study aims to examine consumer perceptions of healthy and sustainable eating, investigating how individuals interpret these two concepts.	-Sustainable eating is less well understood; consumers tend to associate it primarily with local and organic food consumption and packaging reduction. -The link between healthy and sustainable eating is not fully grasped by consumers, and these concepts are often perceived as separate. -Informational campaigns should emphasize the positive health impacts of sustainable eating to improve public understanding and engagement.
Powell and Wittman, 2018	This study aims to analyze how "Farm to School" programs in Canada contribute to food sovereignty by enhancing food literacy.	-"Farm to School" programs promote the consumption of local and sustainable foods, thereby supporting food sovereignty. -Food literacy enables consumers to make informed food choices, which in turn contributes to the development of sustainable food systems. - Programs implemented in schools not only address food provision but also aim to raise students' awareness of food systems.

Krause et al., 2018	This study aims to systematically examine the definitions of the concepts of nutrition literacy and food literacy, with the objective of identifying the differences between them.	-Nutrition literacy focuses on acquiring and understanding nutritional knowledge, whereas food literacy encompasses the application of this knowledge as well as processes of critical evaluation. -A total of 173 academic publications were reviewed, through which 6 definitions of nutrition literacy and 13 definitions of food literacy were identified. -The study suggests that considering food literacy as a subcategory of health literacy would provide a more comprehensive framework.
Palumbo et al., 2019	This study aims to assess the level of food literacy in Italy and to understand its individual and societal impacts.	-Food literacy deficiency is particularly prevalent among older adults, individuals with low educational attainment, and those experiencing economic hardship. -Inadequate food literacy has been associated with deteriorating health outcomes. -Lack of education and limited access lead to uninformed food choices. -Integrated policy interventions are needed to establish a sustainable and equitable food system.
Stanszus et al., 2019	This study aims to examine the effects of a mindfulness-based dietary intervention (mindful eating) on healthy and sustainable eating behaviors.	-Mindfulness training has been shown to reduce unconscious eating habits and promote healthier food choices. -While no significant changes were observed in sustainable eating behaviors, positive effects were noted at the level of attitudes and intentions. - It is suggested that mindful eating habits may support sustainable food choices in the long term.
Lazaroiu et al., 2019	This study aims to examine the factors influencing consumers' organic food purchasing behavior and to determine how these behaviors relate to sustainable consumption practices.	-Consumer trust is a key determinant in decisions to purchase organic food. -Nutritional value and health benefits are perceived by consumers as the most important criteria when choosing organic products. -Information and labeling strategies may enhance consumer interest in organic foods.
Hiel et al., 2019	This study aims to examine the effects of consuming vegetables rich in inulin on gut health and dietary behaviors.	-Participants reported increased satiety and a reduced desire for sweet, salty, and fatty foods. -A positive tendency toward the taste of inulin-rich vegetables was observed. -The findings suggest that increasing dietary fiber intake may improve eating behaviors.

Foroumandi et al., 2020	The aim of this study was to identify the factors influencing healthy nutritional behaviors among patients with metabolic syndrome (MetS), using the Theory of Reasoned Action (TRA) as a conceptual framework.	-Nutritional attitude and behavioral intention were the most significant predictors of healthy nutritional behavior among MetS patients. -Subjective norms had a weak predictive effect on both behavioral intention and nutritional behavior, suggesting that social pressure plays a minor role in dietary choices within this group. -Gender and education level significantly influenced nutritional behavior women and individuals with higher education levels demonstrated more positive dietary habits.
Morgan et al., 2021	This study aimed to evaluate food security among university students through cooking practices and food literacy, and to enhance their knowledge levels by designing a food literacy-based curriculum.	-The final results indicated an improvement in students' knowledge related to food literacy. -Trends in food security were observed; however, the overall findings were not statistically significant. -A food literacy-based educational program holds potential for generating positive impacts.
Yolcuoğlu and Kızıltan, 2021	This study aims to evaluate the impact of nutrition education provided to university students on diet quality, sustainable eating, and dietary behaviors.	-Students who received nutrition education were found to have higher scores in healthy and balanced eating. -Seasonal food consumption and low-fat intake were significantly higher among female students enrolled in the Nutrition and Dietetics program. -Nutrition education was determined to be effective in promoting sustainable and healthy eating behaviors.
Tepper et al., 2021	This study aims to develop a measurement tool called the Sustainable Healthy Eating Index (SHED Index) to evaluate individuals' healthy and sustainable dietary habits.	-As animal protein consumption increases, SHED Index scores tend to decrease -A strong correlation has been identified between adherence to the Mediterranean diet and higher SHED Index scores. -Organic food consumption has been found to enhance awareness of sustainable eating. -The SHED Index can be used as a valid tool to assess healthy and sustainable eating behaviors.
Langyan et al.,2022	This study explores the nutritional and sustainability-related significance of legumes, investigating their potential use in healthy and biofortified diets.	-The biofortification of legumes may play a key role in combating global nutritional deficiencies by enhancing their nutrient content. -Legume consumption can help prevent health conditions such as diabetes, cardiovascular diseases, and obesity. -Processing techniques can improve the nutritional value of legumes and reduce anti-nutritional factors.

Baur et al., 2022	This study aims to examine the factors and barriers that influence the promotion of healthy and environmentally sustainable eating habits in Switzerland.	-Intentions toward healthy eating are stronger than those related to environmentally sustainable diets. -Men experience more adverse health effects from their diets compared to women, and their daily carbon footprint is 14% higher. -Vegetarian and vegan diets have been shown to provide over 23 minutes of healthy life gain and reduce carbon footprints by 42–67%. -Individuals do not fully recognize the health and environmental benefits of vegetarian and vegan diets.
Yoo et al., 2022	This study aims to develop a new food literacy assessment tool in South Korea to support healthy, enjoyable, and sustainable eating practices.	-The survey demonstrated high internal consistency (Cronbach's α: nutrition and safety 0.877, cultural and relational 0.705, socio-ecological 0.737). -The proposed scale holds potential for use in educational and policy development initiatives that promote sustainable dietary practices.
Lee et al., 2022	This study aims to investigate the impact of perceived food literacy on ecological eating behaviors related to sustainability among university students in South Korea.	-It represents the first attempt to assess the current level of food literacy among Korean university students. -There is an urgent need for effective food literacy education and programming. -Overall, food literacy levels are not particularly high.
Ares et al., 2023	This study examines how food literacy develops among children and adolescents, aiming to contribute to the design of strategies that promote healthy and sustainable eating habits.	-Food literacy evolves in parallel with cognitive and social development during childhood and adolescence. -Its development is influenced by variables such as cultural norms, socioeconomic factors, and educational level. -To cultivate informed consumers, it is essential to strengthen the three core components of food literacy: functional, relational, and critical competencies.

Ertaş Öztürk et al., 2024	This study aimed to evaluate the validity and reliability of the Turkish adaptation of the Food Literacy (FOODLIT) Tool, originally developed to assess individuals' competencies related to sustainable food systems. The tool was tested among Turkish adults to determine its effectiveness in measuring food literacy across multiple dimensions.	-The Turkish version of the FOODLIT-Tool demonstrated excellent internal consistency (Cronbach's α = 0.927) across five factors: culinary competencies, production and quality, selection and planning, environmentally safe practices, and origin. Confirmatory factor analysis showed strong model fit indices (e.g., CFI = 0.991, RMSEA = 0.028). -A significant positive correlation was found between FOODLIT-Tool scores and the Sustainable and Healthy Eating Behaviors (SHEB) Scale ($r = 0.518$, $p < 0.001$), indicating that higher food literacy is associated with more sustainable dietary practices. -Participants with lower nutrition knowledge scored significantly lower in sustainable food literacy compared to those with moderate or high knowledge levels. This suggests that nutrition knowledge is a key component in promoting sustainable food literacy.
Agyemang et al., 2024	This study examines the design and development of a decision support system called DISH (Dashboard for Improving Sustainable Healthy Food Choices), which was created to promote sustainable and healthy food choices.	-Through a reward system, consumers are able to monitor the environmental impact of their meals and make more sustainable choices. -Traffic light labels and guided prompts facilitate informed food decisions. -DISH also offers a community-building feature that enables users to track sustainability performance alongside friends and family members.
Hazley and Kearney, 2024	This study investigates consumer perceptions of healthy and sustainable eating, aiming to explore how individuals interpret these two concepts.	-Sustainable eating is less well understood; consumers tend to prioritize local and organic food consumption and packaging reduction as key factors. -The connections between healthy and sustainable eating are not fully grasped by consumers, and the two concepts are often perceived separately. -Awareness campaigns should emphasize the positive health impacts of sustainable eating.

Mc Donnell Gillic et al., 2025	This scoping review aims to examine how food literacy develops in preschool-aged children, identify influencing factors, evaluate existing programmes, and assess their outcomes and measurement tools. The goal is to inform future interventions that promote healthy eating habits and food system sustainability.	-Lower socioeconomic status is consistently associated with reduced food and nutrition literacy among both children and their caregivers, highlighting the need for targeted interventions. -Authoritative parenting characterized by responsiveness and structure is positively linked to higher food literacy in preschool-aged children, while restrictive feeding practices show mixed results. -Although food literacy programmes improve knowledge and attitudes, many lack theoretical foundations, long-term follow-up, and comprehensive coverage of relational competencies. Measurement tools vary widely, limiting cross-study comparisons.

Across the reviewed studies, nutrition literacy is primarily framed as knowledge acquisition, while food literacy extends to the application and critical evaluation of that knowledge. National strategies—such as Türkiye's recent initiatives—add a broader institutional perspective by addressing structural aspects of food systems. Together, these approaches highlight the need for research that integrates individual, cultural, and policy dimensions of food literacy.

Although the literature is extensive, it remains conceptually fragmented: some studies emphasize individual competencies, whereas others focus on cultural, environmental, or sustainability-related factors. Consumer confusion about sustainable eating is widely acknowledged, yet connections to public health outcomes are rarely explored. Evidence concerning children and adolescents is also limited, and national policy efforts are only beginning to emerge. By bringing these strands together, this review identifies key gaps and shows how aligning global frameworks with Türkiye's initiatives can support a more coherent understanding of food literacy as both a personal capability and a systemic driver of sustainability.

6. Conclusion and Discussion

The findings of this review highlight the multifaceted nature of food literacy, encompassing not only nutritional knowledge but also critical thinking, behavioral intention, and sustainable food practices. When compared with previous studies (e.g., Vidgen and Gallegos, 2014; Cullen et al., 2015; Truman et al., 2017; Azevedo Perry et al., 2017; Slater et al., 2018; Krause et al., 2018; Palumbo et al., 2019; Yoo et al., 2022; Hazley and Kearney, 2024; Tanış Özçelik et al., 2024; Mc Donnell Gillic et al., 2025), our results reinforce the evolving definition of food literacy as a dynamic and context-sensitive construct. The divergence in terminology and scope across literature suggests a need for unified frameworks that integrate both individual and systemic dimensions of food literacy.

Building on this foundation, the present study emphasizes the importance of aligning food literacy education with broader goals such as sustainability, health equity, and ecological awareness. The integration of experiential learning, community-based initiatives, and culturally responsive pedagogy emerges as a key strategy for enhancing food literacy across diverse populations. For instance, programs like "Farm to School" have demonstrated success in promoting local food systems and empowering students to make informed choices (Powell and Wittman, 2018).

In the Turkish context, national efforts such as the Türkiye Food Literacy Strategy and Action Plan (2022–2028) and the "Healthy Nutrition in My School" project reflect a growing institutional commitment to embedding food literacy into public education and policy frameworks (FAO, 2023; MEB, 2025). These initiatives not only aim to raise awareness but also seek to cultivate lifelong competencies in food-related decision-making, especially among children and adolescents.

Furthermore, the concept of sustainable food literacy encompassing knowledge, attitudes, and action strategies—has gained traction in recent years. Studies by Teng and Chih (2022) and Ertaş Öztürk et al. (2024) highlight how sustainable food literacy equips individuals with the knowledge and motivation to make environmentally responsible choices, minimize food waste, and support ethical consumption. Their findings show that higher nutrition knowledge correlates with stronger sustainable food literacy, including seasonal eating and local purchasing.

In conclusion, the synthesis of existing literature and national applications underscores the urgent need for interdisciplinary collaboration in food literacy research.

Theoretical Implications

Food literacy is a multidimensional competence involving access, understanding, and critical evaluation of food-related information to support healthy and sustainable choices. This study contributes to the theoretical understanding of food literacy by synthesizing diverse definitions and categorizing them into functional, interactive, and critical domains. It emphasizes the importance of linking food literacy with sustainability, health promotion, and social equity. The conceptual expansion toward "sustainable food literacy" offers a valuable lens for future interdisciplinary research and policy development. One notable contribution is the Food and Nutrition Literacy Scale (FNLS) developed by Özçelik et al. (2024) and her team to assess food literacy levels among primary school students. The scale identifies four key factors: harmful consumption, label reading, beneficial consumption, and interaction. The study, conducted with 929 students, demonstrated strong validity and reliability, supporting the idea that food literacy can be measured as a structured construct.

Food literacy is related to concepts such as sustainability, health, environmental awareness and social equality. Sustainable food literacy brings together knowledge, attitudes and skills to help individuals develop environmentally conscious eating habits. The diversity of definitions in the literature highlights the need for a common theoretical framework for food literacy.

Practical Implications

The findings underscore the need for educational interventions that go beyond basic nutrition education, incorporating experiential learning, community engagement, and ecological awareness. Programs such as "Farm to School" and local food initiatives can serve as practical models to enhance food literacy at both individual and societal levels. Policymakers, educators, and health professionals are encouraged to adopt inclusive strategies that empower consumers to make informed, ethical, and sustainable food choices. Efforts to enhance food literacy in Türkiye are supported by national strategies and educational initiatives. The Türkiye Food Literacy Strategy and Action Plan (2022–2028), developed by the Ministry of Agriculture and Forestry, outlines strategic goals, vision, mission, and implementation steps aimed at raising food literacy across all segments of society. Additionally, the Healthy Eating at My School Project, led by the Ministry of National Education, seeks to raise students' awareness about food and nutrition. Within this project, food literacy is defined as the ability to use information effectively to make healthy food choices.

- Individuals with high food literacy tend to make healthier and more sustainable food choices.
- Food literacy directly influences individuals' daily life decisions, such as shopping habits, label reading skills, food budgeting, and safe food selection.

- Elements such as experiential learning, community participation and environmental awareness in educational programmes can be effective in increasing food literacy.
- Sustainable food literacy can help individuals make informed decisions about food production, waste management and ecological impacts.
- Curriculum integration: Nutrition literacy lessons or modules.
- Hands-on activities: school gardens, cooking workshops, label reading exercises.
- Farm-to-school programs: collaboration with local producers.
- Food literacy courses at community education centers.
- Label information campaigns at local markets and supermarkets.
- Community-based projects for waste reduction and sustainable consumption.

This review demonstrates that existing frameworks vary in scope from individual competencies to systemic sustainability. A critical comparison reveals the necessity of integrating these perspectives into a cohesive model. Such a unified framework would enable food literacy to function not only as a personal skill set but also as a driver of sustainable food systems and public health equity.

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Chapter 15

Evaluation of the Role of Artificial Intelligence Tools in Tourists' Decision-Making Processes Using SWOT Analysis: The Case of ChatGPT

Kartal Doğukan Çıkı[1]

Saliha Çıkı[2]

1. Introduction

Nowadays, digitalization is fundamentally transforming not only the methods of accessing information but also individuals' decision-making processes (Yu et al., 2017). Particularly in an industry such as tourism, which involves uncertainty and multidimensional experiences, tourists' need for accurate, reliable, and personalized information is increasing (Stamboulis and Skayannis, 2003). At many decision points, such as destination selection, accommodation, transportation, activity preferences, and cultural experiences, individuals now turn not only to traditional information sources but also to intelligent digital systems (Irwan et al., 2024). Therefore, traditional information search behaviors are being replaced by artificial intelligence systems that can converse in natural language, make suggestions, and offer alternative scenarios (Tanrıverdi and Çıkı, 2024). Instead of spending hours browsing internet forums, tourists can initiate the decision-making process by asking tools like ChatGPT questions such as, "Can you recommend a romantic yet economical European city for September?" This new form of interaction not only facilitates access to information but also enables a more holistic decision-making process by providing context-specific analyses tailored to the user. This evolution of artificial intelligence demonstrates that tourist decisions are now shaped by a hybrid structure that includes not only individual preferences but also algorithmic filtering (Agrawal, 2025). At

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this point, artificial intelligence tools, especially generative language models such as ChatGPT, have become a new "digital travel companion" with their capacity to provide tourists with quick information, make alternatives visible, and develop recommendations tailored to personal interests (Lund et al., 2023). Therefore, understanding the role of AI tools in tourist decision-making processes stands out as a critical research area for both individual user experience and the future of the tourism industry (García-Madurga and Grilló-Méndez, 2023).

In its current state, artificial intelligence is positioned as more than a decision support system; it is a "decision partner" (Zamil, 2025). These systems, which can analyze the user's emotions, uncertainties, and preferences within language, transform travel planning from an information-based experience into an intuitive and social process (Virvou, 2023). However, this transformation also raises certain issues and uncertainties. This uncertainty necessitates comprehensive research to understand the role of artificial intelligence in tourist decision-making processes.

There is growing academic interest in how artificial intelligence tools affect user-based interactions, particularly in the tourism sector, which has rapidly digitized in the wake of the pandemic. However, while the existing literature addresses various topics based on technology acceptance or user experience (Go et al., 2020; Pillai and Sivathanu, 2020), the structural and cognitive dimensions of decision-making processes have not been sufficiently analyzed. This study aims to fill this gap by understanding the mechanism through which ChatGPT influences individual tourist decisions.

This study examines the impact of ChatGPT, an artificial intelligence technology, on tourists' decision-making processes within the framework of a SWOT analysis. The aim of the research is to systematically examine ChatGPT's effects on individual decision-making processes, how its strengths facilitate tourists' search for information, the contexts in which its weaknesses emerge, the status of the opportunities it offers, and how potential threats may overshadow tourist decision-making processes. In this context, the study presents a conceptual framework for better understanding future user behavior by revealing ChatGPT's current role in the decision-making process.

2. Literature Review

2.1. Artificial Intelligence and Tourism

Artificial intelligence is a field of technology that enables machines to mimic human-like abilities such as perception, learning, reasoning, and problem-solving. According to Bowen and Morosan (2018), artificial intelligence encompasses the perception, interpretation, and learning capabilities that enable electronic devices to exhibit human-like behaviors. Artificial intelligence tools have the potential to make user interactions more meaningful, faster, and personalized through subfields such as machine learning, natural language processing, and deep learning (Chi et al., 2020). Particularly with advances in big data and cloud computing technologies, artificial intelligence systems now not only perform specific tasks but also generate context-aware, creative, and adaptive outputs (Dwivedi et al., 2024).

The tourism sector is one of the most dynamic and experience-focused areas of this transformation. Tourists want access to information at many stages, from destination selection to route planning, restaurant recommendations to cultural interpretation. Artificial intelligence transforms the travel experience at this point by offering customized content based on the tourist's interests, budget, time frame, and various factors and circumstances (Gössling and Mei, 2025). For example, a system that can answer the question, "Can you recommend a city with historical charm but not too crowded in September?" does not merely provide information; it also understands the tourist's needs and can generate creative options.

2.2. ChatGPT

ChatGPT is a generative language model built on GPT-3.5, representing a tangible reflection of the advancements made in natural language processing in recent years (Hughes, 2023). This model has been developed using deep learning algorithms with billions of parameters and is capable of human-like interactions through its contextual language generation and meaning interpretation skills (OpenAI, 2025). ChatGPT's uniqueness lies not only in its ability to sequence words, but also in its ability to follow multi-step queries, remember previously given information, and understand the pragmatic dimensions of language (Paul et al., 2023). In this respect, it is considered a cognitive simulation unit with contextual awareness rather than an interactive interface (OpenAI, 2025). ChatGPT is configured to limit the production of harmful, misleading, or illegal content in its responses. However, rather than being a subject capable of ethical reasoning, it is a software system that operates within predetermined boundaries (Deng and Lin, 2022). This makes ChatGPT an effective example of intelligent automation, with broad application potential in many different areas, from customer service to content production, decision support systems to educational applications (George and George, 2023; OpenAI, 2025). As a result, ChatGPT is considered not only a technological tool but also an AI representation that reshapes information processing paradigms (Ali and OpenAI, 2023).

2.3. Information Search Behavior

The decision-making process in the tourism sector inherently involves high cognitive effort due to the need for intensive information search and alternative evaluation (Stergiou and Nella, 2024). Consumers must evaluate numerous parameters, ranging from destination selection before travel to accommodation, transportation, and activity planning. This situation, especially in conditions of information overload, strains users' mental resources and can negatively affect decision quality (Shi et al., 2021).

Research on information search behaviors encompasses not only the process of accessing information but also how individuals filter and interpret this information (Arif et al., 2015). In particular, the role of artificial intelligence-based systems in decision support processes is transforming traditional information search processes. Users can now access information with less effort compared to classic browsing and comparison methods through systems that directly answer questions such as "best hotel" or "hidden vacation paradises."

However, this facilitating structure may not always reduce cognitive load. In their study, Yin et al. (2025) state that AI-based recommendation systems can create decision fatigue and cognitive confusion by presenting users with too many alternatives. In such situations, users tend to either trust the system's recommendations without question or remain indecisive. Santamaria-Granados and Mendoza-Moreno (2020), on the other hand, found that AI-supported recommendation systems can significantly reduce cognitive load when they take into account the emotional context and user history. Thanks to the natural language processing capabilities of models such as ChatGPT, it is seen that they not only provide information to the user but also support the decision-making process through "guidance within language."

Beginning in the 2020s, studies have shown that AI-based systems create a lower cognitive load compared to traditional information-seeking behavior, thanks to the filtered, contextualized, and personalized information they provide to users (Zhu and Yang, 2023; Song and He, 2023). However, variables such as the trust placed in the information provided by these systems, users' technical literacy, and the frequency of interaction with artificial intelligence are critical factors shaping this effect. In this context, while ChatGPT's facilitative effect on tourists' information-seeking behavior is evident, it does not always play a role in reducing cognitive load due to issues such as attention distraction and trust problems caused by information overload.

3. Methodology

This study, designed to comprehensively examine the impact of artificial intelligence tools on tourists' decision-making processes, employs the SWOT analysis method (Strengths, Weaknesses, Opportunities, and Threats) from qualitative research methods. SWOT analysis is an analytical method used in strategic evaluation and decision-making processes that systematically examines the strengths and weaknesses of a situation or process in terms of internal factors and its opportunities and threats in terms of external factors (Puyt et al., 2023). In this context, SWOT analysis offers the opportunity to reveal the advantages and limitations of ChatGPT, one of the leading artificial intelligence tools, in terms of both its technical capacity and user experience, from a holistic perspective.

As part of the research, a literature review was first conducted, and national and international academic studies and industry reports on the interaction between tourism and artificial intelligence were systematically examined. The data used in the research was collected through archival research. In this context, an interpretive analysis approach was adopted in the analysis of the research findings. The data obtained from the literature was examined comparatively, interpreted in line with common themes, and integrated into the SWOT framework.

4. Findings

The current research shows that ChatGPT generally plays a guiding role in tourist decision-making processes, in addition to its supporting role. The findings of the SWOT analysis reveal that ChatGPT has strengths such as quick access to information, providing personalized recommendations, and facilitating the decision-making process in the tourist experience. However, the inability to always guarantee the accuracy and timeliness of recommendations and insufficient consideration of cultural context have been identified as significant weaknesses. In terms of opportunities, AI stands out for making alternative destinations visible and supporting sustainable tourism trends. However, potential threats include users trusting recommendations without critical scrutiny, the risk of negative experiences due to misdirection, and the potential decline in the importance of human guidance with intensive use.

Table 1. SWOT Analysis on the Use of ChatGPT in Tourists' Decision-Making Processes

Strenghts	**Weaknesses**
Generative AI applications such as ChatGPT facilitate the decision-making process by providing tourists with quick and comprehensive access to information during their travel planning. This offers a significant advantage, especially for users under time constraints (Song and He, 2023). Thanks to their ability to interact in natural language, users can communicate with the system as if they were chatting, allowing them to easily receive recommendations without requiring technical knowledge (Santamaria-Granados and Mendoza-Moreno, 2020). The ability to provide personalized recommendations allows for customized route and activity options based on tourists' past preferences and interests. This increases user satisfaction (Shi et al., 2021). It filters meaningful data within information density by reducing cognitive load. This supports users in making healthier decisions (Bukar et al., 2024). ChatGPT can enhance psychological security by reducing uncertainty and perceived risk levels for individuals traveling alone or experiencing tourism for the first time. Particularly for female tourists, its role as a guiding digital advisor on cultural norms, safety, and privacy issues stands out as a key feature distinguishing this tool from traditional information sources. It can increase diversity in tourism by including lesser-known or undiscovered destinations in its recommendation system. In this respect, it can be effective in promoting alternative destinations (Arora and Chandel, 2024). Artificial intelligence-powered travel planning systems could evolve into autonomous travel advisory services in the future and lead the transformation of the industry (Bukar et al., 2024). ChatGPT enhances the international user experience by offering recommendations in their native languages to tourists from different countries thanks to its multilingual support. It can provide collective decision support for users organizing group trips, such as creating shared plans and offering recommendation variations based on different user profiles (Wong et al., 2023). A tourist entering an art gallery deepens their experience of the space by asking questions such as "Who painted this picture?" and "What period does this sculpture belong to?" In other words, they transition from tourist consumption to satisfaction through knowledge. The need to open hundreds of tabs and conduct research before traveling is eliminated. ChatGPT's ability to provide route, hotel, and activity suggestions from a single screen simplifies the planning process (Florido-Benítez and del Alcázar Martínez, 2024).	The information used in ChatGPT's recommendations is not always up-to-date, and the accuracy of the content is questionable. This can lead to negative consequences, such as travel plans not matching the actual situation (Yin et al., 2025). Furthermore, due to this shortcoming, tourists guided by ChatGPT may be misdirected to the wrong restaurant, event, or closed venue, turning the experience into disappointment. The price data used in ChatGPT's recommendations is not real-time. Therefore, the hotels, flights, or restaurants suggested by the system may exceed the user's actual budget. Artificial intelligence is not sensitive to sudden price changes because it does not integrate with dynamic pricing systems (e.g., flights, Airbnb, bus fares). This causes recommendations to quickly become invalid. ChatGPT can sometimes be inadequate in considering cultural contexts and local values. This can lead to incorrect or insufficient recommendations, especially for destinations where cultural sensitivity is important (Soliman and Al Balushi, 2023). Facing an excessive number of options can cause "decision fatigue" for the user. The system can complicate the decision-making process by presenting the user with too many alternatives (Zhu and Yang, 2023). The user's unquestioning trust in artificial intelligence can weaken critical thinking. This situation increases the potential for misguidance from recommendations that are not limited by a guidance function (Ivanov and Soliman, 2023). Users with low technical literacy may not be able to use the system efficiently enough. This can lead to technological exclusion (López-Naranjo et al., 2025). With the intensive use of artificial intelligence systems, cybersecurity risks, personal data privacy, and the possibility of misuse may increase. This brings regulatory requirements to the forefront (Carvalho and Ivanov, 2023). ChatGPT may fall short in providing detailed cost analysis based on users' travel budgets. This may lead to misleading or unattainable options being highlighted, especially for users planning trips on a limited budget. ChatGPT's recommendations do not take into account the capacity limits of destinations. This may indirectly contribute to the problem of overtourism (Kim et al., 2024).

Opportunities	Threats
ChatGPT's focus on sustainable and lesser-known destinations can contribute to sustainability principles in tourism. This can help balance tourist loads (Vourdoubas, 2025). By making it easier for tourists to access local culture and activities, it can encourage cultural integration and contribute to the local economy (López Naranjo et al., 2025). ChatGPT's text-based responses work seamlessly with screen readers and text-to-speech technologies, enabling visually impaired tourists to travel independently. Similarly, its written communication support and translation capabilities facilitate access to information for hearing-impaired tourists, thereby enhancing inclusivity in tourism. With technological advances, the ability to continuously update models such as ChatGPT has the potential to improve the user experience day by day (López-Naranjo et al., 2025). ChatGPT can contribute to the spread of alternative types of tourism by recommending personalized itineraries in niche areas such as health tourism and agro-tourism (Vourdoubas, 2025).	If users implement recommendations without verification, they may have negative experiences based on incorrect information. This could undermine the platform's credibility. Artificial intelligence, particularly by taking on information presentation and guidance services, can reduce the need for human resources in tourism. This could lead to serious unemployment risks, especially in developing countries (EY Japan, 2025). The processing of sensitive data such as tourists' travel history, location, and cost preferences by artificial intelligence systems raises security and ethical issues. Significant reputational damage can occur, especially in the event of a data breach (FutureSkillsPrime, 2025). Especially in individually planned trips that utilize artificial intelligence tools, the lack of local guidance and narratives may result in AI content failing to fully reflect the cultural uniqueness of destinations, leading to tourists receiving incomplete information (Gossling and Mei, 2025). If AI systems cannot instantly track rapidly changing tourism conditions (political crises, natural disasters, currency fluctuations), there is a risk of misdirection. Users' reliance on these recommendations may result in financial and experiential losses (Al Balushi and Soliman, 2025). Artificial intelligence, which becomes more effective with the commands given, may offer suggestions based on incorrect assumptions (e.g., age, gender, nationality) as a result of incomplete commands and may suggest routes that do not meet personal expectations; this creates dissatisfaction in the individual's experience and may lead to negative thoughts about the destination visited.

Source: It was created by the authors as a result of archival research.

5. Conclusion and Discussion

This research aims to reveal the impact of ChatGPT, an artificial intelligence tool, on tourists' travel decisions based on an examination of existing literature and industry reports. Therefore, this research examines the strengths and weaknesses of ChatGPT, the opportunities it offers, and the threats it faces, providing insight into AI-supported information search and decision-making processes in the tourism sector. Conducted using the SWOT analysis method based on data obtained through archival research, the study systematically reveals how ChatGPT is integrated into travel planning processes, how it supports users, and where it falls short. Based on the findings, it was determined that AI-based systems such as ChatGPT provide speed and ease of access to tourist information; however, they also carry certain problems in terms of consistent content accuracy, timeliness, and contextual sensitivity.

The findings show that ChatGPT plays an active supporting role in the tourist decision-making process. It offers a significant advantage, especially for users operating under time constraints, by quickly generating solutions for travel routes, accommodation, activities, and restaurant recommendations. However, limitations such as the information suggested by the model not always being up-to-date, being insensitive to price changes, or failing to adequately assess the cultural context (even if it suggests lesser-known destinations, festivals, and facilities) can negatively impact the user experience. In this context, ChatGPT is positioned as a tool that contributes to the decision-making process but must also be evaluated with a critical filter. Tourists viewing this system as a complementary source of information will help them make healthier decisions.

ChatGPT is a powerful tool that can provide users with quick access to information and personalized recommendations in the tourism sector, but it is not yet sufficient on its own. However, there are important studies in the literature showing that AI-powered tourist recommendation systems have been developed in different dimensions. For example, in Song and He's (2023) model, which integrates artificial intelligence with the Internet of Things, short- and long-term user interests are analyzed, and recommendations with an accuracy rate of over 94% are generated using an improved version of the Apriori algorithm, demonstrating that the system is more accurate and scalable compared to classical methods. In another study conducted by Liang et al. (2020), the collaborative filtering algorithm (ItemCF) developed for personalized tourist attractions was supported by new strategies aimed at mitigating the cold start problem, and the scope of recommendations was expanded. In addition, route recommendation systems based on user profiling were developed, revealing that not only popular destinations but also lesser-known options could be made visible. Additionally, Karthiyayini and Anandhi's (2024) comprehensive review details the artificial intelligence and machine learning algorithms, data processing methods, and performance metrics used in tourism recommendation systems, highlighting issues such as heterogeneous data integration, algorithmic efficiency, and research gaps. These developments reveal that artificial intelligence applications in tourism are evolving into increasingly contextual, data-driven, and personalized experience-generating systems, beyond the limited guidance capacity offered by ChatGPT alone.

It is anticipated that tourism-based recommendation systems will become even more integrated and dynamic in the future. Therefore, these systems will not be limited to merely suggesting destinations or routes; they will be able to provide multi-layered recommendations by analyzing the user's mood, environmental conditions, sustainability principles, and social media posts. Thus, artificial intelligence could become a strategic tool not only for individual planning processes but also for destination management and tourism policies.

Research Limitations

In the future, there is a need for more qualitative and quantitative research examining tourists' interactions with artificial intelligence. Furthermore, cross-cultural studies examining the relationship users from different cultures and demographic groups establish with artificial intelligence will contribute to making recommendation systems more inclusive. Finally, a more detailed examination of AI-supported tourism applications in terms of sustainable tourism, ethical issues, and their impact on the local economy will enrich the literature in this field and guide the sector's digital transformation.

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Chapter 16

The Dark Side of Menu Variety: A Conceptual Perspective on Food Waste in the Food and Beverage Sector within the Context of the Paradox of Choice

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1. Introduction

The service sector, with its dynamic structure, continues to expand in both global and national economies. Within this sector, the food and beverage sector is observed to be the fastest-growing segment (Rızaoğlu, 1991, p. 28). The primary drivers of growth in the food and beverage sector include rising income levels, the increasing habit of dining out, and the transformation of this habit into a socialization tool. These dynamics also influence the choice of food and beverage establishments. When deciding where to eat, customers generally consider the menu of a food and beverage establishment and the diversity of its offerings (Bekar & Gövce, 2019, p. 3109). Menus serve as a critical tool for shaping the material requirements, production processes, kitchen design, and marketing strategies of food and beverage establishments. They also play a significant role in determining the nutritional value and cost of the meals served (Semercioğlu & Beyhan, 2023, p. 36). Beyond merely listing food options, menus act as a strategic communication tool for establishments. Through their formal characteristics and content organization, they function as a showcase while conveying the services offered to customers (Kan, 2022, p. 46). Menu planning is the fundamental step in ensuring the effectiveness of this showcase. A well-prepared menu supports the objectives of an establishment, whereas poorly

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or incompletely designed menus can lead to difficulties in cost control and substantial food waste. Therefore, menu planning should consider not only the goals of the establishment but also the sustainable use of resources (Özbek & Geçgin, 2024, p. 36). A menu featuring a large number of food and beverage options is defined as an "overly extensive menu." Such menus require establishments to maintain broad inventories, increasing costs. They can also lead to higher rates of errors during the ordering process, confusion among customers when choosing items, and longer decision-making times (Rızaoğlu, 1992, p. 18). According to Kızıldemir and Hülağa Kaderoğlu (2021, p. 312), for sustainability in the food and beverage sector, menus should be structured to support informed decision-making by customers. Customers who cannot make clear choices trigger negative outcomes in the sector. Chief among these negative outcomes is food waste.

Today, large quantities of food are produced worldwide for human consumption (Aycibin Girgin, Üzüm, Yılmaz & Sünnetçioğlu, 2022, p. 746). The life cycle of a food product consists of both the stages within the supply chain and the processes that occur after the product leaves the supply chain. Generally, a food supply chain comprises four main stages: producers, processors, retailers, and consumers (Bellemare, Çakir, Hanawa Peterson, Novak & Rudi, 2017, p. 1149). Losses occurring in the early stages of the supply chain are referred to as "food loss," while those occurring in the later stages are defined as "food waste." Food waste encompasses the loss, spoilage, disposal, or consumption by pests of edible food produced for human consumption (Bond, Meacham, Bhunnoo, & Benton, 2013). According to the Food Waste Index Report 2024 published by the United Nations Environment Programme, 1.05 billion tons of food were wasted globally in 2022, which corresponds to an average of 132 kilograms of food waste per person per year. The same report emphasizes that approximately 60% of food waste occurs in households, 28% in the food and beverage sector, and 12% in the retail sector (United Nations Environment Programme, 2024). The fact that the highest levels of waste occur in the food and beverage sector after households is a notable finding. According to Onur (2025), individuals spend more money eating out than they do on grocery shopping for home cooking. The increasing preparation and service of food outside the home makes the rise of food waste in the food and beverage sector inevitable. In this context, it can be argued that menu variety in the food and beverage sector may contribute to food waste, which can also be interpreted within the framework of the paradox of choice.

It is often assumed that having a large number of options leads to greater happiness. This assumption is based on the idea that an increase in options allows individuals more freedom to achieve what is good. The rational human model, which is prominent in the field of economics, is also grounded in this assumption. However, Barry Schwartz raised the question, "Is more choice actually better or worse?" and argued that an abundance of options does not automatically increase satisfaction, coining this phenomenon the "paradox of choice" (Kinjo & Ebina, 2015, p. 291). According to Schwartz (2015, p. 122), life becomes nearly unbearable when individuals have no options. In modern consumer cultures, although the increased number of available choices appears to provide autonomy, control, and freedom, the presence of some good options does not necessarily mean that more options are better. There is a cost associated with excessive choice. As the number of options individuals face continues to increase, the negative aspects of having too many choices begin to emerge. Without certain limits on options, abundance can overwhelm individuals and reduce the likelihood of making a sound decision. In such cases, choice ceases to be liberating and instead becomes a weakening factor. In other words, control is no longer in the hands of the individual; rather, it is guided by the options themselves. The main problem associated with the abundance of choice becomes evident at this point (Brockett, 2006, p. 28). In particular, when options are highly interrelated, an increase in the number of choices can lead to worse decisions and, consequently, more negative outcomes (Oulasvirta, Hukkinen & Schwartz, 2009, p. 516).

This study is based on the assumption that the excessive diversification of menus in the food and beverage sector may represent a sector-specific manifestation of the paradox of choice. Broad menu options create confusion in consumers' decision-making processes and lead to waste in the inventory management of establishments. Consequently, this issue results not only in economic losses but also poses significant challenges for environmental sustainability. In this context, the study conceptually analyzes food waste in the food and beverage sector within the framework of the paradox of choice induced by menu variety. Alexander, Gregson, and Gille (2013) emphasize that although food waste is increasingly discussed among policymakers and activists, it has not been sufficiently explored in academic research. Metin (2024, p. 11) notes that since 2004, studies on the paradox of choice have been conducted mainly in the field of psychology. Addressing this gap, the study is considered important both for contributing to the academic literature on the food and beverage sector and for raising awareness regarding sustainable practices in establishments.

2. Conceptual Framework

This section addresses the conceptual framework and existing literature on which the research is based. The main concepts and the conceptual background related to the focal topic are introduced to clarify the scope of the study, focusing on the concepts of the Food and Beverage Sector, Menu Variety, Food Waste, and Paradox of Choice.

Food and Beverage Sector

As a highly competitive industry, the food and beverage sector faces increasing challenges in ensuring customer satisfaction, fostering loyalty, and maintaining it. Consumers actively seek new experiences, resulting in a rise in dining out and food delivery demand. The act of eating and drinking has evolved beyond a purely biological necessity to encompass psychological, social, and cultural dimensions, including socialization, sharing, entertainment, and self-expression. The presence of diverse types of establishments capable of meeting these multifaceted needs renders the food and beverage sector extremely dynamic and constantly evolving (Kocagöz & Eyitmiş, 2020, p. 4582). The food and beverage sector can be categorized into two main types: commercial and industrial establishments. The primary aim of commercial food and beverage enterprises is to ensure customer satisfaction and generate profit. These establishments can be either public or private and operate in various forms, such as restaurants, cafeterias, and fast-food outlets including burger and pizza chains. In contrast, industrial food and beverage enterprises operate with large-scale production, distribution, and supply chain networks, typically providing food through contractual agreements with hotels, restaurant chains, cafes, or institutional catering services. These enterprises aim to deliver services to large populations within the framework of standard quality and efficiency principles while sustainably managing large-scale operations (Doğan, 2023).

Although the primary objective of the food and beverage sector is generally to provide healthy, high-quality, and tasty food to ensure customer satisfaction, historical and conceptual analyses reveal that the sector is not solely production-oriented but also value-creating (Doğan, 2024). For instance, between 2013 and 2017, the sector outperformed the national gross domestic product (GDP) growth. In 2016, the sector grew by 8.07%, while the national GDP growth was 4.94%. During this period, stock returns of companies fluctuated, decreasing between 2013 and 2015 and increasing from 2016 to 2017. From a financial perspective, current ratios gradually increased, with a notable rise in 2015 demonstrating an inverse trend to stock returns (Endria, Dermawanb, Abidinc & Riyanto, 2019, p. 336). Similarly, in the European Union, the food and beverage sector stands out due to its continuous growth trend and its economic and social significance. In terms of turnover, value added, and employment, the sector surpasses the automotive and chemical industries, becoming the largest production area in the EU. In 2010, the total turnover in the EU-27 reached €953 billion, and the sector maintained growth even during periods of economic recession. Structurally, while the majority of the sector comprises small and medium-sized enterprises, large companies contribute approximately half of the sector's value added (Valta, Kosanovic, Malamis, Moustakas & Loizidou, 2015, p. 3336). In the case of Türkiye, the number of food and beverage establishments outside of industrial production (such as restaurants, eateries, and fast-food outlets), which was approximately 150,000 in 2008, exceeded 600,000 by the end of 2018, partly due to the increase in tourism participation (Ocak & Karaman, 2022, p. 158). Collectively, these data indicate that the food and beverage sector possesses a dynamic structure in terms of economic growth, financial performance, and investment potential.

Menu Variety

The menu, in its broadest sense, is defined as a list of food and beverages available for selection by customers. Since each customer's appetite and taste preferences vary, highly diverse menus in food and beverage establishments represent an attractive element for customers. As the number of options increases, customers have a greater opportunity to choose products that match their individual preferences. Kotler and Armstrong (2018) define product variety as the entirety of products offered to buyers by sellers. From this perspective, menu variety is measured by the number of dishes offered. More broadly, menu variety encompasses all product types prepared by producers and made available for customer consumption. A diverse menu is evaluated in terms of its breadth, depth, accessibility of products at the point of purchase, and quality (Putri, Erwansyah & Agustin, 2024, p. 3).

The literature recognizes that menu variety plays a critical role in enhancing customer satisfaction in food and beverage establishments. In this context, Homyamyen (2017, p. 441) emphasizes the existence of studies showing that offering customers a wide range of options, based on motivations for seeking variety, increases satisfaction and enriches dining experiences. For example, Yang and Chen (2022) demonstrate that in menu-less restaurants, the curiosity generated by the absence of a menu enhances customer satisfaction through perceived increases in service quality. A study by Lee, Chuna, and Han (2020) indicates that menu variety is a critical factor across different types of restaurants, particularly full-service, fast-casual, and quick-service establishments. Similarly, Baiomy, Jones, and Goode (2019) highlight that menu design, product descriptions, and variety are important predictors of customer satisfaction in the food and beverage sector. Relevant research shows that menu variety not only caters to diverse customer tastes but also positively impacts overall satisfaction related to the dining experience; however, increasing menu variety also brings certain sustainability challenges for establishments.

Food waste is considered one of the most significant factors in sustainability issues arising from increased menu variety. Menus diversified to enhance customer satisfaction often result in prepared dishes going uneaten when demand is inaccurately forecasted, thereby contributing to waste. Therefore, while menu variety is a factor that enriches the customer experience, it should also be recognized as a potential risk in terms of food waste (Papargyropoulou, Lozano, Steinberger, Wright & Ujang, 2016).

Food Waste

Nutrition, an inseparable aspect of human life, is a fundamental need that extends from birth to death. Meeting this need is made possible through the provision, preparation, and consumption of food (Aksoy & Şallı, 2023, p. 12). The rapid growth of the global population has led to significant losses in this process of meeting human nutritional requirements. Approximately four billion tons of food, or one-third of total production, are lost annually. Of these losses, 44% occur in developing countries and 56% in developed countries (Geçgin, 2024, p. 761). According to Gille (2013, p. 40), the literature on food waste often interprets the disparities between developed and developing countries as natural differences. Researchers and policymakers tend to treat these two situations as so distinct that they even use different terminology. Post-harvest but pre-consumption waste is referred to as "food loss," whereas post-consumption waste is termed "food waste." Food loss can occur at any stage of the supply chain, from primary production through transportation, storage, processing, distribution, and finally consumption. In contrast, food waste emerges primarily at the distribution and consumption stages of the supply chain, especially at the retail and household levels. In this context, food loss refers to the reduction in quantity or quality of food, whereas food waste encompasses the disposal or repurposing of food suitable for human consumption throughout the supply chain (Özata Şahin, 2025, p. 942).

Food waste is a significant issue due to its negative impacts on the environment, economy, and society. Disposed food adversely affects agricultural lands and fertilizer use due to its high carbon, water, and ecological footprint, thereby increasing environmental costs (Närvänen, Mesiranta, Sutinen & Mattila, 2018, p. 103). Similarly, the energy used in food production and distribution, the energy spent processing wasted food, and the energy contained in the food itself result in substantial economic losses. Wasted food also threatens public health through the degradation of the biophysical environment, air pollution from decomposing food, water contamination from leachate or runoff, and rapidly growing landfill sites (Griffin, Sobal & Lyson, 2009, p. 69). According to a report by Stop Food Loss Waste (2024), approximately 1.05 billion tons of food were wasted globally in 2022 across the consumer, retail, and service sectors, representing roughly 19% of total food production. The Food and Agriculture Organization (2024) reports that the average annual food waste per person is 79 kg, contributing 8–10% of global greenhouse gas emissions. In Türkiye, food waste is frequently highlighted in the media, with an estimated annual waste of 23 million tons, equating to approximately 102 kg per person per year (Daily Sabah, 2024). The most notable losses occur in fruits, vegetables, and bread, with daily bread waste reaching 12 million loaves and approximately 4.38 billion loaves annually (Hürriyet Daily News, 2024).

To effectively respond to the increasing food demand, it is essential to utilize food products without loss throughout production and consumption processes. Reducing food waste is crucial to alleviating production pressures and meeting demand sustainably (Halloran, Clement, Kornum, Bucatariu & Magid, 2014; Makov, Shepon, Krones, Gupta & Chertow, 2020). Concerns regarding food waste serve as a decisive factor in efforts to reduce it, playing a key role in individuals' intentions to minimize waste (Schanes, Dobernig & Gözet, 2018, p. 981). Efforts to reduce food waste contribute to environmental sustainability by conserving energy resources, reducing environmental costs associated with fossil fuel use, preserving microhabitats, and maintaining water and air quality. From a nutritional perspective, these efforts enhance access to essential food, thereby strengthening public health and food security (Griffin, Sobal & Lyson, 2009, p. 69).

Paradox of Choice

In the age of abundance, individuals face a distinct dilemma in the decision-making process. Yet, life is fundamentally shaped by choices. Even the simplest daily shopping to meet basic needs requires numerous decisions. Decisions regarding which products to purchase, from which store, and along which route the shopping will be carried out cannot be made without a planned decision-making process. Therefore, making the right choices is of critical importance for individuals. However, contemporary individuals are constantly exposed to a high volume of information produced and disseminated through rapidly evolving communication technologies. This information overload increasingly impedes the ability to focus on elements that truly matter (Schwartz, 2004). The mind's capacity to process information is strained as the number of options in a decision environment increases, forcing the decision-maker to choose. In such situations, individuals often attempt to review all available information before making a decision. When the number of options and decision variables is high, they either quickly eliminate some alternatives or attempt to evaluate all options (Temel, 2023, p. 34). The paradox of choice describes the phenomenon whereby encountering more options complicates decision-making and leads to psychological outcomes such as dissatisfaction, indecision, and regret.

The paralyzing effect of excessive options on decision-making was first demonstrated by Iyengar and Lepper (2000). These researchers reported studies illustrating how choice can be "demotiving." One such study was conducted in a gourmet food store featuring an array of exotic, high-quality jams. Customers could sample the jams and received a $1 discount coupon if they purchased a jar. In one condition, six jam varieties were offered; in another, 24 varieties were presented. In both scenarios, all 24 varieties were available for purchase. While the larger variety attracted more customers, only 3% of those exposed to the wide selection made a purchase, compared to 30% of those exposed to the smaller selection. According to the paradox of choice, individuals can be categorized as maximizers or satisficers. Maximizers carefully examine and compare all options before making a decision. As a result, decision-making is often difficult, and the choices made are frequently not fully satisfying, as some alternatives may be overlooked. Satisficers, on the other hand, know what they want and make decisions aligned with their goals (Dülgeroğlu, 2019). Although the paradox of choice generally emphasizes the negative consequences of product variety, the effect is not uniform in all cases. Particularly, when the variety offered by brands exhibits a certain coherence and consistency, customers perceive it as an indicator of high quality. Perceived high quality increases the likelihood of choosing the brand, an effect observed not only among satisficers who select from a single brand but also among maximizers who compare and choose between multiple brands (Metin, 2024, p. 12).

In conclusion, the paradox of choice demonstrates that, within the diversity offered by modern life, decision-making can become a burden rather than an exercise of freedom. Although a large number of options may initially appear attractive, they complicate decision processes, reduce satisfaction, and increase feelings of regret. Therefore, the paradox of choice can affect not only consumer behavior but also decision-making in various areas, including education, career, and social life.

3. Conceptual Analysis

Food variety is known to create an irresistible appeal for individuals (Akmeşe & İlyasov, 2022). This phenomenon has made menu variety a significant tool for food and beverage establishments to enhance customer satisfaction. A wide array of options catering to different tastes allows customers the freedom to make their own choices, enriching the dining experience. However, the same variety brings complex challenges for establishments in terms of inventory management, cost control, and sustainability. An increase in the number of items on a menu, combined with unpredictable demand and difficulties in stock management, leads to products going unused and becoming waste, making it one of the primary sources of food loss. Therefore, while menu variety positively contributes to the customer experience, it simultaneously represents a dual-faceted concept that can have negative implications for establishment management, environmental sustainability, and social welfare. Buffet systems, in particular, exemplify food waste arising from overproduction and uneaten food (Halis, 2008). Food waste not only increases economic costs but also threatens global sustainability by wasting energy, water, and agricultural resources.

The relationship between menu variety and food waste cannot be explained solely by physical production processes. Psychological mechanisms guiding consumer decision-making also play a crucial role in this cycle. At this point, the "paradox of choice" comes into play. While an increase in menu options can improve consumer satisfaction up to a certain point, exceeding a critical threshold can produce the opposite effect. Decision-making difficulties, dissatisfaction, and feelings of regret may prompt customers to order more or leave food on their plates (Cankül, 2019). In this way, menu variety becomes an indirect mechanism that triggers food waste under the influence of the paradox of choice. The concept of the paradox of choice has been similarly discussed in psychology and behavioral economics literature (Reed, Kaplan & Brewer, 2012). Schwartz's (2004) distinction between "maximization" and "satisficing" illustrates how consumers develop different decision-making mechanisms when faced with variety. Maximization-oriented individuals continuously question their choices while trying to find the best option, which can lead to dissatisfaction, regret, and overconsumption. Satisficing-oriented individuals, on the other hand, accept options that are "good enough," exhibiting a more rational consumption pattern. The implication is that the impact of variety on consumer behavior is not homogeneous but shaped by individual psychological tendencies. When applied to menu variety, maximization-oriented individuals tend to hesitate while trying to identify the optimal option, sampling multiple dishes and consequently contributing more to food waste. In contrast, satisficing-oriented individuals make decisions without indecision when faced with a well-designed menu, choosing suitable options and displaying more controlled consumption patterns, thereby generating less food waste. The satisficing approach thus represents an ideal model for sustainable consumption in the context of food waste.

For food and beverage establishments, menu variety reflects not only customer satisfaction but also brand identity. Menu planning must align with the establishment's concept, pricing policy, and quality standards (Seçuk & Seçim, 2023). Excessive variety, however, increases operational costs and conflicts with sustainability principles. In this context, the concept of a "sustainable menu" emerges as an approach that minimizes environmental impacts, ensures efficient use of natural resources, and aims to limit food waste (Özbek & Geçgin, 2024). Studies in the literature indicate that menu variety is not always a primary factor in customer preferences (Öztürk, 2019). This finding suggests that, contrary to establishment assumptions, fewer but high-quality options may be more effective in designing sustainable menus. It also emphasizes the need for greater attention to food waste and sustainability in gastronomy education (Ekincek & Şenol, 2023). In the context of hotel operations, food waste arises from different sources across pre-kitchen, kitchen, and post-kitchen processes (Tekin & İlyasov, 2017; Filimonau & De Coteau, 2019). Effective stock control, accurate demand forecasting, proper use of food materials, and customer information initiatives play critical roles in managing this process. Nevertheless, studies indicate that scientific literature on food waste management in the sector is limited, and establishments have not developed sufficiently systematic strategies to combat waste (Rawal & Takuli, 2021). Globally, approximately four billion tons of food are lost annually, representing one-third of total production (Geçgin, 2024). A significant portion of this loss stems from consumer behaviors (Aycibin Girgin et al., 2022; Akmeşe & İlyasov, 2022). Therefore, food waste should be addressed not only as a supply-side issue but also in conjunction with psychological and socio-cultural factors on the demand side (Vardopoulos, Abeliotis & Lasaridi, 2025). The paradox of choice is uniquely suited for analyzing the relationship between menu variety and food waste in the food and beverage sector because it effectively captures the specific psychological and material consequences of menu variety.

Although menu variety is considered a key factor in creating competitive advantage, enriching customer experience, and enhancing choice freedom in the food and beverage sector, there exists an overlooked "dark side" behind these positive aspects. Conceptual analyses conducted in this study show that the dark side of menu variety emerges in three main dimensions within the framework of the paradox of choice. First, an unlimited increase in options complicates consumers' decision-making processes, causing "decision fatigue" and lowering satisfaction. For example, in hotel buffet systems, a large number of alternatives makes it difficult for guests to make decisions, reducing the expected satisfaction from the experience. Second, expanded menus complicate the "efficient management of resources" for establishments, resulting in significant food waste due to stock imbalances and overproduction. Offering unlimited combinations in fast food chains or maintaining extensive menus in restaurants increases costs and contributes to the waste of unused products. Third, the "allure of variety" may attract customers in the short term but complicates expectation management in the long term, creates instability in consumption behavior, and conflicts with sustainability goals. In fine dining establishments, continuous efforts to increase variety may overshadow a quality-focused approach, reducing satisfaction derived from the dining experience. The relationship among the three dimensions identified in the conceptual analysis is illustrated in Figure 1.

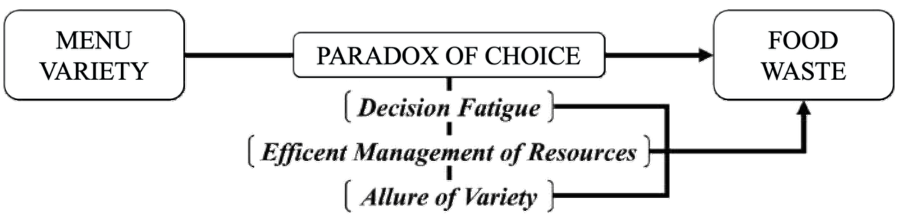

Figure 1. Conceptual Model of the Paradox of Choice in Menu Variety and Food Waste

The conceptual model is detailed in Table 1, showing its dimensions and how they relate to menu variety and food waste.

Table 1. Dimensions and Relationships in the Conceptual Model of the Paradox of Choice

DIMENSIONS	SCOPE	KEY RELATIONSHIP
Decision Fatigue	Consumer	Choice Overload → Incorrect Orders → **Plate Waste**
Efficient Management of Resources	Establishment	Stock Complexity → Incorrect Demand Forecast → **Establishment Waste**
Allure of Variety	Behavioral	Maximization Tendency → Overconsumption/Trial → **Post-Consumption Waste**

In conclusion, the conceptual relationship between menu variety, food waste, and the paradox of choice highlights the fragile balance between customer experience and sustainability. Determining the optimal level of menu variety, implementing choice architecture strategies, and adopting sustainability-focused approaches are therefore critical. This enables the simultaneous achievement of customer satisfaction while guiding establishments toward a more balanced approach in terms of environmental and economic responsibility.

4. Conclusion and Discussion

The food and beverage sector stands out as one of the leading areas of the service industry, both in terms of meeting basic nutritional needs and its growth potential on a global scale. However, increasing competition complicates the processes of ensuring customer satisfaction and maintaining loyalty, while consumers' tendencies toward quick and convenient consumption continuously transform the sector's structure (Demirdelen Alrawadieh & Çifçi, 2021, p. 441). Despite its significant potential, the sector faces multifaceted challenges, including food insecurity, resource constraints, climate change, and regulatory oversight. Inefficiencies in distribution processes and unequal access to nutritious foods create substantial issues for stakeholders across the value chain (Doğan, 2024). Considering environmental, economic, and social impacts, food waste emerges as the most critical dimension among these challenges.

When examining the academic visibility of food waste, Evans (2020) notes that the topic has remained underexplored in the social sciences until recently, primarily being addressed through sociological and anthropological perspectives. This study aims to evaluate the contributions of menu variety and the paradox of choice to understanding food waste within the disciplines of gastronomy and tourism. The research found that menu variety contributes both to sectoral growth and to increased food waste. The proliferation of menu options complicates consumers' decision-making processes, heightens feelings of dissatisfaction and regret, and can even trigger tendencies to order more or leave food on the plate. Therefore, while menu variety initially enriches the customer experience, it transforms into a risk factor that contributes to food waste over the long term. The paradox of choice, which assumes that an increase in options generates a sense of freedom for consumers, demonstrates an inverse effect in the context of menu diversification. This integration offers a new analytical path for sustainability research by incorporating consumer behavior mechanisms often confined to the field of psychology.

The conceptual analysis conducted in this study revealed that the "dark side" of menu variety manifests across three dimensions. First, decision fatigue, which is associated with the difficulty consumers experience when faced with numerous alternatives. Buffet systems, in particular, lower satisfaction levels due to the abundance of options encountered by consumers. The second dimension concerns challenges in the efficient management of resources. Expanded menus lead to excess inventory and production imbalances in establishments, resulting in significant amounts of food waste. The third dimension is the allure of variety. Although variety attracts customers in the short term, it complicates expectation management in the long term and conflicts with sustainability objectives.

In conclusion, the relationship between menu variety and food waste represents a critical issue that must be reassessed within the framework of sustainable business practices. The results of this study indicate that menu breadth, often perceived by food and beverage establishments as a competitive advantage, actually yields an unintended outcome that conflicts with corporate sustainability goals. Determining the optimal level of variety in menu planning, implementing choice architecture strategies, and adopting sustainable menu designs should become imperatives rather than options for the sector. These measures can ensure customer satisfaction while fulfilling environmental and economic responsibilities. Taş and Olum (2020) argue that promoting sustainable practices in the food and beverage sector can improve current conditions and generate promising outcomes for the future. In this context, the study offers both conceptual contributions to the academic literature and actionable recommendations for the sector, providing a guiding framework for future research.

Theoretical Implications

This study makes a significant theoretical contribution by explaining how menu variety in the food and beverage sector increases food waste through the lens of the paradox of choice. The paradox of choice is defined as the difficulty individuals face in making decisions when presented with too many options, which can lead to undesirable outcomes. The study examines this concept within the food and beverage sector, demonstrating how extensive menus affect both customer choices and the operational processes of establishments. In doing so, it offers a new perspective for understanding food waste and establishes connections with other disciplines, particularly gastronomy and tourism. The paradox of choice provides a strong framework for understanding the challenges consumers face when selecting meals. A large number of options can confuse customers. For instance, a customer encountering dozens of dishes in a restaurant may struggle to decide what to order and may consequently request multiple dishes, resulting in food waste. This illustrates how food waste is linked to consumer behavior and adds a new dimension to studies in consumer psychology. Extensive menus, which evoke a sense of freedom or luxury in customers, can encourage overconsumption and lead to waste. In upscale restaurants, offering a wide variety of dishes may increase the desire to "try everything," thereby increasing the amount of leftover food. In this context, when the paradox of choice is considered alongside social and cultural habits, it helps explain how consumption patterns influence food waste. Large menus also impact material management and production processes within establishments. A diverse menu requires restaurants to stock greater quantities of ingredients, which increases costs and risks spoilage of unused items. When a restaurant misjudges demand, excess food is prepared, resulting in uneaten dishes being discarded. This finding provides a new perspective for business management studies on the effects of menu variety.

Practical Implications

Establishments in the food and beverage sector can play a crucial role in reducing food waste by optimizing menu variety.

First, businesses can improve inventory management by simplifying menus and adopting data-driven approaches. For instance, the use of AI-based tools for demand forecasting can identify which items are preferred more frequently, thereby preventing unnecessary production. This approach reduces costs while minimizing raw material waste. In 2020, McDonald's initiated a digital transformation-focused organizational restructuring under its "Accelerating the Arches" strategy. Within the framework of this strategy, data analytics-based decision-making processes became prominent, and AI-driven applications emerged as a key tool enhancing operational efficiency (McMillan, 2025). Globally, approximately 33% of restaurants have integrated AI applications utilizing predictive analytics for inventory management into their daily operations. These applications reduce food waste by up to 20% and prevent overstocking or under-ordering (Railwaymen, 2025).

Second, consumer awareness campaigns can help balance overconsumption tendencies driven by the paradox of choice. Restaurants can better respond to customer needs by offering smaller portion sizes or personalized menus. For example, promoting "fixed menu" options instead of "à la carte" selections can reduce decision fatigue and curb waste. Panera Bread has tested a simplified menu offering fewer items in select locations in the United States. As part of this test, the company planned to remove specific menu items, such as soups, beverages, and bakery products. This strategy is linked to objectives including enhancing the customer experience, fostering menu innovation, and improving operational efficiency (Fantozzi, 2023).

Third, reevaluating supply chain processes can serve as an effective strategy for reducing food waste. Focusing on local and seasonal products enhances environmental sustainability and lowers logistical costs. In this context, Foodprint Nordic, a non-profit organization established in Copenhagen, Denmark, can be cited as an example. The organization's mission is to utilize funds collected from member establishments—such as restaurants, cafés, bars, and food retailers—to support small-scale farmers in adopting regenerative agricultural practices and strengthening the implementation of these practices (Foodprint Nordic, 2025). Moreover, collaborating with local communities to repurpose or donate surplus food contributes to social responsibility. Donating excess meals to food banks or using them for composting can further mitigate establishments' environmental impact.

Fourth, governments and industry organizations can develop regulatory frameworks and incentives to reduce the impact of menu variety on food waste. Tax reductions or certification programs may be offered to establishments that actively minimize waste. The Orange Flag is an initiative in Türkiye that provides sustainability certification to hotels and restaurants, aiming to reduce food waste and strengthen awareness-raising efforts. Observations conducted in establishments meeting the program's criteria have shown an average annual food savings of 17%. This initiative demonstrates that collaboration between the government and the industry can create an effective incentive mechanism for reducing food waste (Özdemir Tosun, 2024).

Finally, the conceptually examined variables in this study can be effectively utilized in quantitative research aimed at understanding customer behavior in food and beverage establishments. Specifically, the influence of the paradox of choice on consumer decision-making can serve as an independent or mediating variable in empirical models exploring relationships among customer satisfaction, ordering behavior, and food waste. Survey-based studies or experimental designs can be implemented to measure restaurant customers' responses to menu variety. Such quantitative research can enhance understanding of the practical applications of the paradox of choice within the food and beverage sector.

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Chapter 17

Bibliometric Insights Into New Trends in Tourism Research: Evidence From the Web of Science

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1. Introduction

Tourism, having continued its development for many years, is one of the industries that continues to grow and diversify. While people used to be hesitant when it came to tourism, today this situation has changed significantly in terms of form and content. With the globalization of the world into a single market, increased transportation opportunities, the development of communication networks, the rise of per capita income, the emergence of the concept of leisure, and the emergence of intriguing new trends, tourism has become an integral part of human life (Taşkın, 2006). The impact of tourism on people is becoming increasingly evident, and tourism is rapidly influenced by global trends. Increasing global competition has necessitated the emergence of new trends in the tourism industry. While new trends in tourism are diverse, they are constantly evolving due to changes in politics, economics, culture, and, especially, technology.

Tourism and new trends in academic literature attract the attention of regions, cities, and countries. Therefore, systematic analysis of studies conducted in tourism literature is important. Examining the literature by dividing it into periods and examining it in terms of certain parameters depending on the scientific branches is important for determining the progress of scientific branches (Çiçek and Kozak, 2012). In this context,

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one of the frequently used methods in literature is bibliometric analysis. When the literature is examined, it is observed that bibliometric analyses, which are increasingly used, contribute to science by examining the quantity and quality of studies and drawing inferences (Temizkan et al., 2015; Yeksan and Akbaba, 2019). Bibliometric analyses are frequently used in the field of tourism, as in other scientific fields. While tourism makes its impact on human life more deeply felt every day, there is a similar increase in academic studies on tourism (Güçlü Nergiz, 2014; Şengel and Koç, 2022). Bibliometric analyses can also help observe the direction in which tourism research is evolving and identify the topics studied in the field. At the same time, while the current situation in tourism is being determined, new perspectives in tourism are also revealed (Oruç and Türkay, 2017).

Technological, economic, sociological, and social advances resulting from today's conditions have manifested in the form of many new trends in the tourism industry. Therefore, while differences in form and content are observed in tourism compared to the past, it can be said that tourism is both influenced by and influences new trends (Gómez et al., 2016). Therefore, it is important to better understand academic publications on tourism, changes occurring in the industry, and emerging new trends. Bibliometric analyses contribute to research in this regard. This research aims to conduct a bibliometric analysis of studies on tourism and new trends in the Web of Science database. To this end, current advances and trends within the industry will be comprehensively evaluated. The limited number of previous bibliometric publications on tourism and new trends highlights the purpose of this research, while also indicating a gap in literature.

2. Literature Review

Various factors, such as globalization, digital transformation, and sustainability, are affecting the future of tourism (Gretzel et al., 2020). New trends related to tourism have continued their transformations in daily life and have become increasingly prominent in the academic literature. Among all these trends, advancements in technology use, virtual destinations, and the ability to utilize big data are arguably important topics of study in the tourism industry (Li et al., 2018). Karagöz Zeren and Demirel (2020) presented findings supporting this finding in their study. Their study examined the relationship between blockchain startup projects, one of the new technological developments, and the tourism industry. Their study revealed that the impact of blockchain technology developments on tourism is becoming increasingly widespread. Furthermore, it was stated that transportation channels are the most frequently used area for blockchain technology in tourism. Erol (2025) investigated artificial intelligence applications in the tourism industry. In his bibliometric analysis, he determined that artificial intelligence has been widely used in recent years. Other frequently studied topics in the field of new trends in tourism are sustainability, green tourism, and environmental awareness (Hall et al., 2015). Kutluay Tutar (2015), in his study on the greening hotels project, emphasized the necessity of sustainability, emphasizing that this approach will create a competitive advantage and emphasizing the need for adoption by all stakeholders.

Pamukçu et al. (2015) examined new trends in globally expanding tourism, categorizing them into 10 headings. These headings include tourism types such as fishing and children's safaris, which are driven by special interests, as well as mobile applications and online happiness tourism, which have emerged as a result of technological advancements. Furthermore, unusual examples such as P.A.N.K.S. and toy tourists were evaluated within the scope of new tourism trends. Çetinsöz and Hazarhun (2020) also examined bleisure travel, a new trend in tourism. In their study, Triarchi and Karamanis (2017) list the factors driving new trends in tourism as economic, environmental, political, and social issues. The researchers found that political injustices persist in international travel, mass tourism has negative environmental impacts, and today's culture has created a new tourist profile.

In addition to the necessities of the current era, changing tourist behaviors also play a role in the emergence of new trends. Tourists have shed their traditional understanding of tourism and adopted an experience-oriented approach. Travel has shifted away from mass tourism, becoming more individualized and personalized. Tourists' increasing awareness of the importance of participating in travel to acquire new experiences and seek knowledge has led to the development of new tourism trends (Çullu Kaygısız, 2022). Tourism's evolution toward personalization and experience has ultimately led to new marketing strategies (Pine and Gilmore, 2011). Examples of space tourism, health tourism, wine tourism, bleisure, slow tourism, and virtual tourism are numerous, and they are among the emerging trends in this context. Çullu Kaygısız (2022) conceptually explored new trends in tourism and emphasized that these trends will diversify over time in line with tourists' experience-seeking behavior. Her study also concluded that these new trends would keep the industry vibrant and economically beneficial to regions. Kaba and Emekli (2018) investigated women traveling alone as a new trend in tourism. In their research, they evaluated new tourists as experience seekers and noted the increasing prevalence of individualism.

Bibliometric analysis makes it possible to investigate these new trends in tourism in depth. Bibliometric analyses, which can be conducted using various databases, provide a systematic assessment of the literature on tourism and new trends (Donthu et al., 2021). Programs such as VOSviewer and CiteSpace are commonly used in research. Keywords, citation networks, distribution by year, featured authors, and many other analyses are visualized through these programs (Van Eck & Waltman, 2010). A study supporting this finding was conducted by Şahin and Acun (2015). Research in the field of tourist guiding was subjected to bibliometric analysis. Analyses such as keyword analysis, number of authors, and topics studied aimed to provide a general overview of the field. Another study using bibliometric analysis was conducted by Zengin and Atasoy (2021) on postgraduate theses. The study examined 87 theses. The results indicated a gradual increase in the number of theses on tourism. Another study was conducted by Bozkurt et al. (2022) on cultural heritage tourism and digitalization. 264 studies conducted between 1975 and 2021 were subjected to bibliometric analysis. The findings show that the most frequently used keywords were "cultural heritage," "cultural tourism," "augmented reality," "tourism," and "digital heritage."

A review of the literature reveals that bibliometric studies in tourism literature generally focus on a single area considered to be a new trend. However, comprehensive bibliometric studies investigating tourism and new trends are limited. This situation points to a critical research gap in predicting new trends and the future of tourism. The research's contribution is that it analyzes studies in the WOS database and sheds light on tourism and emerging trends from a general perspective, informing the literature and policymakers.

3. Methodology

This research conducted a bibliometric analysis of studies on "Tourism" and "New Trends" within the Web of Science (WOS) database. While the study was conducted using graphics and technical data, it is ultimately a systematic literature review. While bibliometric analyses can be conducted using different databases (Google Scholar, SCOPUS, WOS-Web of Science, etc.), they provide a broad overview of a specific field. In this study, Web of Science (WOS) was chosen as the database. Şengel and Işkın (2024), who identified the factors that played a role in selecting the WOS database in their previous study, listed these factors as follows:

- WOS includes publishing platforms with high impact factors.

- WOS has a high reputation among international indexes and producers (authors).
- WOS provides findings suitable for the analysis package.
- A broad classification opportunity is available with the help of WOS.
- WOS provides an international library membership and access opportunity.
- WOS is an international

Tourism is inherently susceptible to innovation and an industry that must constantly keep up with innovations. Therefore, it is believed that researching tourism and emerging trends, which have not been studied in the academic literature to date, will shed light on the future of these two inseparable topics. Therefore, a bibliometric study analyzing academic research on tourism and emerging trends will highlight the seriousness of the issue, provide a broader perspective, and guide future research.

- On September 16, 2025, studies on "Tourism" and "Emerging Trends" were filtered through Web of Science, one of the most widely used global databases, yielding 210 studies. The data in the study was downloaded in plain text format and analyzed using the "VOSviewer" program. Van Eck and Waltman (2010) noted that the VOSviewer analysis program is suitable for systematic literature searches. The questions the data seeks to answer are as follows:
- In which categories, by which authors, in which years, and in which publication types are the most frequently published articles on Tourism and New Trends in the WOS database?
- In which index types were the most frequently published articles on Tourism and New Trends in the WOS database searched, and in which research areas were they most frequently published?
- What keywords were commonly used by publications on Tourism and New Trends in the WOS database, and which authors' research were commonly cited?

The publications analyzed in the study spanned 30 years from 1995 to 2025. The analyzed publications were analyzed for co-cited authors, common keywords, index type, subject headings, Web of Science categories, document type, publishing authors, and distribution by year. Figures and graphs were obtained from the analysis. Evaluations were based on the figures and graphs. The findings are presented in the findings section of the study.

4. Findings

In this study, a common keyword analysis was conducted across studies on new trends in tourism (Figure 1). Common keyword analysis offers important insights into the topics covered by the studies and reveals the linking strengths of keywords used in the studies. Keywords in the figure are visualized according to their frequency of use and the linkages between them. Keywords within the same cluster are displayed in the same colors, while different colors represent different clusters. A bibliometric network diagram generated using the VOSviewer analysis program shows that keywords with higher frequency across the years and publications scanned are displayed in larger formats. Based on the analysis results and color differences, 14 clusters were created. Furthermore, it was observed that different words within each cluster were linked to the keyword tourism. This is believed to be due to the filtering applied during the study. The most frequently occurring keywords in studies on tourism and new trends are the keywords “tourism” and “new trends.”

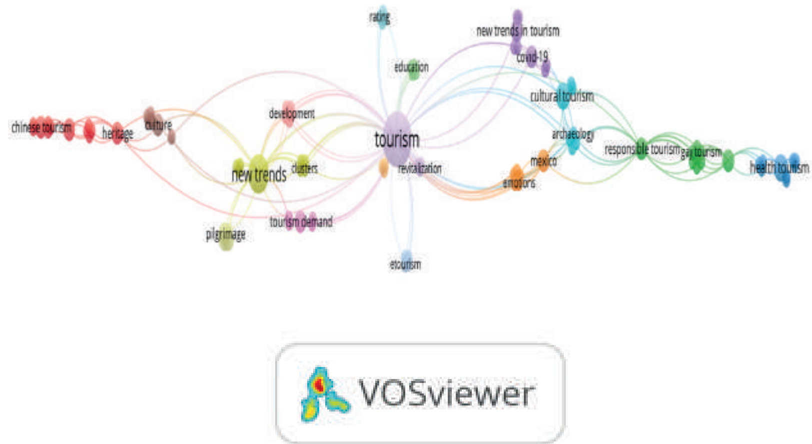

Figure 1. ***Co-Keyword Analysis of Studies on Tourism and New Trends***

Source: ***Obtained from VOSviewer***

Keywords used in the research include cultural tourism, tourism demand, culture, archaeology, education, Covid-19, heritage, responsible tourism, and health tourism. The study found that some clusters are more prominent than others. The purple cluster contains the keywords tourism in general, new trends in tourism, and Covid-19. The yellow cluster contains keywords such as new trends, clusters, and pilgrimage. The blue cluster features the keywords cultural tourism and archaeology. The pink cluster includes tourism demand. The green cluster includes the theme responsible tourism. The orange cluster features the keywords emotions and Mexico. The red cluster is dominated by the keywords heritage and Chinese tourism. Finally, the dark blue cluster features the keyword health tourism. In a bibliometric analysis of tourism and new trends, keywords such as Covid-19, responsible tourism, health tourism, education, and culture were identified, indicating that new trends are occurring in almost every field. The inclusion of countries such as China and Mexico among the keywords highlights the global nature of the topic.

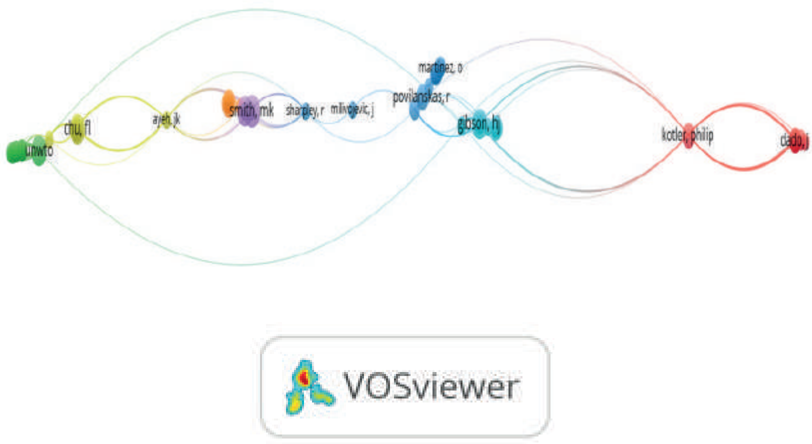

Figure 2. ***Co-Cited Author Analysis in Studies on Tourism and New Trends***

Source: ***Obtained from VOSviewer***

Figure 2 presents the co-citation analysis of academic studies on tourism and new trends subjected to bibliometric analysis. The figure shows the co-citations of the 210 studies examined and the clusters of relationships between these citations. The interactions among the most cited authors are illustrated using colors and lines. The research findings indicate the existence of six clusters: green, yellow, orange, dark blue, blue, and red, and that these clusters also interact with each other.

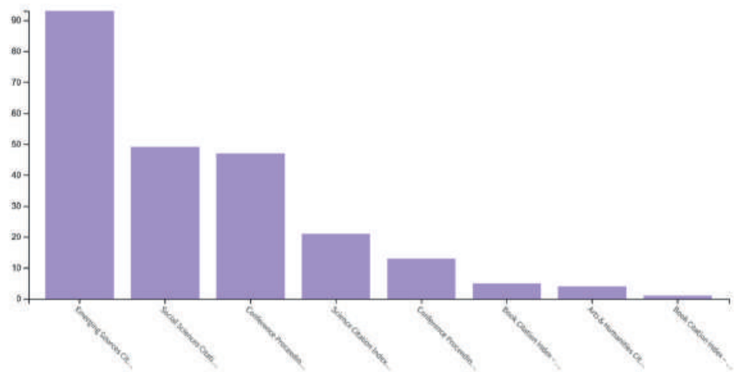

Figure 3. ***Index Type of Studies***

Source: ***Obtained from the WOS database.***

Figure 3 shows the distribution of studies on tourism and emerging trends by index. Examining the figure, it can be seen that 90 publications were indexed in the ESCI, 50 in the SSCI, 50 in the Conference Proceedings Citation Index, and 20 in the SCI-Expanded index. The findings, which are based on indexes that researchers wishing to conduct research on tourism and emerging trends can utilize, are considered a critical roadmap.

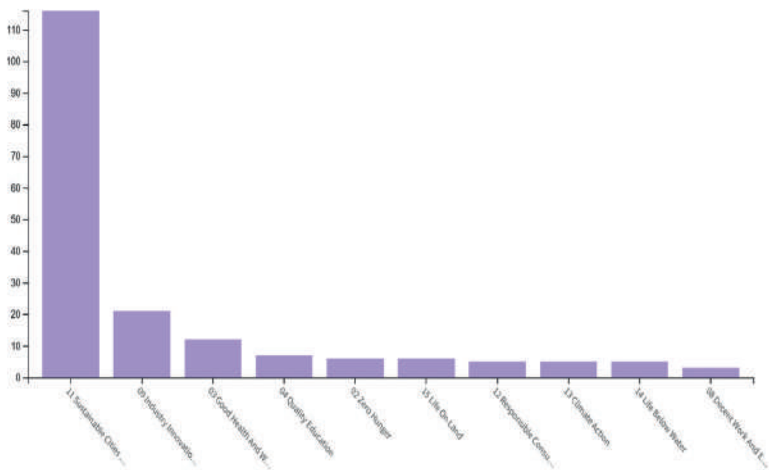

Figure 4. ***Distribution of Studies by Subject Headings***

Source: ***Obtained from the WOS database.***

Figure 4 illustrates the topics covered by research on tourism and new trends. The research focuses on sustainable cities, industry innovation, health, quality education, zero hunger, life on land, responsible consumption, climate action, life underwater, and decent work. The analysis is important because it highlights new trends in the tourism industry and demonstrates the direction in which the field is evolving. The focus appears to be generally on gaining experience. Untried and curious events have been incorporated into tourism activities. It has also been determined that even industries initially thought to be unrelated to tourism are now blending with it. Life underwater is an example of this. These studies addressing diving tourism suggest that tourists are moving away from the 3S tourism of sea, sand, and sun and opting for variations that offer experience opportunities during their holidays. The inclusion of topics such as sustainability, responsible tourism, climate action, and zero hunger, which advocate for human rights and prioritize the future, suggests a problem in these areas.

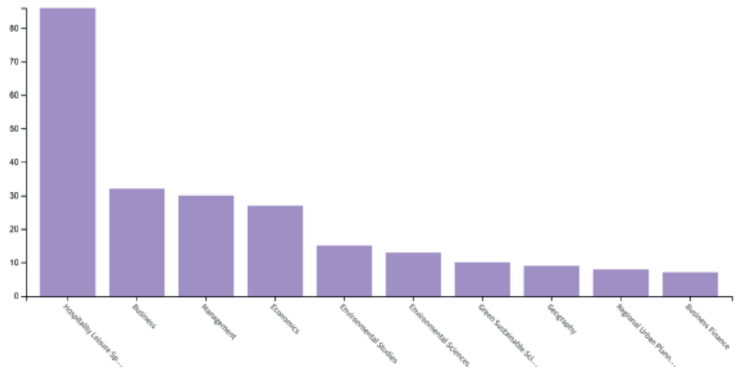

Figure 5. ***Distribution of Publications by Web of Science Categories***

Source: ***Obtained from the WOS database.***

The Hospitality, Leisure, Sport, and Tourism categories are the focus of over 80 studies (Figure 5). It's possible to attribute this finding to the filtering applied during the analysis. The high number of articles in the Business, Management, and Economics categories is also noteworthy. This suggests that industries, economic influences, and business life play a role in the relationship between tourism and new trends. Furthermore, in a bibliometric study exploring the combination of tourism and new trends, the association of five categories with the environment and sustainability, as seen in the graph, suggests that new trends in tourism may pose a sustainable environmental problem.

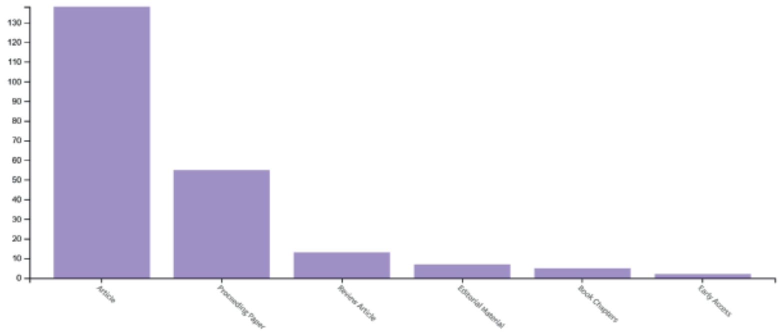

Figure 6. ***Distribution of Studies by Document Type***

Source: ***Obtained from the WOS database***

Figure 6 shows the distribution of research on tourism and emerging trends by document type. The figure shows six types of documents. Of the studies obtained, over 130 publications are in the article category. According to the research findings, the most prominent study type in the field of tourism and emerging trends is the article. Proceedings follow, with over 50 studies. Review articles, editorials, and book chapters lag behind the article category. This demonstrates the development of the field of tourism and emerging trends, while also presenting a research gap for researchers.

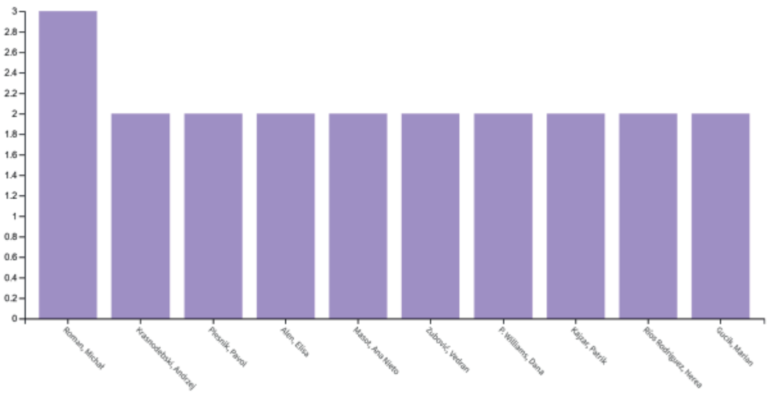

Figure 7. ***Authors Publishing in Studies***

Source: ***Obtained from the WOS database.***

Figure 7 shows authors who have conducted research on tourism and new trends. Ten authors were included in the ranking. The ranking is based on their number of publications. Roman M. has the most publications on tourism and new trends, with three. He is followed by other authors working in this field, each with two publications. While research on tourism and new trends can be said to attract the attention of various authors, it is clear that publishing in this field is an advantage for new authors.

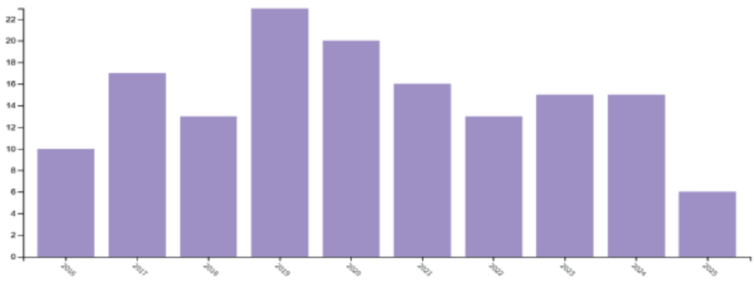

Figure 8. ***WOS View of Studies by Year***

Source: ***Obtained from the WOS database.***

Figure 8 shows the 10-year Web of Science outlook for publications on tourism and emerging trends. While tourism and emerging trends remained low in 2016, they are increasingly gaining traction, with more publications being published on these topics in subsequent years, as no decline to 2016 levels is observed. Most of the tourism and emerging trends-themed studies in the Web of Science database were conducted in 2019. This is thought to be related to the Covid-19 pandemic, which brought about many innovations. The low trend observed in 2025 is because the year is not yet over. Interest in tourism and emerging trends research is expected to continue to grow in the coming years.

5. Conclusion and Discussion

This research provides an opportunity for a theoretical framework that can shape the future of relevant literature by conducting a bibliometric analysis of studies on "tourism" and "new trends." In this study, a bibliometric analysis was conducted on publications on "tourism" and "new trends" in the Web of Science database. Examining the results of this analysis revealed a research gap in the relationship between tourism and new trends. Kozak (2012) demonstrated that the findings obtained through bibliometric analysis allow for the observation of the development of the field over time and that steps can be taken to address the problems in the field. It is possible to say that, guided by these assessments, research results will shape the future of tourism and new trends studies and provide an in-depth examination of their past. Şengel and Öztor (2024) also touched upon similar findings in their research, emphasizing the vital role of research produced through bibliometric analysis in shaping the literature. Studies that explore both topics in a combined manner not only shape the future of the field but also offer a more comprehensive perspective.

When considering the distribution by year within the analysis, it can be said that publications on tourism and new trends have been and will continue to be of interest in the future. As can be seen from the figure, the number of studies on new trends in tourism has increased in years when events with global impact occurred (as in the case of Covid-19, where the number of studies in 2019 was found to be quite high). This finding demonstrates how tourism and life are intertwined. As stated earlier, tourism not only influences new trends but is also influenced by them. In 2019, when technological travels came to the forefront, the future of tourism (Şengel et al., 2020), the effects of Covid-19 on tourism (Kıvılcım, 2020), what awaits tourism in the coming years (Derinöz, 2021) and what the new trends will be (Keleş et al., 2020) have been among the most emphasized topics in the literature.

Theoretical Implications

The analysis conducted by authors reveals that various authors have conducted research on tourism and emerging trends, and that the topic is of interest to many researchers. However, considering the number of studies included in this ranking, it can be said that the field presents a potential research gap. Tourism and emerging trends are inherently topics of interest to everyone and are rapidly changing from day to day, so more publications on these topics should be published in the academic literature. Therefore, the findings of the study indicate the need for current research on tourism and emerging trends.

The analysis conducted by Web of Science reveals a mixed distribution of topics, including economy, environment, business, and sustainability. This finding emphasizes that tourism is open to innovation in all areas and demonstrates that emerging trends are not limited to a single field. A similar finding was also revealed in the keyword analysis. The inclusion of countries such as Mexico and China in the keyword analysis demonstrates the interest of different countries in tourism and emerging trends, while also highlighting the seriousness of the situation. Because tourism offers numerous benefits for countries, studies have also focused on its relationship with emerging trends. Furthermore, the keywords also include tourism types. Categories such as health tourism, cultural tourism, and responsible tourism are emerging as new trends in tourism. An interesting finding is that the absence of a technology-related keyword in the keyword analysis could pose a new research problem for future studies.

Limitations and future directions

While studies conducted using bibliometric analysis provide a general overview of the literature, the study has significant limitations. The study's use of only the Web of Science database and the analysis of 210 studies can be considered limitations. Furthermore, the study did not conduct a content analysis; only analyses of years, authors, document types, keywords, co-citations, and index types were conducted. These limitations point to unaddressed issues for future authors.

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Chapter 18

Proposed Göbeklitepe Diet: Reflections of Humanity's Earliest Dietary Practices on the Present

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Introduction

The period between 12,000 and 5,000 BC is defined as the Neolithic Age, with its earliest phase known as the Pre-Pottery Neolithic Age (Özdöl, 2011). The Neolithic Age not only embodies significant social and economic turning points in human history (Özdoğan, 2018), but from a paleoanthropological perspective, it is also considered the era in which the relationship between humans and their environment can be most distinctly observed (Güngör, 1998). This period represents a process in which humankind directly intervened in nature, reshaping environmental conditions according to their needs, thereby creating a new mode of life. Due to these characteristics, the Neolithic Age has become a focal subject of research not only in archaeology but also in the social and natural sciences (Özdoğan, 2018).

Approximately 12,000 years ago, humanity abandoned its nomadic hunter-gatherer lifestyle and transitioned to a sedentary mode of life, consuming food produced from their cultivated fields. This dramatic transformation has been recorded as the most significant development in

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food and drink practices during the Neolithic Age (Duncan & Scott, 2004). At its core lay the domestication of plants and animals, which freed humans from dependence on wild foods. Domestication refers to the process by which humans gained control over the reproduction of plant and animal species, thus enabling the selection of desired traits (Svizzero, 2017). Engagement in agriculture led to the adoption of a sedentary lifestyle, which in turn facilitated the establishment of small communities. These communities gradually evolved, introducing concepts such as land use and territorial dominance. During the early stages of this era, pottery production had not yet begun (Özdöl, 2011). While Mesopotamia is often identified as the cradle of these transformations, major Neolithic settlements in present-day Türkiye include Göbeklitepe, Nevali Çöri, Çayönü, Çatalhöyük, and Hacılar. These settlements were established around 11,000 BC in Southeastern Anatolia, Iraq, and Syria; around 8,500 BC in Central Anatolia; around 6,200 BC in Western Anatolia; and around 6,000 BC in the Balkans (Işın, 2019).

Among the primary factors that accelerated the transition to agriculture was the end of the Ice Age, which stabilized temperatures and improved living conditions for plants and animals, thereby creating favorable conditions for agriculture (Benz, 2000). The natural presence of wild cereals such as wheat and barley in regions like the Fertile Crescent is cited as a second major factor facilitating the initiation of agricultural activities. The growth of human populations rendered traditional subsistence strategies such as hunting and gathering insufficient, necessitating accelerated food production. Moreover, game animals such as gazelles gradually disappeared due to climatic changes and possibly overhunting, which made plant-based foods a necessity (Richards, 2002). In connection with this, the idea of domesticating animals emerged, paving the way for both agricultural and pastoral practices. As food production increased, methods of storage were developed, and dependency on seasonality was significantly reduced (Alt et al., 2022).

During this period, wild seeds such as emmer and einkorn wheat, barley, lentils, peas, chickpeas, bitter vetch, and flax were gradually developed into more desirable and productive forms over the years. Among animals, domestic species such as cattle, sheep, goats, and pigs were tamed, and dairy-based products like cheese and yogurt were produced for the first time. In addition, it is known that other animals, including deer and birds, continued to be hunted (Thompson & Harris, 2010; Richards, 2002). Although the transition to agriculture in the Neolithic Age has often been characterized as a revolution, recent studies have shown that early agricultural practices provided lower productivity and entailed certain health risks (Alt et al., 2020; Svizzero, 2017).

Research (Latham, 2013; Richards, 2002; Zvelebil & Lillie, 2000; Güngör, 1998; Ulijaszek, 1991) indicates that, since domesticated animals were not initially used for milk production, humans lacked access to calcium and certain vitamins, which contributed to an increase in dental caries and a general reduction in stature. Moreover, alongside the consumption of processed foods, tooth size reduction occurred, and dependency on domesticated crops was associated with a series of urban-related diseases (Armelagos & Cohen, 1984). Dental caries, in particular, have been linked to rice and maize agriculture (Meller et al., 2009; Tayles et al., 2000). Furthermore, skeletal analyses demonstrate that Neolithic populations experienced greater physiological stress due to malnutrition and infectious diseases (Ulijaszek, 1991).

The Neolithic diet is generally understood to have included cereals such as wheat and barley; protein-rich legumes such as lentils, chickpeas, and peas; animal-based foods such as dairy, cattle, pigs, sheep, and red deer; as well as products like figs and hazelnuts. These foods were consumed both directly and in processed forms, such as porridges and soups prepared after grinding (McClatchie et al., 2022; Halstead, 2015; Fornander, 2011). Supporting the argument that Neolithic diets were predominantly animal protein-based (fish and mammals), Dobrovolskaya's (2005) study at the Sakhtish-IIa burial site revealed that men exhibited higher levels of zinc (an indicator of animal protein intake), while women showed higher levels of copper.

The aim of this research is to develop a dietary approach inspired by the archaeological findings of Göbeklitepe, one of the earliest known human settlements in history. For this purpose, a literature review method was employed to compile historical and nutritional foundations necessary for formulating the Göbeklitepe Diet proposal. The study was conducted within the framework of qualitative data analysis and adopts an approach that brings together the archaeological findings and historical sources of Göbeklitepe with contemporary nutritional science. Furthermore, it focuses on lifestyles, period-specific agricultural production, consumed food products, and dietary habits. Finally, the findings were evaluated within the framework of modern nutritional principles, resulting in a proposed dietary model.

- This research is expected to contribute in the following ways:
- By uncovering the dietary practices unique to the Göbeklitepe era, the study aims to foster historical awareness within the field of gastronomy.
- The Göbeklitepe Diet, developed in light of historical and scientific knowledge as a healthy and sustainable nutritional model, has the potential to be incorporated into modern restaurant menus as well as individual diets, thereby laying the groundwork for the emergence of new trends in gastronomy.
- By examining the food systems of the period—rooted in local and natural resources—the study draws attention to sustainability and locality in contemporary gastronomy, encouraging the adoption of more environmentally friendly approaches in modern practices.
- Academic studies specifically addressing the dietary culture of Göbeklitepe remain limited. Thus, this research provides an original contribution to the literature from the perspective of historical gastronomy and establishes a foundation for future studies.
- By integrating history, archaeology, nutritional science, and gastronomy, the study introduces an interdisciplinary perspective and may serve as a model for similar research in related fields.
- Through offering modern interpretations of historical diets, this research provides an original contribution to the literature on healthy nutrition and is expected to open new avenues of discussion on how ancient dietary practices can be adapted to contemporary needs.

Conceptual Framework

Upper Mesopotamia, known as the Fertile Crescent, is one of the earliest settlement regions in human history, encompassing the Şanlıurfa and Harran areas in present-day southeastern Türkiye (Özalp, 2016). Situated 15 kilometers northeast of the city of Şanlıurfa and 2.5 kilometers east of Karaharabe (Örencik) Village, Göbeklitepe Mound lies on the barren lands at the highest point of the Germuş Mountain range. Covering an area of 9 hectares with a height of approximately 15 meters, Göbeklitepe is regarded as one of the most remarkable historical sites in southeastern Türkiye. Unlike other Neolithic settlements where agriculture played a leading role, Göbeklitepe is believed to have been shaped primarily by religious practices during the transition to sedentary life. The monumental T-shaped pillars discovered at the site are arranged within circular enclosures measuring

10–20 meters in diameter (Schmidt, 2010). These pillars are thought to abstractly represent the human figure: the upper part symbolizing the head, while the carved arms, fingers, belts, and loincloth motifs on the shaft reflect human anatomical and cultural details. Such depictions emphasize the ritualistic and symbolic meaning of the structures (Notroff et al., 2015).

Constructed long before Stonehenge and the Egyptian Pyramids, Göbeklitepe is recognized as a religious center of the Neolithic Age (10,500–7,500 BCE) (Mancı & Tengilimoğlu, 2021; Kurt et al., 2017). The frequent presence of animal figures (predators, birds, snakes) and abstract symbols engraved on the pillars—some even depicting human hands and arms—supports its interpretation as a center of belief. It has been suggested that the T-shaped pillars may represent powerful beings embodying the cosmological or spiritual concepts of the time, possibly constituting the earliest monumental depictions of deities known to humankind (Schmidt, 2010). Constructed by hunter-gatherer communities during the Pre-Pottery Neolithic period, this monumental complex predates the invention of pottery. Archaeological evidence suggests that the site was deliberately covered with soil after the Last Ice Age, causing the mound to rise (Notroff et al., 2015; Özalp, 2016).

Although built nearly 12,000 years ago, the survival of these structures to the present day—despite expectations of destruction due to natural disasters, erosion, and other environmental factors—remains a subject of debate. It is widely accepted that the enclosures were intentionally buried with stone, soil, and other materials by human hands. The reasons behind this deliberate burial have been associated with forced migration, anticipated natural events, climate change, warfare, famine, or scarcity. A particularly emphasized interpretation is the fear of persecution due to religious beliefs. It is plausible that the people of Göbeklitepe sought to preserve their monumental constructions, which embodied their spiritual worldviews, by concealing them beneath the earth (Özalp, 2016; Schmidt, 2010).

The first excavations at Göbeklitepe, carried out in 1963 as part of the "Joint Prehistoric Research Project of Southeastern Anatolia" conducted in collaboration between Istanbul University and the University of Chicago, yielded animal bones that provide valuable insights into dietary practices (Sümer, 2007, p. 268). Numerous animal remains discovered during ongoing excavations indicate that large quantities of meat were consumed during large-scale social events. These findings suggest that the animals were primarily hunted and served as the principal sources of meat. The diversity of species, including gazelles, wild cattle, wild boars, wild asses, and red deer, as well as smaller game such as foxes, wild hares, partridges, pigeons, and ducks, highlights the breadth of hunting practices. Among these, gazelle was the most frequently hunted species, while wild cattle accounted for the highest quantity of meat, making up nearly 50% of total consumption (Notroff et al., 2015).

Most of the bones unearthed were found in a fractured state, likely broken intentionally for marrow extraction. Göbeklitepe corresponds to a transitional period when agriculture and animal domestication were still in their earliest stages. However, archaeological evidence demonstrates that no domesticated animals or plants were utilized at Göbeklitepe during this period (Clare, 2024; Schmidt, 2010; Peters & Schmidt, 2004). The surplus production of food created the necessity for storage. The processes of storing, preserving, and, particularly, redistributing food gave rise to the need for centralized authority. This dynamic likely provided charismatic individuals within the community with opportunities to consolidate and enhance their social power (Notroff et al., 2015).

Methodology

The objective of this research is to develop a dietary approach inspired by the archaeological findings of Göbeklitepe, one of the oldest known settlements in history. In line with this objective, a literature review method was utilized. To achieve the research aim, definitions, interpretations, and associated prominent concepts related to the relevant idea were examined through a review of national and international sources. The pertinent literature, focusing on food items consumed during that period (as identified through archaeological excavations in the region) and the dietary patterns of the local population at the time, was analyzed to formulate a daily nutrition plan. The resulting nutrition plan was developed as a dietary regimen based on the recommendations of two expert dietitians (one of whom is the author of this research).

Findings

Göbeklitepe Diet

Göbeklitepe (9600 BCE), recognized as the world's oldest known temple complex, represents not only a turning point in belief systems but also in dietary practices of its time. The communities inhabiting Göbeklitepe are known to have experienced the transition from hunter-gatherer lifestyles to sedentary agriculture. Within this context, a dietary model referred to as the "Göbeklitepe Diet" has been conceptualized. This model integrates the protein-based eating habits of the Paleolithic Age with the cereal- and legume-based dietary patterns that emerged with the advent of agriculture in the Neolithic Age.

The Göbeklitepe Diet embodies the Paleolithic emphasis on high-protein, low-carbohydrate nutrition—centered on animal proteins, wild fruits and vegetables, roots, and nuts—combined with the moderate consumption of cereals, legumes, and dairy products introduced during the Neolithic transition to settled life.

While Paleolithic people typically consumed one or two meals per day, often consisting of whatever they could gather or hunt, the Neolithic period brought more regular and organized eating patterns as a result of food production. However, even during this era, there is no evidence of a fixed three-meal system (breakfast–lunch–dinner). Seasonal scarcity, hunting success, and harvest outcomes directly influenced meal frequency. For this reason, the modern adaptation of the Göbeklitepe Diet has been structured as two main meals and one smaller supplementary meal per day, balancing the Paleolithic practice of "intermittent feeding" with the Neolithic concept of meals supported by consistent food production.

The Göbeklitepe Diet emphasizes natural foods such as vegetables, fruits, root plants, herbs, nuts, and seeds, while avoiding processed products and additives. Protein sources include animal proteins such as red meat, poultry, and fish, alongside legumes (e.g., chickpeas, lentils) and nuts. In terms of grains, the diet favors whole and minimally processed options such as whole wheat, quinoa, oats, and bulgur over refined flours.

Another significant element of the Göbeklitepe Diet is the prioritization of fermented foods. Products such as yogurt, kefir, and pickles are highlighted for their role in supporting gut health. Furthermore, the consumption of seasonal and local foods is emphasized for both personal health and environmental sustainability. This approach encourages avoiding imported products, supporting organic farming, and shopping at local markets. Instead of refined sugar, natural sweeteners such as honey, dates, and fruits are recommended.

By integrating principles of minimalism, naturalness, and sustainability into modern nutrition, the Göbeklitepe Diet promotes a balanced and healthy lifestyle. It aims to foster natural eating habits, reduce the harms of processed foods, support immunity through the consumption of seasonal and local products, and encourage environmentally friendly practices. In doing so, it seeks to positively transform both individual health and ecological impact.

Göbeklitepe Diet: Sample Daily Meal Plan

Morning (First Meal) A light meal intended to alleviate initial hunger, consisting of unprocessed foods:

- Unleavened bread made from stone-milled emmer (primitive wheat) or einkorn wheat flour
- Boiled lentils flavored with olive oil, 1 small bowl
- Walnuts or almonds, 5–6 pieces
- A handful of wild fruits (e.g., black mulberries, blueberries, cornelian cherries)

Midday (Main Meal – Paleolithic Protein-Based Meal)

A protein-rich meal prepared in accordance with the hunting success of the day, reflecting communal dining culture:

- Grilled meat resembling hunted game (gazelle, beef, or bustard)
- Dried meat pieces (from game, e.g., smoked venison)
- Fire-roasted vegetables (onion, wild leek, carrot, beetroot)
- Small slice of chickpea flour bread prepared with stone milling

Afternoon (Supplementary Meal)

A plant-based, energy-balancing meal; if hunting was unsuccessful or food was scarce, only simple plant-based snacks were consumed:

- Porridge mixture prepared with flaxseed and carob (unsweetened)
- Boiled egg, 1 piece (Paleolithic contribution)
- A handful of mixed nuts (hazelnuts, walnuts, almonds)
- Naturally fermented beverage (an early form of beer/boza, low-alcohol or alcohol-free, produced through the fermentation of grains with water)

General Guidelines of the Göbeklitepe Diet

- Herbal teas (such as nettle, sage, or thyme) may be consumed once or twice daily.
- No modern beverages (coffee, tea, carbonated drinks) are included.
- Water should be natural spring water obtained from nearby sources.
- Salt intake must be very limited, with only natural rock salt permitted.

- Sweetening is restricted to natural sources such as dates, carob, or wild fruit pastes.

Conclusion and Discussion

The archaeological findings of Göbeklitepe provide valuable insights into the food production, consumption, and dietary habits of the communities of that period. Evidence related to agricultural production and animal husbandry constitutes the foundation of these dietary practices. Furthermore, based on the diversity and nutritional value of foods consumed during this era, various inferences have been made through the existing literature. The literature review conducted within the scope of this study, together with information obtained about agricultural methods and vegetation in the Göbeklitepe period, enables a deeper understanding of plant-based resources and dietary patterns of that time. These findings help identify which foods were included in the diet and, when compared with modern nutritional science, facilitate the development of the proposed diet.

By integrating the historical and archaeological data of Göbeklitepe with contemporary nutritional principles, the food options of that period have been adapted into a framework of healthy eating. In this context, the general outline of the proposed diet emphasizes balanced consumption, prioritization of natural and unprocessed foods, and preference for seasonal and local products, in line with modern nutritional principles. The aspects of the diet that may be beneficial for contemporary nutrition have been highlighted. For example, the high fiber content, healthy fats, plant-based protein sources, and natural foods included in the diet are considered to have positive impacts on human health today.

Finally, this research demonstrates the adaptability and sustainability of a historical dietary model within the context of modern lifestyles. The Göbeklitepe Diet is significant not only as a reflection of historical dietary practices but also as a forward-looking nutritional approach that offers a healthy and sustainable model for the future.

Theoretical Implications

- The Göbeklitepe Diet provides a unique theoretical framework that bridges archaeology, nutrition, and gastronomy, offering new insights into how prehistoric dietary practices can inform modern nutritional models.
- By combining archaeological data, anthropological perspectives, and nutritional science, the study demonstrates the value of interdisciplinary

approaches in constructing dietary frameworks rooted in cultural history.

- The diet highlights the significance of local, seasonal, and minimally processed foods, contributing to theoretical discussions on sustainable food systems within gastronomy and public health.

Practical Implications

- The Göbeklitepe Diet can serve as a model for developing nutritionally balanced meal plans that prioritize natural, unprocessed, and local ingredients, contributing to healthier lifestyles.
- By emphasizing local and seasonal products, the diet provides a practical framework for reducing carbon footprints and supporting local producers, aligning with contemporary sustainability goals.
- The high fiber, healthy fats, plant-based proteins, and fermented foods emphasized in the diet can be applied in preventive nutrition strategies, potentially reducing lifestyle-related diseases.

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Chapter 19

Social Media and Halal Gastronomy: A Qualitative Analysis on Instagram

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1. Introduction

Tourism is generally defined as travel and accommodation activities carried out outside of one's permanent place of residence for purposes such as leisure, relaxation, social interaction, or escaping from routine (Çelik, 2018; Emekli, 2006). Since 1950, a rapid process of development and transformation has been observed in the field of tourism worldwide. Mass tourism, which was the dominant trend during that period, maintained its influence until the 1990s. However, factors such as increasing per capita income and prosperity, the growing impact of social media on individual preferences, and rising environmental movements have contributed to the emergence of many alternative tourism trends up to the present day. Among these are halal tourism, rural tourism, and health-spa tourism (Soyak, 2013).

According to research conducted by the Pew Research Center, Islam was recorded as the fastest-growing religion in the world between 2015 and 2020. While the global population is projected to increase by 32% in the coming decades, Islam is expected to grow by 70%, reaching nearly 3 billion adherents by 2060 (Lipka & Hackett, 2017). The Mastercard-CrescentRating Global Muslim Travel Index 2025 reports that in 2024, 168 million Muslim tourists traveled internationally, and this figure is expected to rise to 230 million by 2030. In terms of expenditure, Muslim travel spending amounted to USD 180 billion in 2024, with projections reaching USD 225 billion by 2028. Approximately 70% of Muslim travelers are under the age of 40,

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representing a profile that is young, tech-savvy, experience-oriented, and value-driven. The report also ranks Türkiye 4th among OIC member states in terms of Muslim-friendly destinations, highlighting the country's strong performance in halal tourism infrastructure, religious facilities, cultural heritage, and transportation services (CrescentRating & Mastercard, 2025).

The Organization of Islamic Cooperation (OIC) recorded a halal economy market size of USD 1.595 trillion in 2023, covering the sectors of food, pharmaceuticals, and cosmetics (Salaam-Gateway, 2023). According to the Halal Accreditation Agency (HAK) Activity Report 2024, by the end of 2024, Türkiye had received 190 accreditation applications, of which 54 were domestic and 66 international, resulting in 96 accreditation decisions. Cumulatively, more than 2,000 production and service facilities have been accredited and certified with halal certification in Türkiye (HAK, 2025).

Existing studies emphasize the importance of halal certification. For instance, Fauzi (2023) highlights that consumers prefer halal-certified products not only for religious reasons but also for their compliance with safety and hygiene standards. Similarly, Saleh and Rajandran (2024) demonstrate that the absence or ambiguity of halal labeling creates doubt and uncertainty among consumers.

An examination of Table 1 reveals that all studies highlight the central role of social media—particularly Instagram and other platforms—in disseminating information and shaping perceptions about halal food. The emotional content of shared posts and user comments has been identified as a strong factor influencing consumers. The study by Rahim, Rasool, Rusli, and Ani (2021) emphasizes the impact of social media influencers on the purchasing behavior of younger generations, with credibility, expertise, and likability emerging as key determinants.

Similarly, the works of Juliana et al. (2023) and Kassem, El Kady, El-Farouk, Abdallah, and Diab Elshafei (2024) demonstrate that consumers' religious beliefs and perceptions significantly affect halal awareness and purchasing intentions, particularly during sensitive periods such as the pandemic. Yusoff, Mohamad, Ghazali, Abdullah, and Azmy (2016) further reveal that misinformation and misleading expressions such as *"pork-free"* create confusion among consumers due to their sensitivity towards halal compliance.

Table 1. Similar Studies in the Literature

Makale	Amaç	Yöntem	Öne Çıkan Bulgular	Sonuç
Sulaiman et al. (2023)	Aimed to construct the profile of halal food consumers through images, texts, and social tags shared on Instagram with the hashtag #halalfood.	Qualitative data analysis (95,000 images, tags, and comments; Google Cloud Vision API, sentiment analysis, and network analysis).	#halalfood contents predominantly convey positive emotions, with chicken, burgers, and event-related themes being the most prominent.	Instagram can serve as an effective medium for constructing the profile of halal food consumers.
Rahim et al. (2021)	To examine the influence of social media influencers on the halal food purchasing attitudes of Muslim Millennials.	Quantitative method; a survey conducted with 403 participants, including analyses of reliability, expertise, likability, and attitudes.	Credibility and expertise positively influence halal food purchasing attitudes.	Influencers particularly affect consumer behavior when they are perceived as trustworthy and knowledgeable.
Yusoff et al. (2016)	To analyze how social media is used as an information-seeking tool regarding halal food.	Literature review and conceptual model; evaluation of information-seeking strategies.	Young people are more active on social media; however, information pollution influences the perception of halal.	Social media is an important tool for information seeking and creating halal awareness.
Kassem et al. (2024)	To examine Egyptian consumers' perceptions of halal food before and after COVID-19 through a social media–interactive method.	Social Media Interactive Research (SMIR); a two-stage survey, focus groups, and qualitative data collected through a Facebook group.	Halal awareness is high in beverage and meat categories; COVID-19 did not alter perceptions in certain groups.	Social media–based interactive methods are well-suited to conducting in-depth analyses of consumers' perceptions of halal food.
Juliana et al. (2023)	To identify the factors influencing Generation Z's intentions to purchase halal food through ShopeeFood.	Quantitative data from 230 participants analyzed using the PLS-SEM method; based on the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB).	For Generation Z users, behavioral control and subjective norms were identified as the strongest determinants of purchase intention.	Online ordering systems should ensure transparency regarding halal compliance; religious affiliation significantly shapes purchase intention.

The aim of this study is to analyze halal food-related content shared on social media in order to construct a user profile. Compared to similar studies in the literature, the originality of this research can be summarized as follows:

1. It provides a holistic and interdisciplinary framework that explores how halal food content on social media acquires meaning not only in terms of purchase intention, but also through the lenses of cultural identity, religious affiliation, and digital marketing.
2. By examining the reciprocal interaction structure of social media in shaping halal perceptions—both from the perspective of influencers and users—the study contributes to the existing literature.
3. The research is expected to open up a contemporary and interdisciplinary discussion on how socio-technological transformation reshapes religious practices and food preferences.
4. The absence of comparable studies in the Turkish literature that examine this issue holistically indicates that this research will bring a novel perspective to both academic and sectoral contexts, while also enriching the body of knowledge available to researchers in Türkiye.

2. Conceptual Framework

The Concept of Halal Gastronomy

Religious teachings and rules have always shaped human behavior and regulated social life throughout history (Sürücü, Kıroğlu, Kargiglioğlu & Karaçağa, 2017). The concept of halal, defined as what is not forbidden and not contrary to religious rules (sozluk.gov.tr), is also synonymous with terms such as "permissible, legitimate, allowed, or authorized" (Batman, 2017). It constitutes a critical reference point in the consumption decisions of Muslims. The steady increase in the global Muslim population has simultaneously generated a rising demand for halal products and services (Hamza et al., 2012, as cited in Dilek & Çakmak, 2017).

The act of visiting religious centers for faith-related purposes has existed since ancient times. Within the Muslim context, pilgrimages to the cities of Mecca and Medina in Saudi Arabia to fulfill the obligatory duty of Hajj have historically shaped the development of faith-based travel (Sürücü et al., 2017). With the rise in income levels and education among Muslim populations, significant changes in consumption patterns have emerged. Individuals with religious sensitivities increasingly prefer goods and services aligned with Islamic principles, contributing to the growth of the halal tourism market (Dilek & Çakmak, 2017). The concept of halal tourism refers to a tourism model that adheres to Islamic values and rules for Muslims (Pamukçu & Sarıışık, 2017). Another definition highlights halal tourism as a form of tourism in which all activities—from accommodation and food and beverage services to supply chains and post-consumption processes—are conducted in accordance with Islamic principles (Sürücü et al., 2017). In various sources, halal tourism is also referred to as Muslim-friendly tourism (Oktay, Arıkan & Curoğlu, 2022), conservative tourism, Islamic tourism (Tekin, 2014), or pious tourism (Baysal, 2017).

The concept of halal food, on the other hand, encompasses all stages from farm to table, referring to food prepared in accordance with Islamic rules. Beyond its religious dimension, halal food is also preferred due to its hygienic and health-related qualities (Baran, Batman & Yıldız, 2019). A more comprehensive definition states that halal food must not be derived from prohibited animals or their parts, must not contain substances classified as impure (*najis*) by Islam, and must not be processed, prepared, or produced with equipment considered impure according to Islamic law (Sulaiman, Feizollah, Mostafa & Zakaria, 2023). Based on the Qur'an, Bonne and Verbeke (2008) describe non-halal foods as including "carrion, blood, pork, animals slaughtered in the name of other than Allah, those that are strangled, beaten to death, killed by a fall, gored to death, or partly eaten by wild beasts—except what you are able to slaughter before death—as well as those sacrificed to idols, and gambling by divining arrows, which are abominations."

As Muslim consumers gain greater awareness of Islamic dietary rules, they have become more selective about the types of products and services they consume or use. In response, producers and marketers employ halal certification, symbolized by halal logos, to assure consumers that their products comply with Islamic law (Shafie & Othman, 2006). This has driven significant expansion in the global halal food market. Evidence of this trend can be observed in countries with relatively small Muslim populations such as Thailand, Japan, and South Korea, where halal products are increasingly visible in the marketplace. For instance, Thailand, despite having only about 4.3% Muslim population, has established itself as one of the largest halal food producers in Southeast Asia (Mohd-Nawawi et al., 2020).

Digital Religiosity and Religious Consumption

Digital religiosity has emerged as a result of the growing presence of digital media tools in individuals' lives with technological advancements, enabling people to express, share, and render visible their religious beliefs, behaviors, and practices in online spaces. This concept signifies a new form of religious visibility in which religious rituals and practices are not confined to individuality or the private sphere but are instead constructed as a public identity within digital platforms (Muthohirin, 2025).

Ja'far (2020) defines digital religiosity as a form of digital visibility in which personal transformation is blended with political Islamic values. Within the framework of post-Islamism, he argues that while individual religiosity has become more popularized, political agendas have weakened. According to Ja'far (2020), digital religiosity refers to a process where individuals aestheticize and make visible their personal understandings of *taqwa* (piety) through social media. Similarly, Mualimin, Tokhirov, and Ramadhana (2023) interpret digital religiosity not merely as the digitization of religious rituals but as a moral and ethical digital behavior model. This approach centers on behaving modestly and respectfully in digital environments. In this sense, even if shared content does not explicitly contain religious references, it still falls within the scope of digital religiosity if it aligns with Islamic values.

Social media transforms halal food consumption from a personal religious practice into a public expression of identity. In this process, digital religiosity produces a new form of visibility while simultaneously reshaping the ways in which young Muslims articulate their faith in modern media environments. Therefore, halal food on social media should not be read solely as a religious choice but also as a symbol of cultural, social, and political positioning (Muthohirin, 2025; Mualimin et al., 2023; Ja'far, 2020; Rahman, 2020).

3. Methodology

The purpose of this study is to analyze halal food content shared on social media and to construct a user profile based on this analysis. For this purpose, the study employed the document analysis method, one of the qualitative research techniques. Document analysis involves the examination of written, visual, and auditory materials that contain information about the phenomena and/or events relevant to the research aim (Sığrı, 2023, p. 484).

Among social media platforms, Instagram was chosen as the primary data source. According to Statista, Instagram had two billion monthly active users worldwide by early 2025, while in 2024, 79% of global marketers used the platform to promote their businesses (Dixon, 2025). Instagram allows two main types of content: posts and reels. Posts enable the sharing of photos and videos with hashtags, while reels—up to 90 seconds long—allow for more creativity through the addition of music, templates, and text.

In this research, Instagram users' posts shared using the hashtag #halalfood were examined. The study's scope encompasses 3,700,000 posts containing this hashtag. However, as technical access to the entirety of these posts was not feasible, a scientifically rigorous sampling method was employed.

The data collected were analyzed using the content analysis technique, a qualitative research method that systematically categorizes written, visual, and auditory data into themes, determines their frequencies, and draws inferences (Sığrı, 2023). Accordingly, the selected posts were examined using a coding form developed in line with the research objectives.

The content analysis process followed the stages of coding the data, identifying themes, organizing codes and themes, developing coding forms, analyzing the data according to codes and themes, recording them in the forms, interpreting the findings, and presenting a final report (Sığrı, 2023; Lai & To, 2015). The coding form included variables such as post type (post, reel), hashtags used, visual elements, engagement levels (likes and comments), and content themes. The coding was independently carried out by two researchers between July 30, 2025, and August 19, 2025, and consistency was ensured through cross-comparison, thereby increasing coding reliability.

In the analysis, frequency and percentage distributions were used, and the findings were supported with tables and figures. Furthermore, relationships among hashtag use, diversity of visual elements, and engagement levels were interpreted to reveal thematic tendencies in the content. In this respect, the study aims to systematically evaluate how halal gastronomy content is represented on social media.

To minimize potential biases arising from the dynamic flow of social media, the "constructed week" sampling approach—widely used in content analysis—was applied. Posts were selected across different days and time slots within the period of July 30, 2025, to August 19, 2025, ensuring greater representativeness independent of temporal fluctuations (Neuendorf, 2017). Ultimately, a total of 504 posts, obtained through random selection across various days and time slots within the determined timeframe, were included in the analysis. Previous research emphasizes that the examined posts are representative in terms of generalizability and provide sufficient diversity for analysis (Kim, Jang, Kim, & Wan, 2018; Neuendorf, 2017; Lai & To, 2015).

Findings and Conclusion

As shown in Table 2, an analysis of halal food posts on Instagram reveals that 60.5% of the shares were in the form of reels, while 39.5% were posts.

Table 2. Content Types of Posts (19.08.2025)

Content Type	n	%
Reels	306	%60,5
Post	198	%39,5
Total	504	%100

An examination of the data in Table 3 reveals that the most frequently featured food category in the posts is fast food (22.61%, n = 114). This indicates that fast consumption culture is prominent in halal food content and that it is particularly dominant among younger audiences on social media. Fast food, meat dishes, and restaurant meals together account for 49.39% of all shared content, making them the most common categories.

Traditional consumption forms such as street foods (9.12%, n = 46), kebab (6.34%, n = 32), and wraps (4.36%, n = 22) also maintain a strong presence alongside modern fast food. This demonstrates that halal food content is not limited to global fast-food brands but also represents local gastronomic identity within the digital sphere.

Overall, these findings suggest that halal food content on social media is primarily represented through fast-consumption and meat-centered products, while simultaneously incorporating local street delicacies and global culinary elements. This duality highlights that halal gastronomy embodies a structure that both preserves traditional identity and adapts to global gastronomic trends.

Table 3. Types of Food Featured in Posts (19.08.2025)

Type Of Food	n	%
Fast food	114	22.61
Meat Dish	79	15.67
Restaurant Food	56	11.11
Chicken Dish	52	10.31
Street Food	46	9.12
Evening Meal	34	6.74
Kebab	32	6.34
Wrap	22	4.36
Hamburger	18	3.57
Asian Food	13	2.57
Fine Dining	12	2.38
Buffet	7	1.38
Fish Dish	5	0.99
Seafood	5	0.99
Other	9	1.78
Total	**504**	**100**

An analysis of the data in Table 4 shows that the most prominent theme is “satiating” (18.65%, n = 94). This finding indicates that portion size and the sense of fullness are emphasized in halal food content. It also reveals that halal food is evaluated not only in terms of religious sensitivity but also in its function of being “adequate and satisfying” in everyday life.

The second most frequent theme is “accessible” (16.46%, n = 83), suggesting that the availability and practicality of halal food stand out as important values in social media content.

Table 4. Themes of Posts (19.08.2025)

Theme	n	%
Satisfying	94	18.65
Accessible	83	16.46
Religious	56	11.11
Tasty	46	9.12
Affordable Price	46	9.12
Luxury	38	7.53
Family	32	6.34
Fast	16	3.17
Restaurant Food	15	2.97
Stylish Presentation	9	1.78
Plate Presentation	6	1.19
Plenty Of Material	5	0.99
Traditional	5	0.99
Other	53	10.51
Total	**504**	**100**

An examination of the data in Table 5 indicates that halal gastronomy has achieved significant visibility on social media, with a total of 27,240,144 likes and 78,078 comments recorded. The median values for likes (2,482) and comments (64) are considerably lower than the averages. This suggests a positively skewed distribution, meaning that a small number of posts received exceptionally high levels of engagement, thereby raising the overall average.

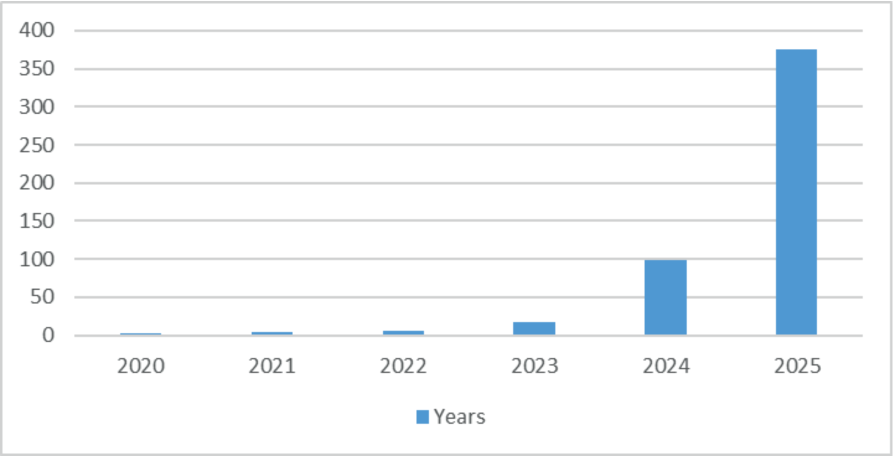
Furthermore, the table shows that while some posts attracted very high numbers of likes and comments, others received very low engagement. This indicates both the potential for virality in certain posts and the uneven distribution of interactions across the dataset.

Table 5. Number of Likes and Comments (19.08.2025)

Statistics	Value	Statistics	Value
Total Likes	27.240.144	**Total Comments**	78.078
Average Like	54.048	**Average Comment**	155
Median Like	2.482	**Median Comment**	64
Maximum Like	4.089.000	**Maximum Comments**	7.790
Minimum Like	1	**Minimum Comments**	0

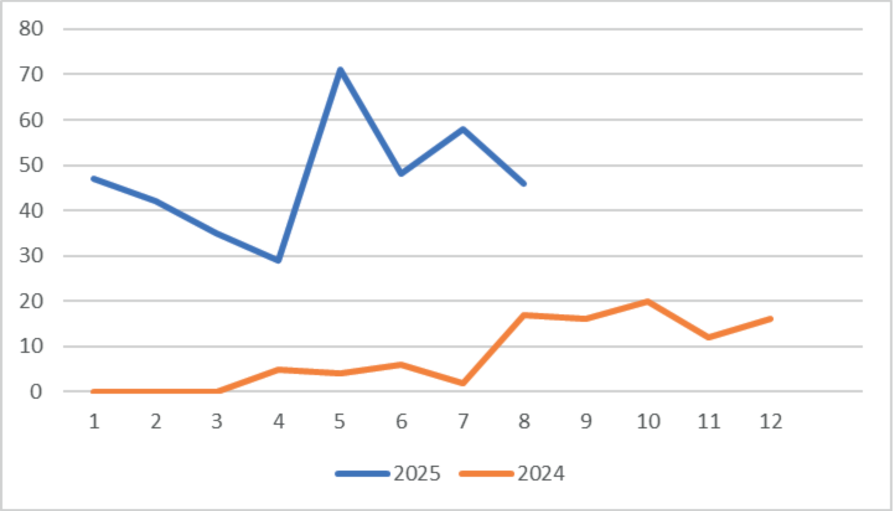
An examination of Figure 1 reveals that halal gastronomy has gained increasing visibility on social media over the years.

Figure 1. Number of Posts by Year (19.08.2025)



An examination of Figure 2 shows that the decline observed in certain months in halal gastronomy posts indicates that consumer interest and content production are associated with seasonal fluctuations.

Figure 2. Number of Posts by Month (19.08.2025)



An examination of Table 6 reveals that the United States (New York) holds the highest proportion (8.73%, n = 44). This indicates that halal food has gained significant visibility within New York's multicultural environment. In addition, the United Kingdom (London 8.13%, n = 41; Manchester 6.34%, n = 32; Birmingham 6.15%, n = 31; Sheffield 1.58%, n = 8) stands out with a total share of over 20%. This reflects both the density of the Muslim population and the advancement of the halal market in the UK.

It is noteworthy that most of the shared content originates from non-Muslim-majority countries, which may suggest a greater demand for information about halal food in these contexts.

Halal gastronomy thus finds strong representation in global cities through diaspora communities. The diversity of locations demonstrates that halal food is not only an expression of religious identity but also a part of cultural diversity and gastronomic experiences.

Table 6. Number of Posts by Location (19.08.2025)

Location	n	%
ABD (New York)	44	8.73
UK (Londra)	41	8.13
UK (Manchester)	32	6.34
UK (Birmingham)	31	6.15
Singapore	17	3.37
France (Paris)	14	2.77
Netherlands (Amsterdam)	13	2.57
UK (Sheffield)	8	1.58
Germany (Berlin)	8	1.58
Canada (Toronto)	6	1.19
Belgium (Brüksel)	6	1.19
Germany (Frankfurt)	5	0.99
Canada (Mississauga)	5	0.99
Other	52	10.31
Unclear	222	44.04
Toplam	**504**	**100**

According to Table 7, the hashtag #halalfood (100%, n = 504) appears in all posts, representing the core focus of the study. The hashtags #halal, #halalfoodie, and #halalrestaurant, which together account for 57.72%, illustrate not only the use of halal food content as a marker of faith-based identity, but also its global recognition and commercialization.

Table 7. Top 10 Most Frequently Used Hashtags (19.08.2025)

Konu Etiketi	n	%
#halalfood	504	100
#halal	205	40.67
#food	70	13.88
#foodie	49	9.72
#halalfoodie	46	9.12
#halalrestaurant	40	7.93
#london	37	7.34
#manchester	33	6.54
#chicken	32	6.34
#halalfoodlondon	28	5.55

Based on the findings of this study, a set of recommendations is proposed to guide future research:

- Development of the theoretical framework is necessary. This will allow for a clearer demonstration that halal content is not merely a religious consumption practice, but also a multi-layered phenomenon reflecting the cultural and social identity codes of the digital age.
- Methodological diversification in future research is recommended. Adopting multi-platform approaches instead of analyses conducted on a single social media platform will enable a more holistic assessment of the digital representation forms of halal gastronomy.
- Development of conceptual tools to measure the visibility of digital piety on social media is crucial. This is significant for operationalizing and studying how digital piety manifests across various platforms.

4. Discussion

When the findings of this research are compared with the study of Sulaiman et al. (2023), it is observed that in both studies the hashtags #halal and #halalfood stand out. In Sulaiman et al.'s study, the hashtag #halaltourism emerged as a marker of commercial activity, while in the present study #halalrestaurant plays that role. Furthermore, whereas Sulaiman et al. (2023) highlighted location-based hashtags such as #halalfoodjapan, #halalfoodkorea, and #halalfoodparis, this study identified #manchester and #halalfoodlondon as prominent. In addition, consistent with Sulaiman et al. (2023), this research also identified a generally positive image of halal food on Instagram.

The study by Mostafa (2021) investigated sharing behaviors of halal food posts on social media. This research indicates that halal food posts are shared by influencers, brands, and corporate accounts, and are shaped through consumer-brand interaction. Similarly, Feizollah et al. (2021) analyzed posts related to halal tourism, focusing on emotions and geographical orientations and specifically addressing how the concepts of halal food and halal hotels are maintained on a global scale. This present study, on the other hand, addresses topics such as digital piety, cultural identity, and belonging. Consequently, this research is not a technical data analysis but rather offers an interdisciplinary perspective rooted in fields like digital sociology and anthropology of religion.

When compared with the study of Yusoff et al. (2016), both works emphasize the role of social media as a source of halal-related information and as a space for interaction. However, the present research distinguishes itself by being supported with quantitative data. While this study investigates popular hashtags and visually oriented content in relation to users' awareness and sense of belonging, Yusoff et al. (2016) focused on psychological and religious factors explaining consumer behavior.

The contributions of this research can be summarized as follows:

- Academic contribution: This study provides a unique dataset to the literature. It offers a methodological contribution to the field of halal gastronomy and serves as a guide for future digital culture analyses.
- Economic contribution: The research delivers valuable insights for businesses active on social media regarding how to shape their content, how to reach consumers, and which visual elements to emphasize.
- Social contribution: By explaining consumer tendencies toward halal gastronomy, this study highlights individuals' sense of belonging and reveals the trajectory of the global halal consumer community.

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Chapter 20

Digital Twin Technologies in Tourism From the Perspective of Green and Digital Transformation

Özlem Arı[1]

Özge Erdal[2]

Bayram Şahin[3]

1. Introduction

The tourism sector is confronted with both challenges and new opportunities due to geopolitical and socio-economic dynamics at the global and regional scales. Digital transformation enhances destination attractiveness (Ertuğral et al., 2022), increases visitor satisfaction, and provides businesses with a competitive advantage (Bilgiçli, 2023). In other words, it offers various opportunities to the tourism industry and delivers significant benefits to service providers (Toylan 2021). In this regard, the integration of digital technologies with environmental sustainability aimed at improving service quality, fostering innovation, and ensuring balanced growth in economic, social, and environmental dimensions has emerged as a strategic priority for the tourism industry. Within this transformation process, digital twin technology has attracted considerable attention by enabling real-time monitoring, predictive analysis, and optimization through the creation of virtual replicas of physical assets, destinations, or processes (Tao et al., 2022). Digital twin applications, ranging from monitoring energy consumption to managing visitor density, enhance the feasibility of sustainable and smart tourism strategies. For instance, the digital preservation of touristic and

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historical sites through three-dimensional (3D) models, the organization of virtual tours to new destinations in digital environments, and the enrichment of physical tourism experiences are among the innovative possibilities offered by this technology. Furthermore, digital twin technology serves as a critical tool for stakeholders and policymakers, facilitating decision-making processes in destination management (de Almeida et al., 2025).

Indeed, the fact that Gartner has identified digital twin technology among the top 10 strategic technology trends for three consecutive years demonstrates that this technology is not merely an innovative application but also a strategic element with the potential for sectoral transformation. As emphasized in Gartner's 2016 definition, digital twins combine the virtual representations of physical assets, facilities, people, and processes, thereby enabling the detailed simulation, analysis, and control of the real world (Gartner, 2016). These global insights highlight the potential of digital twins to expand their fields of application.

However, recent geopolitical tensions, economic fluctuations, disruptions in global supply chains, the Covid-19 pandemic, natural disasters, and crises in water, food, and energy have multidimensionally affected Türkiye's development process and social welfare, creating new risks and uncertainties. These developments underscore the growing need for a dynamic and flexible planning approach capable of rapid adaptation to changing conditions. Within this framework, Türkiye's Twelfth Development Plan (2024–2028) aims to strengthen the tourism sector by ensuring high global competitiveness, resilience, and sustainability (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023). However, the role and potential of the digital twin approach within this framework have not yet been clearly defined. Therefore, it is necessary to assess tourism policies from an integrated perspective that incorporates both digitalization and sustainability.

This study examines the positioning of digital twin technology in tourism, its alignment with policy documents, and emerging practices in the sector. Moreover, within the framework of Türkiye's 2053 vision, opportunities that could contribute to the development of a digital tourism ecosystem are evaluated in the context of digital twin technology. Thus, this study aims to provide a conceptual framework that systematically analyses tourism policies in the development plan from the perspective of digital twins, thereby integrating digitalization and sustainability into sectoral transformation. Therefore, this study addresses a gap in the literature regarding the policy-level treatment of digital twins in tourism and thereby offers an original contribution to the field.

2. Literature Review

2.1. Green Transformation and Digital Twins

Green tourism refers to the adoption of environmentally friendly approaches in operational processes, reduction of energy and resource consumption, and minimization of environmental pollution (Lin & Pan, 2023). In this context, tourism enterprises can promote sustainable transportation and low-carbon travel, implement technologies aimed at energy saving and emission reduction, and support initiatives for environmental education and the preservation of cultural heritage. The process of high-quality development in the tourism sector is shaped by the continuous pursuit of excellence in service delivery, innovation, and sustainability. This pursuit not only addresses the changing expectations of tourists but also aligns with broader societal and environmental goals. Digitalization and green transformation stand out as two fundamental elements reshaping the future of the sector and are regarded as the driving forces of change (Li & Li, 2024). This dual transformation plays a critical role in enabling tourism to achieve sustainability goals and develop a more resilient structure.

However, the rise of industrialization and the advancement of new production technologies have exacerbated economic and environmental challenges. Climate change, global warming, and environmental pollution have emerged as some of the most serious global issues of the 21st century (United Nations, 2022; Altan, 2024:6). Therefore, green transformation has gained importance as a strategic approach to balance economic growth and environmental sustainability. Escalating environmental threats at the global level are pushing countries and regions to adopt sustainable development and green transformation policies, thereby formulating concrete strategies. In this sense, green transformation contributes to both the mitigation of global risks and the improvement of welfare in a more liveable environment (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023:7). The tourism sector is directly affected by these global trends, and environmental responsibility and sustainable business practices have become priority factors in destination management and tourism planning.

Digital twin technologies play a critical role in operationalizing the objectives of green transformation and sustainability. Based on the creation of virtual replicas of physical assets and processes, this technology enables the real-time monitoring and optimization of energy consumption, carbon emissions, and resource use (Fuller et al., 2020). The use of digital technologies in urban planning supports the sustainable management of tourism destinations while increasing the applicability of green transformation goals, such as energy efficiency, sustainable architecture, eco-friendly operations, and resource savings (Liu v., 2023). Furthermore, digital twin technology strengthens conservation processes by providing time and cost savings in applications such as the restoration, damage analysis, and simulation of historical and cultural structures (Akgöz & Ergin, 2025, p.127). In addition, digital twins contribute directly to the sustainability objectives of smart cities as a tool for supporting energy optimization, urban planning processes, and the reduction of greenhouse gas emissions (Omar, 2025; Fuller et al., 2020). Within this framework, the concepts of green transformation and digital twins are regarded as complementary within the broader vision of sustainability.

The use of digital twins in the tourism sector can be examined under four main categories. Digital preservation refers to the protection of touristic or historical assets and sites using three-dimensional models or digital records. Virtual tourism enables the exploration of destinations in computer-based and virtual environments. Experience enhancement involves enriching tourism experience through augmented reality technology or personalized recommendations. Destination management encompasses applications that allow stakeholders to plan, monitor, and manage destinations more effectively (de Almeida et al., 2025:10). These categories demonstrate that digital twin technology holds strategic potential in tourism for the preservation of cultural heritage and sustainable management of destinations (Villani et al., 2025).

Overtourism and sustainability have long been central issues in tourism literature. Doxey (1975) addressed tourist–resident relations along a spectrum from euphoria to antagonism, while Butler (1980) analysed the development cycle and carrying capacity of tourism areas, and O'Reilly (1986) introduced the concept of carrying capacity. The World Tourism Organization (UNWTO) has also conducted multidimensional studies focused on sustainable tourism, emphasizing a shift from the adverse effects of tourism toward sustainability-oriented approaches (Koens et al., 2018; Milano et al., 2019). However, overtourism, seasonality, inadequacies in crowd management, the media's emphasis on certain destinations, and fashion trends have increasingly threatened the sustainability of destinations (Özgürel & Yılmaz, 2021). At this juncture, the solutions offered by the digital age present an indispensable potential for mitigating the negative impacts of tourism and enhancing the feasibility of sustainable tourism strategies in the Maldives.

2.2. Digital Transformation and Digital Twins

Digital transformation enables organizations and sectors to operate more efficiently, rapidly, and innovatively through digital technologies (Deniz & Büyük, 2023). The adoption of innovative business models and technologies across diverse domains, from public administration to industry, constitutes the fundamental element of the digital transformation process (Carter et al., 2020). This process comprises human, technology, infrastructure, suppliers, users, and governance components (T.C. Sanayi ve Teknoloji Bakanlığı & TÜBİTAK, 2018). It is not merely a theoretical framework but also a comprehensive transformation supported by national-level policy and strategy documents. Indeed, the Twelfth Development Plan explicitly defines digital transformation goals (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023), while the Ministry of Industry and Technology's 2024–2028 Strategic Plan includes a service approach centered on green and digital transformation as one of its core values (Sanayi ve Teknoloji Bakanlığı, 2024). Furthermore, projects conducted by the Presidency of the Republic of Türkiye's Digital Transformation Office, such as the "Digital Transformation Leaders Development Program," the "Digital Transformation Competence Center," and "Digital Türkiye,' reinforce the strategic role of digital transformation in national development.

Within this scope, digital twin technology stands out as one of the most innovative components of digital transformation in the construction industry. Digital twins facilitate the creation of virtual replicas of objects, services, and cities while also enabling the integration of big data, the Internet of Things (IoT), and artificial intelligence (Sánchez-Amboage et al., 2024:10). In this way, historical records and real-time sensor data can be assessed together to simulate possible future scenarios and analyze the entire life cycle of physical assets (Glaessgen & Stargel, 2012). Application areas include monitoring urban infrastructure, enhancing energy efficiency, modelling transportation systems, and managing disasters (Shahat et al., 2021). Thus, digital twins have become a key tool in the management of smart cities, making direct contributions to urban planning and sustainability goals (Batty, 2018). While providing a holistic perspective, improving process efficiency, reducing labor costs, and enhancing quality are considered the strengths of digital twin technology, its weaknesses include high initial investment costs, lack of collaboration, and maintenance processes that are primarily feedback-driven. In addition, while the transformative potential of this technology offers important opportunities, data security risks emerge as major threats (Bedur & Erbaş, 2024).

The tourism sector is directly and indirectly influenced by the opportunities provided by digital twin technology. In particular, the proliferation of smart cities and urban digital twins plays a critical role in strengthening the tourism infrastructure and improving business environments. Urban digital twins generate efficiency through functions such as data management, visualization, planning and forecasting, situational awareness, and integration, and have become one of the fundamental components of cognitive city models (Saeed et al., 2022). In a study conducted by Gholami et al. (2022), the 3D digital twin of the city of Imola was used for air simulations, high-temperature zones were identified, and green pedestrian networks were designed. This application not only improves urban planning and policymaking processes but also makes positive contributions to the tourism environment.

The function of digital twin technology in tourism can also be explained through the metaphor "imitations keep the originals alive." Applied across a wide spectrum from Industry 4.0 to health, transportation, and energy (Erol et al., 2020), this technology provides innovative solutions in tourism, particularly for preserving and sustaining cultural heritage. Historical structures and cities under the pressure of overtourism face significant risks of deterioration due to visitor congestion and environmental impact (Dodds & Butler, 2019). Through detailed 3D scans and sensor data, digital twins transfer these structures into virtual environments, continuously monitoring their current states and identifying degradation trends in advance. In this way, restoration work is grounded in scientific data, intervention scenarios can be tested virtually without damaging real structures, and visitor management and capacity planning can be optimized. In this sense, the "imitation" of the digital copy serves as a protective shield that extends the lifespan of the original structure.

2.1. **2.3. Development Plans and Tourism in Türkiye**

Global economic, technological, environmental, and social transformations directly shape national development goals and policies. In particular, the sustainable development agenda stands out as one of the most concrete reflections of these transformations (T. C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, n.d.). Indeed, the United Nations declared 2017 the "International Year of Sustainable Tourism for Development," drawing attention to the critical role of tourism in inclusive economic growth, resource efficiency, environmental protection, and climate change mitigation. In line with this, studies conducted by the World Tourism Organization (UNWTO) and the United Nations have highlighted the contribution of sustainable tourism to development and the significance of government policies, business practices, and consumer behavior in this transformation (UNWTO, 2024; United Nations, 2017). These developments demonstrate not only at the global scale but also in countries with strong tourism potential, such as Türkiye, that development plans are being reshaped in accordance with sustainability, digitalization, and high value-added tourism objectives. In this regard, global trends such as digitalization, climate change, sustainable development goals, energy supply security, and geopolitical dynamics create both opportunities and risks at the national level (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, On İkinci Kalkınma Planı, 2023).

The tourism sector has long been regarded as a strategic domain in development plans because of its potential for economic growth, employment creation, and foreign exchange earnings. However, the objectives of the sector in these plans have shown significant changes over the years, in line with global trends and national priorities. In the early plans, the main goals included infrastructure investments, capacity expansion, and increasing the number of tourists (DPT, 1963; DPT, 1968; DPT, 1973; DPT, 1979). However, from the 1990s onwards, sustainability, digitalization, skilled workforce development, and a shift toward high value-added forms of tourism have become the central goals (DPT,1990; DPT, 1996; DPT, 2000; DPT, 2006). This shift demonstrates that tourism is regarded not only as an economic activity but also as a holistic development component with environmental and cultural dimensions.

Since the 1990s, sustainability, environmental protection, and preservation of cultural heritage have increasingly come to the forefront of development plans. From this period onwards, tourism has been evaluated not only in terms of its economic returns but also in relation to its environmental and sociocultural impacts. In addition to coastal tourism, the goals include the development of alternative forms of tourism and the reduction of regional disparities. In the 2000s, parallel to rapid advances in information and communication technologies, digitalization, innovative applications in marketing strategies, and global competitiveness objectives were incorporated into development plans (DPT, 1996, 2000, 2006). In the Tenth Development Plan (2014–2018), priority transformation programs were supported by various action plans in areas such as energy efficiency and environmental compliance (Ministry of Development, 2013). Finally, the Twelfth Development Plan (2024–2028) aims to reposition the tourism sector within a structure that is "highly competitive globally, sustainable, and focused on digitalization" (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023). This plan emphasizes the integration of green and digital transformation, energy efficiency, eco-friendly practices, and smart destination approaches into the sector. Therefore, an examination of the historical evolution of Türkiye's development plans reveals that while tourism has been addressed with different emphases in each period, in recent years sustainability and digitalization-oriented transformation have become the decisive factors.

3. Methodology

This study aims to reveal how digital twin technology is positioned in the tourism sector, the extent to which it aligns with policy documents, and how it is applied within industry. In this context, the strategic objectives, policies, and measures set forth for the tourism sector in Türkiye's Twelfth Development Plan (2024–2028) were examined from the perspective of the green and digital transformation. This research is structured along two main axes.

- A descriptive analysis of Türkiye'sTwelfth Development Plan's tourism-related policies and objectives in terms of green and digital transformation themes,
- A conceptual evaluation of the position of digital twin technologies in tourism through literature.

This study is based on an exploratory research design supported by document analysis and descriptive content analysis methods. Exploratory research seeks to examine in-depth topics about which there is limited knowledge or insufficient prior research, introduce new concepts and relationships, and provide a theoretical basis for further studies (Stebbins, 2001).

The analysis process was carried out using MAXQDA software. First, tourism-related sub-objectives were identified based on the main goals of green and digital transformation. Subsequently, codes and categories were developed in accordance with these objectives. During the coding stage, tourism policies, strategic objectives, and implementation examples were coded separately to create hierarchical structures. This method systematically matched each objective with its corresponding concrete measures, which were evaluated within the framework of content analysis. The findings derived from this process provided the basis for understanding areas in which the transformation objectives foreseen for tourism in the Twelfth Development Plan were concretized and how digital twin technology is positioned in the literature.

Additionally, to evaluate the position of digital twin technology in tourism, databases including Web of Science, Scopus, and DergiPark were searched. Web of Science (WoS) and Scopus are highly significant databases in terms of citation impact and international visibility (Li et al., 2018; Karagöz and Şeref, 2019). In contrast, DergiPark has an average daily user count of 100,009. Operating under TÜBİTAK ULAKBİM, it provides a digital platform for archiving and managing the publication processes of academic journals published in Türkiye (DergiPark, 2025). Therefore, it is frequently used in scientific research. Within the scope of this study, the keywords "digital twin and tourism," "digital twins and tourism," and "dijital ikiz ve turizm" were used to search titles and keywords in the Web of Science, Scopus, and DergiPark databases in both English and Turkish. No time restrictions were applied. A total of eighteen articles were identified. Of these, eight were published in both Web of Science and Scopus. After eliminating duplicates, ten articles remained, consisting of nine in English and one in Turkish, which were subsequently analyzed.

4. Findings

This study addresses the positioning of digital twin technology in tourism, the extent to which it aligns with policy documents, and its applications within the sector. In this context, the strategic objectives, policies, and measures concerning the tourism sector in Türkiye's Twelfth Development Plan (2024–2028) are examined from the perspective of green and digital transformation. The data obtained are presented in Table 1, and applications of digital twin technologies in international cities are presented in Table 2. To evaluate the position of digital twin technology in tourism, the findings of academic studies in the databases under the themes "dijital ikiz ve turizm," "digital twin and tourism," and "digital twins and tourism" are presented in Table 3.

Table 1. Green and Digital Transformation Objectives in the Twelfth Development Plan

Main Objectives	**Tourism objectives in the development plan**	**Examples of implementation**
Green Transformation	Sustainable tourism management	Use of measurement tools and new indicator sets in line with international frameworks to assess tourism sustainability
	Improving environmental standards in tourism investments	Green certification and construction of environmentally friendly facilities
	Preservation and integration of cultural and natural heritage into tourism	Sustainable utilization of natural and cultural assets
	Improving infrastructure investments in tourism regions	Waste management, water efficiency, and energy efficiency systems
	Destination management based on carrying capacity	Prevention of overtourism pressures and reduction of environmental burdens
	Responsible tourism approach	Minimizing adverse environmental, social, and cultural impacts of tourism
	Inclusive understanding of the tourism sector	Supporting the local economy
	Planning and effective management	Development of green financing models to support sustainable transformation
	Climate resilience and sustainability	Increasing the adaptation capacity of the tourism sector to climate change
Digital Transformation	Strengthening Türkiye's global tourism brand	Digital marketing, promotional campaigns, and communication activities
	Digital tourism ecosystem	Linking stakeholders across the tourism value chain
	Visitor behavior analysis	Development of big data, artificial intelligence, and tourism statistics
	Strengthening the digital infrastructure of tourism enterprises	Supporting the technological infrastructure of tourism enterprises and development of digital skills
	Destination management approach (arrival point management)	Integrated and holistic tourism development planning
	Decision-making tools in tourism planning	Development of new tools and indicator sets for decision-making
	Crisis and risk management-based digitalization	Early warning and risk monitoring systems for resilient tourism destinations

According to Table 1, the green and digital transformation goals set for the tourism sector in Türkiye's Twelfth Development Plan demonstrate the adoption of a comprehensive perspective focused on sustainability and technology-driven transformation in the tourism sector. Under the theme of green transformation, objectives such as improving environmental standards, destination management sensitive to carrying capacity, enhancing climate resilience, and promoting a responsible tourism approach have come to the forefront. Implementation examples reveal that these objectives are supported by concrete steps, such as waste management, energy efficiency, reducing environmental burdens, and green financing models. In the field of digital transformation, emphasis is placed on strengthening the digital tourism ecosystem, analyzing visitor behavior, developing data-driven decision-making mechanisms, and adopting an integrated approach to tourism destination management. These findings reflect the goal of restructuring tourism along the axes of environmental sustainability and digitalization, thereby enhancing international competitiveness and building a resilient tourism industry.

Although the green and digital transformation objectives and tourism practices outlined in the Twelfth Development Plan do not explicitly refer to digital twin technologies, Türkiye's 2053 vision aims to rank among the top three countries worldwide in terms of tourism revenue by effectively utilizing artificial intelligence and advanced digital technologies in tourism, supported by developed green infrastructure and sustainable approaches. The tourism strategy prioritizes quality and revenue over the sheer number of tourists, with the objective of establishing an internationally recognized brand through the protection of natural resources, qualified human capital, technological and physical infrastructure, and innovative service delivery. Furthermore, the development of sports and health tourism, supported by advanced network technologies and robotic healthcare applications, is expected to position Türkiye as a global leader in these areas (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023:49).

Table 2. Applications of Digital Twin Technologies in International Cities

City/ Country	**Source**	**Digital Twin Application Area**	**Purpose of Use**
Barcelona, Spain	Garrido, (2023), Diaz-Sarachaga, (2024),	Urban infrastructure and tourist flows	Management of visitor density and transport optimization through the "15-minute city" model
Singapore	Faliagka et al. (2024),	Virtual Singapore 3D digital city model	Urban planning, emergency simulations, creation of appropriate evacuation protocols, optimization of urban mobility and transport.
Venice, Italy	Villani et al. (2025),	Digital twin of the historic city and canals	Energy management, mobility and resilience policies, disaster management, and decision-making support
Dubrovnik, Croatia	City of Dubrovnik (2023), Dubrovnik Sustainable Tourism Action Plan	City center and event areas	Management of overtourism, optimization of event planning and traffic flow
Tokyo, Japan	Tokyo Metropolitan Government (2024),	Virtual models of tourist areas	Visitor flow regulation, disaster preparedness, transport optimization, monitoring of tourist density, and disaster resilience planning

The examples presented in Table 2 demonstrate that digital twin technologies have become a strategic tool in tourism-oriented urban management. In the case of Barcelona, for instance, the management of visitor density and transportation optimization contributes to sustainable destination management by alleviating the pressures created by overtourism. Singapore's 3D digital city model not only supports urban planning but also serves disaster and emergency scenarios, with particular emphasis on tourist safety. In Venice, the digitalization of historic city centers and canals has enabled both the preservation of cultural heritage and the development of policies on energy, mobility, and resilience. In Dubrovnik, digital twin applications are used to control the impacts of overtourism and optimize event planning and traffic management. In Tokyo, the modeling of tourist areas plays a critical role in regulating visitor flow, preparing for disaster scenarios, and advancing sustainable tourism management.

Table 3. Digital Twin in Tourism within Web of Science, Scopus, and DergiPark Databases

Author(s)	**Keywords**	**Research Purpose**	**Research Findings**
Deng et al., 2023	Metaverse, experience, digital marketing, digital twin, metaverse tourism	To examine the role of digital twins in metaverse design	Digital twin technologies support metaverse experiences, enabling data-based tourism management and strengthening digital marketing strategies. They also contribute to reducing physical travel and environmental impacts.
López-González et al., 2023	HBIM–GIS–Tourism, heritage conservation, heritage management, cultural heritage, visitor management, digital twin	To investigate the applicability of integrating Historic Building Information Modelling (HBIM) with Geographic Information Systems (GIS) for heritage tourism	Findings indicate that "digital twins," when integrated with GIS and HBIM, can be effectively used in cultural heritage representation. The integration provides sustainable heritage tourism planning by offering updated and detailed data, strengthening resilience, and raising awareness of heritage protection.
Litavniece et al., 2023	Digital twin, food services, tourism competitiveness, smart tourism	To explore the role of digital twin technologies in the tourism sector, particularly in food services, and to propose recommendations for enhancing competitiveness	Digital twin technologies enhance the competitiveness of tourism products (e.g., food services) in the global market. They also enable the personalization of services and contribute to data-driven decision-making processes for sustainable and smart tourism.
Liu et al., 2023	Building information modelling (BIM), cultural heritage, museums, sustainable development goals, stakeholders, partnerships, sustainable technologies, digital twin, building modelling	To examine the relationship between Building Information Modelling (BIM) technologies, cultural heritage, museums, and sustainable development, and to evaluate the role of digital twins	BIM technologies play a crucial role in preserving and revitalizing cultural heritage. The study emphasizes the use of BIM in sustainable tourism areas such as museums (restoration, protection, authenticity). Visitor management is also highlighted, with digital twins contributing to cultural sustainability, accessibility, and enriched tourism experiences.

Kuznetsov et al., 2023	Tourism sector, digital twin, simulation, digital model, digital modelling, digital twin, Kamchatka region	To apply a modern methodology for simulating tourism development scenarios in the Kamchatka region using digital twin technologies	In the Kamchatka region, digital twin technologies help simulate tourism development scenarios, enabling assessment of environmental pressures and management of overtourism. Findings show that digital twins provide a useful tool for long-term planning and sustainable destination management.
Rahmadani et al., 2023	Digital twin, big data, sustainable tourism, tourism planning, tourism management, architecture, disaster management, smart city, artificial intelligence, sustainability	To propose smart and sustainable tourism management solutions using digital twin technologies combined with AI and big data, particularly in crisis and risk management	Research conducted in Indonesia emphasizes the potential of digital twin technologies in disaster management and sustainable tourism planning. By integrating artificial intelligence and big data, digital twins contribute to risk reduction and provide practical solutions for sustainable tourism management.
Karaca & Özkan Önem (2023)	Digital twin, digital technologies, smart tourism, virtual tourism	To present a theoretical framework for digital twin technologies in tourism	The literature review concludes that fundamental concepts of digital twin technologies in tourism and the theoretical relationships among these concepts have been identified.
Dayoub et al., 2024	Silk Roads, Metaverse, digital twin, cultural tourism, heritage theories, cultural heritage management, sustainable development	To empirically examine how the metaverse can be used to enhance tourists' experiences, support sustainable tourism development, and promote cultural exchange along the Silk Roads.	The preservation of cultural heritage, accessibility, and sustainable tourism have been promoted by creating participatory virtual environments with metaverse digital twin prototypes. Attention has also been drawn to sociocultural and ethical dimensions.

Sánchez-Amboage et al., 2024	-	Examining tourism marketing in the context of the metaverse to understand the building blocks of the sector and the main technologies used	Articles published prior to 2020 mostly focused on topics such as Second Life, virtual worlds and 3D, whereas more recent articles discuss concepts such as the metaverse, blockchain, XR, AR, VR, Second Life, AI, virtual worlds, IoT and NFTs.
Shi et al., 2024	Electronic games, virtual cities, urban physical spaces, tourism, urban planning	To examine the interaction between cities represented in electronic games and real urban spaces, as well as the influence of virtual cities on actual urban environments.	It has been found that games can significantly enhance real-world tourism and further enrich tourists' experiences by rendering urban exploration game based.

An examination of Table 3 reveals that digital twins, the metaverse, smart cities, cultural heritage, sustainable development, digitalization, and tourism variables are predominantly addressed together. When looking at the publication dates of the articles retrieved from the Web of Science, Scopus, and DergiPark databases without any time restrictions, the majority were published in 2023–2024. On the other hand, it has also been identified that the topics of focus differ between articles published prior to 2020 and those published afterward. In addition, some studies focus on specific regions (e.g., the Silk Roads and Kamchatka Krai) and application domains (e.g., food services, urban planning, virtual tours, and gaming). According to the findings, digital twins and metaverse-supported experiences increase tourism demand and enrich virtual tourism experiences. They also enhance cultural accessibility and contribute to decision support systems. Furthermore, while technical innovations such as data management contribute to sustainable and smart tourism, the ethical dimensions of these innovations should not be overlooked. In summary, this table presents recent studies that comprehensively address the widespread use and interaction of modern technologies in the tourism sector from technological, cultural, and environmental perspectives.

5. Discussion

Digital twin technologies have emerged as a strategic tool that integrates the axes of green and digital transformation. The literature review reveals that digital twins provide data-driven management opportunities for reducing the pressure of overtourism, controlling environmental burdens, and preserving cultural heritage (de Almeida et al., 2025). For example, in Barcelona, digital twins help reduce overtourism pressure through visitor density management and transport optimization (Garrido, 2023; Diaz-Sarachaga, 2024), and Singapore's 3D city model is used for disaster scenarios and urban safety (Faliagka et al., 2024). In Venice, the digitalization of historic centers supports cultural heritage preservation while contributing to energy and mobility policy (Villani et al., 2025). In Dubrovnik, digital twins are used to manage overtourism, traffic flow, and event planning (City of Dubrovnik, 2023); whereas in Tokyo, the modeling of tourist areas plays a critical role in regulating visitor flows, disaster preparedness, and sustainable tourism management (Tokyo Metropolitan Government, 2024).

Türkiye's Twelfth Development Plan (2024–2028) aims to transform the tourism sector into a "globally competitive, sustainable, and digitalization-oriented" structure (T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2023). The findings indicate that, on the axis of green transformation, the plan emphasizes areas such as sustainable tourism management, improvement of environmental standards, preservation of cultural and natural heritage, infrastructure improvements, climate resilience, and disaster management. On the axis of digital transformation, the plan highlights objectives such as strengthening the global tourism brand, establishing a digital tourism ecosystem, conducting visitor behavior analysis, and enhancing the digital infrastructure of tourism enterprises.

Within the framework of digital twins, virtual tours and digital environments make significant contributions to promoting tourist destinations and preserving cultural heritage (Dayoub et al., 2024; Deng et al., 2023). The findings suggest that digital twin and metaverse technologies constitute an important turning point for preserving cultural heritage in the tourism sector. The three-dimensional and continuously updated models offered by digital twin technology provide richer and more diverse experiences than traditional tourism practices. This increases tourist interest in destinations and supports sustainable tourism development (Liu et al., 2023). From this perspective, it is possible to state that the use of digital twin technologies in the tourism sector offers significant advantages. There is an extensive research gap regarding DT technology in tourism, which is worth filling (Almeida et al., 2025). In this context, this study will contribute to existing literature.

6. Conclusion and Recommendations

In conclusion, digital twin technologies serve as a critical catalyst in achieving both green and digital transformation objectives in Türkiye's tourism sector at the strategic and operational levels. Within the context of Türkiye's Twelfth Development Plan, the application of these technologies, evaluated in comparison with international examples, offers a strong roadmap for sustainable and resilient tourism management. When the global applications of digital twins are examined, their potential applicability in Türkiye becomes evident, particularly in processes such as infrastructure, energy and water management, waste management, visitor density, and carrying capacity in tourism destinations. By utilizing digital twin technology, virtual visits can be promoted instead of physical visits to destinations under overtourism pressure, thereby minimizing damage to the historical fabric of these regions. Simultaneously, digital twins have emerged as a significant tool in contributing to green transformation processes in tourism by optimizing resource use and reducing environmental impacts. When integrated with digital transformation, these technologies not only increase efficiency in the sector but also facilitate the achievement of sustainability objectives in the construction industry.

However, for the effective use of these technologies, critical challenges such as infrastructure deficiencies, data management, and ethical considerations must be addressed. Moreover, it is essential that technological innovations are developed in harmony with local cultures and communities, with due attention to socio-cultural dimensions. Within the scope of this study, the analysis was conducted using keywords considered suitable for achieving the research aim. Different keywords may yield different results. Only articles from the Web of Science, Scopus, and DergiPark databases were analyzed; future research could be expanded to include other databases. Furthermore, this study focuses on the Twelfth Development Plan. The regional strategies of provinces that set specific goals for green and digital transformation could also be analyzed.

Practical Implications: The strategic objectives of Türkiye's Twelfth Development Plan reveal that digital twins can provide concrete contributions in areas such as energy and resource efficiency, disaster management, visitor density control, and sustainable destination management. In this regard, the implementation of digital twins will strengthen not only operational efficiency and customer satisfaction but also environmental responsibility and the long-term competitiveness of the destinations. In addition, the use of digital twins will enhance the real-time decision-making capacity of destination managers, enabling faster, more effective, and more coordinated interventions during times of crisis.

Theoretical Implications: The findings demonstrate that digital twins provide a framework for integrating green and digital transformation. Specifically, for Türkiye, the results show that digital twins add the dimension of digitalization to the sustainable tourism literature, reinforcing the link between environmental sustainability and data-driven management. Compared with international examples, it is evident that digital twins are not merely operational tools but also conceptual models that support smart cities, digital destination management, and sustainable development theories. In this regard, digital twins can be considered a theoretical tool that contributes to the reinterpretation of fundamental concepts such as destination carrying capacity, tourist experience, and resource management.

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Chapter 21

An Analysis of Ali Şir Nevâî's Muhakemetü'l Lugateyn in Terms of Elements Related to Gastronomy

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Introduction

Gastronomy is not only a discipline related to nutrition; it is a multifaceted field of study intertwined with many fields such as history, culture, language and social structure (Seyitoğlu & Çalışkan, 2018). In the transmission of cultural heritage, elements such as food names, cooking techniques, consumption practices and table manners are among the important indicators reflecting the lifestyles and value worlds of societies (Sarıışık, 2017). In this context, the analysis of food and beverage names in historical texts provides valuable data at the point of understanding and reinterpreting both the language and culinary culture of Turkish nation.

In Ali Şîr Nevâî's work Muhâkemetü'l-Lugateyn, written in 1498, Nevâî discussed the two languages in a comparative manner in order to demonstrate the superiority of Turkish over Persian (Boltabayev, 2024). This work is not only a work of language comparison; it is also an important source reflecting the socio-cultural structure of the period, the daily life of the people and therefore the food culture.

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In this study, the words in Nevâî's work that can be associated with gastronomy are systematically analyzed. These words in the work reveal not only linguistic diversity but also the richness of 15th century Turkish culinary culture, consumption habits and symbolic meanings attributed to food. The main purpose of this study is to reveal the names of food and beverages in Muhâkemetü'l-Lugateyn, which has not been sufficiently discussed in the field of gastronomy so far, and to analyze the origins of these words. Nevâî's work in question is not only a defense of language, but also an important source reflecting the cultural values of the period. In this context, analyzing the gastronomic elements in the work has the potential to offer new perspectives on the socio-cultural structure of the period. Nevertheless, these analyses provide meaningful contributions to language history studies and gastronomy literature.

2. Literature Review

Ali Shîr Nevâî is one of the rare figures in our history who left his mark on Turkish Literature, who appeared as a statesman as well as a poet and thinker. He did not conform to the dominant understanding of his time, which was to hold Arabic and Persian superior and to use Persian especially in literary works, but used Turkish language in his works and proved to his contemporaries that Turkish was a superior language to Persian. In 1498, Ali Şîr Nevâî did what Kâşgarlı Mahmut had done centuries before (proving that Turkish was superior to Arabic) with his work Muhâkemetü'l-Lugateyn (proving that Turkish was superior to Persian). He proved the perfection and superiority of the Turkish language and Turkish culture by comparing both languages in his work Muhâkemetü'l-Lugateyn (Levend, 1965).

"On the occasion of the five hundredth anniversary of the great poet's birth" Based on İshak Rafet Işıtman's Muhakemetü'l- Lugateyn (Muhakemetü'l- Lugateyn) dated 1941 and the dictionary part of the book, both Turkish, Persian and Arabic words used in the process from food and beverage production to consumption in that period are given with their meanings and the power and superiority of 15th century Chagatai Turkish is aimed to be shown in this study (Işıtman, 1941). In addition, the fact that no study has been done in the field of gastronomy related to this work, which is also accepted as one of the first Persian Turkish dictionaries, shows how important such a study is.

Although one of the most important works of 15-16th century Chagatai Turkish, Ali Şîr Nevâî's Muhâkemetü'l-Lugateyn, written in 1498, was written to compare the two languages and prove that Turkish is superior to

Persian, the richness and diversity of the Turkish words used in the work and the dictionary of the words in the work at the end of the work gave this work the feature of being a dictionary.

Because of Nevâî's contributions to Chagatai (Turkish) literature, Chagatai was called "Nevâî language" (Kut, 1989; p. 450). Nevâî's influence continued in Central Asia until the XIXth century. Apart from Central Asia, his influence was also seen in India, Azerbaijan and Anatolia (Çetindağ, 2011; pp. 245-249). Ottoman poets also accepted Nevâî as a master and wrote many naziras to his poems (Çetindağ, 2006; p. 41).

The fact that no study has been conducted on this work in the field of gastronomy is important in terms of filling the existing gap in literature. When this work is examined, many words related to gastronomy, food and beverage, and food and beverage culture are found. For this reason, Ali Şir Nevai, who is one of the first names that come to mind when it comes to both Chagatai Turkish and Literature and Turkish Literature, and his work Muhâkemetü'l-Lugateyn, which states that Turkish is a language superior to Persian, will be useful in terms of gastronomy and culinary arts.

In this section, "On the occasion of the five hundredth birth anniversary of the great poet" Based on İshak Rafet Işıtman's Muhakemetü'l- Lugateyn dated 1941 and the dictionary section in the book, by comparing both Turkish, Persian and Arabic words used in the process from food and beverage production to consumption in that period are given with their meanings and the power and superiority of 15th century Chagatai Turkish is aimed to be shown in this study.

3. Methodology

This research aims to reveal the elements related to gastronomy in Ali Şîr Nevâî's *Muhâkemetü'l-Lugateyn*, written in 1498, and to demonstrate the richness of 15th-century Chagatai Turkish within this context (Boltabayev, 2024). In line with this purpose, the document analysis method was chosen as the most appropriate data analysis technique for the study (Sak et all., 2021). Document analysis is a qualitative research method that involves the systematic examination, evaluation, and interpretation of written materials to extract meaningful information and identify patterns relevant to the research topic (Kıral, 2020). It enables researchers to analyze historical, literary, and archival documents in depth and to contextualize the findings within broader cultural and linguistic frameworks.

In this study, document analysis was used to meticulously examine the linguistic elements in *Muhâkemetü'l-Lugateyn* with a focus on gastronomic terminology (Sak et all., 2021). During the analysis, İshak Rafet Işıtman's 1941 critical edition of the work was taken as the primary reference, and the glossary section included in the same edition was also evaluated as a supplementary source (Işıtman, 1941). All words related to the production, preparation, presentation, and consumption of food and beverages were identified whether originating from Turkish, Persian, or Arabic and their meanings were analyzed using Işıtman's translation and explanations.

Through this analytical process, the study reveals the expressive power and lexical richness of 15th-century Turkish in the field of gastronomy. A further strength of document analysis is its capacity to uncover how the knowledge, practices, and cultural elements reflected in historical texts relate to contemporary disciplinary fields such as gastronomy and culinary culture (Aydın and Mocan, 2009). Thus, the linguistic units identified in the work were evaluated not only as vocabulary items but also as indicators of the social life, food culture, and culinary understanding of the period (Sak et all., 2021).

In this context, the primary aim of the research was defined as follows: to identify the names related to food and drink in *Muhâkemetü'l-Lugateyn* a text that reflects the vocabulary of fifteenth-century Turkish as evidence of the continuity of cultural elements and to determine the status of these lexical items in modern Turkey Turkish.

Accordingly, this study categorizes the gastronomic terms found in the work through document analysis and evaluates their semantic framework in relation to gastronomy and cultural representation. In doing so, it aims to reveal both the historical richness of the Turkish language and its conceptual foundations in the field of gastronomy. Additionally, the lack of previous studies examining this work from a gastronomic perspective highlights the significance of this research in contributing to the field and filling an existing literature gap.

4. Findings

In this study, the words related to gastronomy in Ali Şîr Nevâî's Muhâkemetü'l-Lugateyn were analyzed by document analysis method. As a result of the analysis, it was determined that there are many words related to food, drink, kitchen utensils and food and beverage culture in the dictionary part of the work and in the uses in the text. These words were categorized according to their origins (Turkish, Persian, Arabic) and meanings and turned into a systematic table. Table 1, created in line with the data obtained, reveals the richness and diversity of use of 15th century Chagatai Turkish in terms of gastronomic terms. These findings provide important clues about the eating and drinking culture of the society as well as the linguistic preferences of the period. Table 1 presents the words in alphabetical order. All words in the letters "A and B" are included in the table. In other letters, words of unknown origin are not included in the table.

Table 1. Food and Beverage and Culinary Terms in Ali Şîr Nevâî's Muhâkemetü'l- Lugateyn

Word	**Origin**	**Meaning in Turkish**
Ab	Persian	Su.
Abdar	Persian, Compound	Taze, parlak, derin anlamlı.
Açarga	Turkish	Açmaya
Âdâb	Arabic, Plural	Âdetler, görenekler, töreler.
Ahker	Persian	Kor, köz.
Âhû	Persian	Ceylan.
Ala ladga	Turkish	Ördek cinsinden bir su kuşu.
Ala pake	Turkish	Ördek cinsinden bir su kuşu.
Almabaş	Turkish	Ördek cinsinden bir su kuşu.
Amıkrak	Turkish	Daha derin.
Andelip	Arabic	Bülbül.
Araç	Turkish	1. İki şey arasındaki bağlantı. 2. Ara bulan kimse. 3. Herhangi bir işin yapılmasını sağlayan şey.
Âraste	Persian	Süslenmiş.
Ârayiş	Persian	Süsleyiş, bezeyiş.
Argumak	Turkish	Asîl at, Türkmen cinsi at.
Arı	Turkish	Katıksız, kirsiz, bulaşığı olmayan, temiz.
Arıt	Turkish	Temizlemek.
Arıtur	Turkish	Temizler.
Arka	Turkish	Arka, koyunun parçalarından.
Armağan	Turkish	Hediye.
Artuk	Turkish	Artık, fazla.
Artugrak	Turkish	Daha artık daha fazla.
Asra	Turkish	Beslemek, yetiştirmek, önem vermek.
Asrap	Turkish	Besleyip, önem verip.
Aşuglug ilik	Turkish	Aşıklı ilik, bacak kemiği, koyun parçalarından.
Ateşgede	Persian, Compound	Ateş yakılan yer, sönmeyen ateş tapınağı.
Ateşin	Persian	Ateş renginde, ateşten, ateş gibi, ateşten yapılmış gibi.
Av	Turkish	Kuş avından başka hayvan avı.
Agıga	Turkish	Ayağa, ayağına.
Âyin	Persian	1. Töre, görenek. 2. Tören.
Ayn	Arabic	Göz.

Ayraç	Turkish	Bir nesnenin arılık, duruluk derecesini gösteren şey.
Azrak	Turkish	Daha az, çok az.
Azûbet	Arabic	Tatlılık, güzellik.
Bâde	Persian	İçki, şarap.
Bağçal	Turkish	Ördek cinsinden bir su kuşu.
Bağır	Turkish	Karaciğer.
Bahr	Arabic	Deniz.
Bahsum	Turkish	Bir çeşit içki.
Bar	Turkish	Var.
Barçası	Turkish	Hepsi, olancası, varcası.
Barı	Turkish	Varı, hepsi.
Barısı	Turkish	Varı, hepsi, olanı.
Barısıda	Turkish	Varında, olanında, hepsinde.
Barsçı	Turkish	Barsçı, pars denilen av hayvanıyla uğraşan.
Basrug	Turkish	Bir şeyi bastırmak için kullanılan sırık, sürgü, tırkaz.
Bat	Turkish	Çok, birden.
Bebustan	Persian, Compound	Bostana.
Begayet	Turkish	Pek çok.
Behaim	Arabic, Plural	Dört ayaklı hayvanlar.
Behre	Persian	Pay, hisse, kısmet.
Bekavul	Turkish	1. Divan beyi. 2. Tada, çeşnigir.
Ber	Arabic	Yer, toprak, kara.
Berest	Persian, Compound	Yerdir, topraktır, karadır.
Besa	Persian	Çok, pek çok.
Besin	Turkish	Besleyici şey, gıda.
Betazegi	Persian, Compound	Tazelikte.
Bez	Turkish	Boyunda, oynak yerlerde bulunan toparlak şeyler.
Bezek	Turkish	Süs, donanma.
Bezim	Persian	Eğlence, içki ve saz âlemi, meclis.
Bezimsazlıg	Persian, Compound	Meclis tertip edicilik.
Bezmefruz	Persian, Compound	Meclis şenlendiren, meclis aydınlatan.
Bıçı	Turkish	Biçmek.
Bıçlar	Turkish	Filizler.
Bibiht	Persian, Compound	Ezdi.
Bigenmegey	Turkish	Beyenmez.
Bileşim	Turkish	Birkaç şeyin birbiriyle birleşmesinden veya birbirine girişip karışmasından meydana gelen nesne.
Bilkül	Arabic, Compound	Hep birden, tamamiyle, bütün bütün.
Bîmârî	Persian, Compound	Hastalık.
Birbiriga	Turkish	Birbirine.

Birin birin	Turkish	Birer birer.
Biriht	Persian	Döktü.
Birle	Turkish	Birlikte, beraber.
Biş	Turkish	Beş.
Bişyüzge	Turkish	Beş yüze.
Bi-yedî	Arabic, Compound	Elimle.
Biyik	Turkish	Büyük.
Biyna	Persian	Görücü, gören.
Bizen	Turkish	Bezenmek.
Boğu	Turkish	Erkek sığın.
Boğuzlagu	Turkish	Gerdan, koyun eti parçalarından.
Bogzumnı	Turkish	Boğazımı, boynumu.
Bol	Turkish	Olmak.
Boza	Turkish	Boza
Bu, buy	Persian	Koku.
Bulamağ	Turkish	Bulamaç.
Burçin	Turkish	Dişi ördek.
Bustan	Persian	Bostan, bahçe; güzel koku yeri.
Bür	Turkish	Kıvırmak, bürmek.
Cemi	Arabic	Bütün, hep.
Cennât	Arabic, Plural	Bahçeler, cennetler.
Cüz	Arabic	Parça.
Cüzî	Arabic, Compound	Az, pek az.
Cüziyat	Arabic, Plural	Ufacık, önemsiz şeyler.
Çeşni	Persian	Tat.
Dakik	Arabic	İnce.
Derc	Arabic	Araya sıkıştırma, bir araya getirme.
Derya	Persian	Deniz.
Deşt	Persian	Çöl, yazı, yaban.
Direm	Persian	Dirhem.
Diyr-i fenâ	Persian, Compound	Meyhane.
Dud	Persian	Duman.
Ecnas	Arabic, Plural	Cinsler, çeşitler.
Eflaf	Arabic, Plural	Kat kat, tabaka tabaka.
Eşheb	Arabic	1. Misk, 2. Kır donlu at.
Etba	Arabic, Plural	Uşaklar, uyrular.
Fırka	Arabic	Topluluk, yığınak.
Fusul	Arabic, Plural	Yılçağlar, mevsimler.
Fusul-im erbaa	Arabic, Plural	Dört yılçağ.
Garra	Arabic	Parlak, aydın.
Gerd	Persian	Toz.
Gevzen	Persian	Sığın.
Gıda	Arabic	Yiyecek, yiygi, besin.
Gıtâ	Arabic	Örtü.

Güdaz	Persian	1. Eriten, yakan, bitiren. 2. Erime yanma, bitme.
Günâgûn	Persian, Combination	Çeşit çeşit.
Güraz	Persian	Azılı erkek domuz.
Güruh	Persian	Yığın, sürü.
Habbe	Arabic	Tane, tohum, evin.
Hadîka	Arabic	Bahçe.
Hâkdan	Persian, Combination	Topraklık, toprak yeri, dünya.
Halâvet	Arabic	Tatlılık.
Hâll	Arabic	Çözeleme, ayırt etme, eritme.
Hallâl	Arabic	Halleden, çözeleyen.
Hammetrü	Arabic	Yoğurdum, mayaladım, tahmin ettim.
Har	Persian	Diken.
Harr	Arabic	Sıcak.
Harabati	Persian	Kalenden, içkici.
Harkat	Arabic	Yakma, yakıcılık, yanıklık.
Hasis	Arabic	Kötü, fena.
Hasiyet	Arabic	Özgülük, etki, tesir.
Hayl	Arabic	1. Takım, yığın, sürü. 2. At, at sürüsü. Bu kelime Türkçe "ıl", "ılkı" sözü ile ilgilidir ve bu kökten alınmıştır.
Hemvar	Persian	Düz, düzgün.
Hezar	Persian	1. Bin, 2. Bülbül.
Hilye	Arabic	Süs, bezek.
Horden	Persian	Yemek.
Hoşâyende	Persian, Compound	Düzgün, uygun, biçimli, güzel.
Hoşeçiyn	Persian, Compound	Başak toplayan, başakçı.
Hub	Persian	Güzel.
Hûk	Persian	Domuz.
Hunhar	Persian, Compound	Kan içici.
Hususiyet	Arabic	Özellik, özgelik, başkalık.
Huşk	Persian	Kuru.
İlhak	Arabic	Ekleme.
İstigna	Arabic	Doygunluk.
İzâfe	Arabic	Katma, artırma, ilâve etme, ekleme, ilgileme.
İzar	Arabic	Yanak.
Kadem	Arabic	Ayak.
Kâmil	Arabic	Olgun, erişkin, yetkin.
Katı'	Arabic	Kesici, kesen.
Kavâid	Arabic, Plural	Kurallar, görenekler.
Kavî	Arabic	Sağlam.
Kelâğ	Persian	Kuzgun.
Kelle	Persian	Baş.

Kemal	Arabic	Olgunluk, tamamlık.
Kenc	Persian	Hazne.
Kesîf	Arabic	Kaba, kalın, ağır, bayağı, kötü.
Kevser	Arabic	Cennette bir çeşme.
Kûze	Persian	Testi.
Küll	Arabic	Parçanın karşıtı, bütün, top, tüm.
Küre	Persian	Tay.
Küşife	Arabic	Açıldı.
Lâmi	Arabic	Parlak, aydın.
Leb	Persian	Dudak.
Lebâleb	Persian, Compound	Dudağa kadar dolu.
Levin	Arabic	Renk, beniz.
Mâ	Arabic	Su.
Masnu'	Arabic	Sanatlı, özenle ve sanatla yapılmış.
Memlu	Arabic	Dolu, dolmuş.
Menba	Arabic	Kaynak, göze.
Menşe	Arabic	Köken, kaynak, çıkak.
Merkeb	Arabic	Binek.
Mestî	Persian	Serhoşluk.
Mey	Persian	İçki.
Meyvedar	Persian, Compound	Yemişli, yemiş veren.
Mezra	Arabic	Ekinlik, ekin ekilecek yer, tarla.
Miskal	Arabic	Dirhemin üçte biri, gram gibi bir tartı birimi.
Mu	Persian	Kıl, tüy (Bak: Muy).
Muarra	Arabic	Çıplak, boş.
Muhrik	Arabic	Yakıcı.
Murgab	Persian	Ördek, su kuşu (Bak: Mürgab).
Muy	Persian	Kıl, tüy. (Bak: Mu).
Müferrih	Arabic	Ferah veren, açıcı.
Müfid	Arabic	Faydalı.
Mülayim	Arabic	Yavaş, uygun, terbiye alır.
Münasib	Arabic	Uygun, yolunda.
Müntiç	Arabic	Sonuçlu, sonuç veren, faydalı.
Müstahsen	Arabic	Beğenilmiş.
Müşk	Persian	Misk, mis.
Müzahrefât	Arabic, Plural	Süprüntü, çerçöp.
Müzeyyel	Arabic	Eklenmiş, ekli, ekli olan.
Nedâret	Arabic	Körpelik, tazelik.
Nebât	Arabic	Bitki.
Nevi	Arabic	Çeşit.
Nevres	Persian, Combination	Yeni yetmiş, taze.
Nezahet	Arabic	Arılık, sililik, temizlik.
Nisbet	Arabic	Oran, ilgi, bağlantı.
Noksan	Arabic	Eksiklik.

Nuş	Persian	İçme.
Nükhet	Arabic	Güzel koku.
Nümayiş	Persian	Gösteriş, görünüş.
Nümûdar	Persian, Compound	Görünen.
Pâk	Arabic	Arı, temiz.
Pişkeş	Persian, Compound	Sunu, armağan.
Piyşe	Persian	İş, uğraş.
Puhten	Persian	Pişmek.
Ravza	Arabic	Bağ, bahçe, cennet, uçmak.
Rengârenk	Persian, Compound	Renk renk, çeşit çeşit.
Rüsûm	Arabic, Plural	Töreler, görenekler.
Sadır	Arabic	Göğüs.
Saki	Arabic	İçki dağıtan.
Sâkıya	Persian	Ey içki dağıtan, ey saki.
Sebzezar	Persian, Compound	Yeşillik, çayırlık, çimenlik.
Semer	Arabic	Yemiş, meyva.
Siyrab	Persian, Compound	Doygun, suya kanmış.
Suznâk	Persian, Compound	Yakıcı, yakan, tesir eden.
Sükker	Arabic	Şeker.
Şehd	Arabic	Şeker balı, katılaşıp donarak şeker olmadan önceki sıvık nesne.
Şikâr	Persian	Av.
Şir	Persian	Aslan.
Şîrîn	Persian	Tatlı, zevkli, güzel, sevimli.
Şule	Arabic	Işık, ateş, ot.
Şuru'	Arabic	Başlama, girişme.
Taam	Arabic	Yemek, yiyecek.
Tab'	Arabic	Doğa, tabiat.
Taksim	Arabic	Bölü, bölme.
Tarâvet	Arabic	Körpelik, tâzelik.
Tayr	Arabic	Kuş.
Ter	Persian	Taze.
Tuyur	Arabic, Plural	Kuşlar.
Vâfi	Arabic	Yetişir, yeter.
Vaki	Arabic	Olan, meydana gelen.
Vüs'at	Arabic	Genişlik.
Zehir	Persian	Ağı, ağu.
Zülâl	Arabic	İyi, duru, soğuk ve tatlı su.

Source: (Işıtman, 1941).

The table includes the words that can be associated with gastronomy in Ali Şîr Nevâî's Muhâkemetü'l-Lugateyn written in 1498. These words include food, drink, cooking methods, kitchen utensils and elements related to food and beverage culture. Each word is categorized according to its meaning and etymological origin (Turkish, Persian, Arabic). This table reveals the gastronomic richness in the vocabulary of 15th century Chagatai Turkish, Table 1 also sheds light on the linguistic preferences of the work that defends the superiority of Turkish over Persian in this field.

The words in Table 1 were summarized and classified into words directly related to food and drink to create Table 2. In Table 2, you can see the grouping of words directly related to food and drink.

Table 2. Categorical Distribution Table

Category	Total
Food and Beverage Culture	24
Food and Cooking	15
Food Animals	36

Source: It was created by researchers for this study.

Table 2 shows that 24 words are related to food and beverage culture, 15 words are related to food and cooking, and 36 words are directly related to food animals. It can be said that a total of 75 words are directly related to food and drink. It is observed that 235 words are directly and indirectly related to gastronomy (see Table 1).

5. Conclusion and Discussion

Throughout human history, nutrition has been one of the most basic vital needs. However, over time, food and beverages have gone beyond being only a physiological need; they have gained cultural, symbolic and sociological meanings and have become important elements that shape the lifestyles of societies. In this context, gastronomy has roots as old as human history and is an important discipline that reflects the aspect of culture that is based on oral traditions and has folkloric characteristics. Therefore, gastronomy is of great importance not only in terms of culinary culture, but also in terms of the transmission of cultural heritage along with works of historical and literary value. From this perspective, the Republic of Turkey has a remarkable potential in terms of gastronomic diversity and cultural richness. This richness is fed by both the multi-layered history of Anatolian geography and the long and deep past of the Turkish nation. Today's Turkish cuisine is the result of centuries of cultural interactions and syntheses and has acquired a unique structure over time.

One of the most important examples emphasizing the richness and cultural carrier of the Turkish language is Dîvânu Lugâti't-Türk written by Kâşgarlı Mahmud in 1074. This work demonstrated the expressive power and cultural depth of Turkish at a time when Arabic was dominant. This sensitivity was continued by Ali Şîr Nevâî about four centuries later and Nevâî aimed to demonstrate the superiority of Turkish over Persian with his work Muhâkemetü'l- Lugateyn (Comparison of Two Languages) written in 1498. Persian is a historically ancient language and a powerful linguistic and cultural system that has survived various invasions over the centuries. With the migration of Turks to the west, interaction with Persian culture increased and because of this interaction, there was a period in which Turkish was pushed to the background, especially in literary and official fields. In this context, Nawāʾī's efforts to transform Turkish from a language spoken only among the people into a literary and scholarly language reveals his mission in the field of language and culture. Despite his Persian education and the general tendencies of his time, Nevâî wrote many works with the importance he attached to Turkish and demonstrated that Turkish could be a language of art. His works deeply influenced not only his own period but also many literary figures in the following centuries (Köprülü, 1989).

In the literature reviews on Nevâî's cultural and linguistic heritage, it has been determined that there is no study that systematically deals with elements related to gastronomy, especially in Muhākemetü'l-Lugateyn. This situation reveals the necessity of examining the food and beverage terminology contained in the relevant work and points to a gap in the existing literature. In this study, the Muhâkemetü'l-Lugateyn edition critique published by İshak Rafet Işıtman in 1941 was taken as a basis and a total of 235 words were analyzed based on the dictionary section at the end of the work. These words were sorted alphabetically in accordance with the dictionary structure and evaluated by document analysis method.

As a result of the analysis, 36 different animal names were identified directly from animals that are still consumed today. In addition, 6 different words for pig, which is a game animal that is not consumed today, and 14 different words for horse, which is considered both a riding animal and a food source in the historical context, were recorded. In addition, 24 words that mean only food and drink were identified in the work, and all these words are listed below in terms of their gastronomic qualities: Açar, Âş, Boza, Bulamağ, Bulgur, Ekşut, Gıda, Hartut, Helvaçi, Horden, Kaburga, Katlama, Kak, Ka-tık, Kaymağ, Kımız, Kömeç, Kurut, Kuymag, Küncüt, Sirke, Tarhana, Tut, Zeyçek.

In line with these data, it is seen that many words directly related to gastronomy are included in Nevâî's Muhâkemetü'l-Lugateyn and that these words reflect both the historical traces of Turkish culinary culture and the linguistic preferences of the period. This shows that work is a valuable source that allows us not only to make language comparisons but also to trace cultural elements. As a result, this study in the field of gastronomy contributes to the evaluation of Nevâî's understanding of language and his contribution to our cultural heritage from a broader perspective.

The recommendations made in the study are listed below:

By examining the historical transformation of words such as aş, kaymağ, tarhana, kımız, bulgur, boza, and katık, which appear in the work and are still used today, the continuity of Turkish culinary culture can be more clearly revealed.

This study only examines Muhâkemetü'l-Lugateyn. However, the wide variety of words related to gastronomy suggests that Nevâî's other works may also contain a rich culinary culture lexicon. Therefore, Nevai's other works can also be examined in the context of gastronomy.

The 1941 edition used in this study is quite difficult to access. This may also be the case for other historical documents. Therefore, digitizing the full text of the work, making it available to researchers on open access academic platforms, and scanning the text with OCR to make it searchable will facilitate future studies.

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Chapter 22

AI-Driven Transformation in the Hospitality Industry: A Comparative Case Study of Marriott RENAI and Hilton Connie

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1. Introduction

The hospitality industry is going through an profound transformation brought about by the adoption of Artificial Intelligence (AI), infused in the hotels' operational processes with a view to enhancing service delivery, hence customer experience (Gursoy & Cai, 2025). Thus, AI application has gained momentum both in local and global hotel brands, not only transforming but also streamlining the hospitality's accommodation as well as food and beverage service provision (Gursoy, 2025). With the general emphasis on service quality as the lifeblood and therefore paramount, AI adoption has become the main basis of competition within the hospitality industry at both national and international levels (Zhao, et al., 2025). Thus, this industry is largely responding to the market forces of competition through the application of AI to gain a competitive edge. Whereas AI application in hospitality has been thought to enhance customer experience as well as play a major role in streamlining hotel operations, it is also associated with some negative effects thus calling for further investigation (Zahidi et al., 2024). Thus, this study was carried out considering that hotels have adopted AI in

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all operational sections, which include front office, housekeeping, food and beverage production, as well as food and beverage service.

The application of AI differs from one hotel and department to the other depending on the specific hotel needs and preferences. However, despite the varying needs and preferences across the various hotels, the application of AI is mainly determined by its capacity to not only, analyze, but also store the hotels' data, thus personalizing, enhancing, and streamlining hospitality services (Cherenkov et al., 2024). By applying AI in the day-to-day operations, there is evidence that the hospitality industry is able to attain great milestones in enhancing guest experiences, thus, streamlining daily and routine hotel tasks, which has been and will continue transforming the hotel business in general, but particularly customer experience and loyalty. Thus, many hotels worldwide have applied numerous AI tools, including ChatGPT, Gemini, Claude AI, Chatbots and functional human-like robots in handling repetitive tasks, thus freeing employees for other more demanding hotel functions (Bhuiyan, 2024). Nonetheless, the adoption of AI in the hospitality industry has brought about the feeling of job insecurity among employees (Al-Hyari et al., 2023). Nevertheless, the automation of repetitive hotel tasks is desirable, in relation to the labor intensiveness of the hospitality industry, in the context of an aging population.

The application of AI is largely adopted among chain hotels such as Marriott and Hilton, which were considered for this study, and many of the local hotel brands are also embracing similar yet customized AI tools. Both the Marriot RENAI and Hilton Conie have been found beneficial in offering prompt information to guests about the hotel services, thus enhancing guest experiences (Sahota, 2024). Moreover, the application of these AI tools has proved beneficial in hotel marketing, as well as reducing guest waiting time and thus ensuring efficient service delivery, which ultimately has transformed the global hospitality business (Kumawat et al, 2025). This study therefore sought to interrogate, by applying a comparative case study design, AI transformations within the contexts of two chain hotels, which were chosen based on their proactiveness in AI adoption, . For purposes of this study, we focused on Marriot RENAI and Hilton Conie applications with an emphasis on important roles of these AI hotel systems within the larger hospitality operations.

2. Literature Review

The hospitality industry is growing rapidly, thus yielding benefits, both directly and indirectly in the world economy (Cozzio et al., 2025). Based on this revelation, the massive numbers of clients, and thus data, that have to be processed at any given time, and the repetitive nature of tasks have compelled hotels to adopt smart computer-based technologies such as Internet of Things (IoT), Artificial Intelligence (AI), collaborative robotics, and big data analytics in order to enhance customer experiences (Orea-Giner et al., 2025). The application of AI in hotels, however, aims at addressing the operational challenges experienced within the industry in pursuit of offering enhanced quality services. Thus, customized AI tools have attracted hospitality adoption across local and international hotel chains at varying levels, with a view to impacting the resultant customer experience, hence, maintaining loyalty (Makivić et al., 2024). As a result, hotels globally have opted for these technological advances to remain relevant in the current global competition. Largely, therefore, AI adoption has been linked to improved hotel revenue, streamlined decision-making processes and enhanced hotel sustainability.

From a global perspective, there are glaring disparities in AI adoption within the hotel industry between less developed and developed countries. Nonetheless, studies have shown that AI is a strategic asset for creating more engaging, efficient, and personalized guest interactions throughout the customers' journey and therefore the source of competitiveness at the firm, brand, and market levels (Song et al., 2024). This implies that hotels that adopts AI have more competitive advantages over those that are yet to do so, or have only adopted it on a partial basis. For purposes of establishing individual country level of adoption, Kumawat et al. (2025) contends that there is a higher rate of hotel AI adoption in China and the United States, followed by the UK, Turkey and Thailand. Summarily, though, America, Europe, and Asia have achieved great strides in AI adoption not only within hotel operations but in all sectors. Such developments in the global AI adoption emphasize its importance in transforming not just front-of-the-house hospitality client interactions but also critical back-of-the-house operations. Furthermore, AI plays a bigger role in ensuring seamless hotel service delivery, sustained guest satisfaction, and retention, thus not only improving the guest experience but also enabling hotel operational expansion and fostering customer loyalty, which ultimately leads to a higher return on investment (Bulchand-Gidumal et al., 2023).

According to Orea-Giner (2025), AI driven service interaction may evoke a diverse range of emotions among front-of-the-house hotel staff, thus causing a ripple effect on the hotel clientele. These include both hotel customer-facing AI applications and back-of-the-hotel AI tools, which aid in personalized services and demand forecasting of hospitality operations at any given time (Gajić et al. 2024). Nonetheless, AI applications have transformed the manner in which hotels interact with their clients by improving employee service, creating a perfect recipe for guest satisfaction and retention through effective hotel guest management (Mansoor, et al., 2025). In general, though, studies have shown that generative AI has the potential to influence all aspects of hotel operations such as marketing, human resources, and the key operational sections, including both front and back-of-the-house operations (Srivastava et al., 2025). Thus, AI enabled operations are believed to have the ability to provide seamless services which are characterized with precision, resulting in guest satisfaction and retention, and therefore enhanced customer experience.

Whereas adoption of AI in both back and front-of-the house may contribute to the final enhanced hospitality guest experiences, customer facing operational functions are more sensitive and therefore critical in creating a lasting guest impression (Xie et al., 2025). Even though some studies have shown positive results in AI's ability to boost guests' psychological ownership and thus satisfaction, further studies are important for establishing the interaction between AI tools and hospitality guests in the critical customer-facing operations in hotels, (Duan et al., 2025). These operations include food and beverage service, front office, guest relations, and the open kitchen sections of hotels in which there is a direct interaction between the guest and service provider, whether AI or human. Nonetheless, a study by Malone (2024) has shown that AI may lead to employee deviant behavior on the realization that these technology-based tools may take away their jobs in the broad spectrum of routine hotel-related operations. As a result, this negative perception calls for further studies not only to establish the possible effect of increased training and awareness campaigns launched by hotels on the benefits of AI application in the hotel industry in an effort to counter these negative perceptions, but also to provide remedies for the problem.

Global hotel chains, as well as some local brands, have been found at the center of Smart hotel system innovations through AI adoption in an attempt to create an automated hospitality experience (Aggarwal et al., 2024). This is for purposes of improving the strategic competitive position of the hotels in question by ensuring a higher command and therefore increasing their market share. Through the application of AI systems, these hotels have been able to offer seamless and comprehensive customer services to their guests 24 hours a day, seven days a week, by providing immediate guest support (Salim, 2023). In spite of these great gains, the effects of AI adoption on the hospitality industry are far reaching and may keep on changing as a result of ever-evolving generative AI technology as well as customer needs, expectations, and preferences, making it an interesting area for investigation (Park et al., 2025). Further, the future of the hotel industry will be based on price competition primarily determined by the level of generative AI integration in service differentiation, whether in the front or back-of-the-hotel operations, thus leading to improved profitability (Zhu & Chen, 2025). It is on this insight that many global hotel brands such as Marriott and Hilton are heavily investing in the adoption of generative AI to benefit from improved demand and productivity.

Notwithstanding, AI adoption in hotels provides guests with instant and personalized virtual assistance which offers a long-lasting solution to glaring errors as a result of employee fatigue and carelessness, thus saving the organization on financial losses. However, Pan, Lin, and Wong (2025) encourage hotel AI augmentation but not automation to mitigate the adverse effects of robot usage from the perspective of employees. According to a study by Li, Shi, and Qian (2025), AI adoption in hotel service delivery was found to enhance brand clientele attitude and booking intentions as a result of increased interactivity and enhanced mental stimulation. This is a plus not only because it reduces congestion in high guest traffic areas such as the hotel lobby, but also because it enhances client cognitive experience and thus improves the general guest perception, attraction, and retention. Thus, AI's ability to handle more demanding and repetitive tasks as it generates prompt responses and/or services to hotel clients cannot be underestimated. This is further supported by the results of a study by Kim et al., (2025), which focused on four study criteria on the effect of virtual assistance by ChatGPT. The study found that quicker AI-generated responses increased guest satisfaction and loyalty. However, this varied based on information complexity, demonstrating a preference for prompt responses, the significance of information complexity, and the perception of AI credibility in quickly handling guests' requests.

The marketing function is one of the most important focal areas that brings life to any organization, including hotels. Although large hotels may have a distinct marketing department, this is a function for all front-of-the-house employees. Studies, however, have yielded results suggesting that the digital competence of frontline staff significantly contributes to positive marketing functions within the hotel industry. AI adoption has also revolutionized the manner in which hotel guest data is collected, analyzed, stored, and managed, and may be utilized for targeted marketing. A study by Sun, Kim, Kim, and Choi (2025) reveals that ChatGPT's operation in generating themes and codes of hotel customer data has streamlined the guest data processing. Moreover, in today's technological world, hotels have been on the forefront in the adoption of AI not only for big data analytics but also for the collection of large datasets through AI-based guest review platforms such as Tripadvisor and Booking.com, thereby reducing manual efforts and enhancing data cleaning and standardization of data processing (Le et al., 2025). Whereas AI adoption has streamlined data collection, the analysis, management, and storage, studies, however, have shown problems with the disclosure of personal guest information. As they try to avoid infringement of privacy and security rights, the same information fails to be properly handled (Morosan, 2025). Leaking of some pertinent guests' personal data, such as personal identification numbers, information on visa cards, and Google location data, may be detrimental to the safety, security, and privacy of guests. Thus, it is important for hotels to develop and adopt crucial security systems or firewalls in order to protect guest data. However, the global technological advancements continue to pose threats to AI adoption as these systems may not guarantee privacy, safety, and security of guest data in the future.

Even though there are numerous studies in the area of AI utilization within the global hospitality industry, very few have attempted to focus on the application of comparative case study design, which we applied in this study. Moreover, the few studies on this topic have yielded both facilitating and inhibiting factors, which are contradictory and confusing and therefore calls for more studies specifically focusing on the strategic approaches to overcoming the inhibiting factors of AI adoption (Shin et al., 2025). Additionally, there is a geographical bias as many of these studies are conducted in the Western world, and therefore the results lack credibility for generalization. Thus, despite the potential benefits accrued from the adoption of AI within the hospitality industry, there still exist outstanding gaps in empirical research within the context of AI application. This necessitates a detailed examination of operational similarities, real-world implications, and hotel patrons' perceptions of AI integration with a view to elucidating the transformative effect of AI on hotel operations for both policy and practice (Casaló et al., 2025).

3. Methodology

Artificial intelligence has recently found extensive use in the tourism sector. In this context, international hotel chains have begun to make intensive use of these technologies to offer advanced services and create a competitive advantage (Solakis et al. 2024). there are certain needs and gaps in the use of this new and complex technology within the sector. At the same time, its implementation and the opportunities it provides vary from business to business.

3.1. Research Design

Based on the aforementioned situation above, which is seen as a fundamental problem in the study, a comparative case analysis was conducted between RENAI, used by Marriott International, which provides services worldwide, and Connie, used by Hilton Worldwide. This was with the aim of identifying similarities and differences in the use of artificial intelligence and to evaluate them in terms of guests, operational efficiency, image, and competitive advantage.

3.2. Data Collection

For the purposes of this study, data was gathered directly from the official web pages of the two selected hotels using secondary sources. Thus, the study employed document analysis in the collection of data on AI-Driven transformation with consideration of the Marriot RENAI and Hilton Connie. Thus, secondary data sources, including internal hotel operations reports, and AI adoption strategy documents, were reviewed to obtain background information on the Marriot and Hilton hotels' AI projects. These documents were important since they provided the basis through which a clear understanding of the hotels' strategic goals, as well as AI implementation policies and performance analysis and evaluations of the systems.

3.3. Data Analysis

A case study analysis was applied in this study, which refers to the detailed examination of a case. Further, a comparative case study analysis was applied, which on the other hand, involved examining the similarities and differences between the two cases thus allowing generalisation (Goodrick, 2020). As a result of an in-depth literature review, it was found that the results regarding the approaches used by RENAI and Connie, two leading tourism companies such as Marriott International and Hilton Worldwide, were not clearly presented, and no future assessment was made. In this aspect, the study is noted for its original value.

4. Findings

4.1. RENAI By Renaissance

RENAI by Renaissance (ren-A), which stands for Renaissance Artificial Intelligence and is used at the Renaissance hotel, one of the Marriott International hotels, provides guests with virtual assistance. This application, which represents the latest version of the brand's Navigator programme, offers 24/7 instant access to options such as restaurants, cafés, bars, natural attractions, and historical sites selected by experts (Marriott International, 2023). The application also develops recommendations by combining hotel staff reviews with data collected from artificial intelligence tools such as ChatGPT. From a broader perspective, the application provides information not only about dining and entertainment venues in the area but also about the destination's culture and local people. This demonstrates that it guides users not only physically but also socially. Renaissance Hotels' global brand director states that they aim to personalise guest experiences with this AI-based application (Graber, 2023). Guests can access the RENAI By Renaissance app, which offers locally verified recommendations from the navigator, 24/7, via QR codes and messaging apps. This makes guests feel special (Tinker Tailor, 2025).

RENAI By Renaissance Assessment

Marriott International considered three key areas when developing RENAI By Renaissance. These elements include accelerated content production, enhancing the guest experience, and artificial intelligence that improves employee skills. Enhancing the guest experience is highlighted as the primary objective in the use of this application (Wilkinson, 2024). Tourists today can access all kinds of information very quickly. However, it is also stated that, in some cases, they cannot directly access the information they want, and are faced with complex situations. Based on this, the application aims to offer guests a directly personalised experience with a regularly updated database, before and during their trip. Specifically, it initiates communication via text message or WhatsApp before accommodation begins to provide information about the entire process, and continues to provide dynamic updates during the stay. Unlike others, this application offers unique recommendations regarding the destination alongside superficial tourist suggestions (Hertzfeld, 2023). When evaluating the advantages this technology offers guests, it provides convenience and unique experiences in terms of exploring the destination. In addition, it is emphasised that the application also provides significant operational benefits. Providing information to guests regarding their general questions and requests can be seen as both a time cost and a risk for the employee. This is because it is not possible for staff to quickly analyze guests' personal characteristics and make recommendations. However, this application quickly analyzes and provides the most relevant recommendation. This relieves the employee of pressure and allows them to focus on other critical tasks. At the same time, by providing a constant flow of up-to-date information, it minimises the number of questions guests ask directly; preventing staff from having to answer the same questions repeatedly. This technology also makes a significant contribution to the company's image. Foremost among these is an image of innovativeness. Businesses that use the latest technologies to provide services enjoy high guest satisfaction levels and a competitive advantage in the market. The company's CEO supports this in his announcement, stating that they will evaluate every opportunity related to artificial intelligence to increase operational efficiency and gain a competitive advantage (Wilkinson, 2024).

Based on the above, it can be said that RENAI attracts guests' attention with the advanced experience it creates. From this perspective, it creates a significant competitive advantage in terms of attracting guests' attention and building loyalty in a highly competitive market. Keeping its infrastructure constantly up to date highlights the reliability of the application. Any disruptions caused by an outdated infrastructure negatively impact the guest experience. Therefore, the continuous dynamic updating of the database instils confidence in guests.

4.2. Connie

The Connie robot was first used in the hospitality industry in 2016 as a pilot application in collaboration with Hilton Worldwide and IBM. This application, which informs guests about points of interest, restaurants, hotel features, and amenities at their destination, utilizes Watson infrastructure such as Dialog, Speech to Text, Text to Speech and Natural Language Classifier, as well as the WayBlazer platform for recommendations outside the hotel (IBM, 2016; Fetterling, 2016). Connie is demonstrated to be a good example of enhancing guest experiences. This robot provides guests with detailed information about hotel facilities, directions, restaurant recommendations, and suggestions for tourist attractions. The AI-based Connie analyses guests' questions using an extensive database, offers personalised solutions to their problems, and communicates seamlessly through natural language interaction (Skubis, Mesjasz-Lech & Nowakowska-Grunt, 2024; Patov, 2024). Hilton emphasises that this technology is not implemented to reduce human resources, and provide automation-focused services, stating that Connie is an assistant who answers routine questions and lightens the workload of employees. This allows staff to devote more time to their core tasks and be more productive (Johnson, 2019).

Connie Assessment

It is important for guests to have an experience beyond their daily routine at the hotel they visit. In this sense, communicating with a robot at the hotel and asking for advice and recommendations constitutes an interesting experience. Connie has the ability to increase satisfaction by offering a different experience through analyzing guests' questions and providing personalised, quick and accurate recommendations (Sahota, 2024). However, guests with limited technological capabilities prefer to communicate with people. A study conducted by Forrester Research highlighted that 60% of guests ask chatbots basic questions, which increases the efficiency of customer service (Patov, 2024). Not only does it offer a different experience, but does it allows guests to learn everything they want to know about the hotel or the area by providing instant responses 24/7. This reduces waiting times and increases operational efficiency by virtually eliminating the barriers to communicating with staff. At the same time, having staff focus on more strategic tasks rather than repetitive guest requests contributes to raising the business's service standards. It plays a role in ensuring qualified staff are maintained at a low turnover rate by preventing the need to have extra staff for immediate guest requests, especially during peak seasons. Furthermore, while artificial intelligence-based applications enable personalised service delivery in hotels, they also increase staff productivity by around 30% (Morch, 2024). Hilton uses artificial intelligence in the services it offers to guests, reducing the average resolution time by 25%. This is stated to increase both operational efficiency and guest satisfaction (Patov, 2024). Feedback received on the services provided by a business is one of the most important guides for its future strategies. Based on this, Connie, that records guests' questions, requests for advice, and reported shortcomings in order of importance and frequency, enables the business to best understand guest expectations. In terms of competitive advantage, this technology gives the brand an innovative image, as it was first trialled by Hilton. In addition, the fact that guests can get instant results whenever they want is presented as an extraordinary experience. This can be described as a feature that sets the business apart from others. Guests who experience this unique service not only use it but also share it with their peers, and professionals mention it in their columns, blogs, and articles giving Hilton a significant marketing and competitive advantage (SHMS, 2025; Luo, Vu, Li & Law, 2021; Morch, 2024; Skubis, Mesjasz-Lech & Nowakowska-Grunt, 2024). If we were to make an assessment for the future, it is possible to say that a company that effectively utilises advanced technology will be in a position to play a significant role in new applications that will emerge in the market.

4.3. RENAI and Connie Comparative Case Study Analysis

Table 1. Findings Regarding the Similarity Between RENAI and Connie

RENAI	**Conie**	
Similarities		***Theme***
It offers 24/7 instant access to options such as restaurants, cafés, bars, natural attractions, and historical sites, selected by experts. The application develops recommendations by combining hotel staff reviews with data collected from artificial intelligence tools such as ChatGPT.	This application informs guests about hotel facilities, provides directions, recommends restaurants, and offers information about tourist attractions. It utilises Watson infrastructure such as Dialog, Speech to Text, Text to Speech, and Natural Language Classifier, as well as the WayBlazer platform for recommendations outside the hotel.	Current and Extensive Content Enriching Experiences
Provides immediate access to the service 24/7.	Providing instant responses 24/7 enables guests to learn everything they want to know about the hotel or the local area.	Making guests feel special with seamless and prompt service
It develops personalised recommendations by combining hotel staff reviews with data collected from artificial intelligence tools such as ChatGPT. The application provides guests with a personalised experience through a regularly updated database before and during their trip. It provides information about the entire process by initiating a conversation via text message or WhatsApp prior to the stay and continues to provide dynamic updates during the stay. Renaissance Hotels' global brand director states that they aim to personalise guest experiences with this artificial intelligence-based application.	Connie, powered by artificial intelligence, analyses guests' questions using an extensive database, provides personalised recommendations for their issues, and facilitates seamless communication through natural language interaction.	Personalised service

The application quickly analyzes and provides the closest recommendation. This saves both the employee and the business time and money, allowing them to focus on other tasks.	Providing 24/7 instant responses allows guests to learn everything they want to know about the hotel or the area. This reduces waiting times and increases operational efficiency by virtually eliminating the barriers to communicating with staff. Hilton hotel reduced the average resolution time by 25% by using artificial intelligence in the services it offers to guests.	Operational Efficiency
By providing up-to-date information, it minimizes the number of questions guests ask directly, preventing staff from having to answer the same questions repeatedly.	Having staff focus on more strategic tasks rather than repetitive guest requests contributes to raising the service standards of the business. It plays a role in ensuring a low turnover rate among qualified staff by preventing the need to hire extra staff to meet sudden guest demands, especially during peak seasons. Hilton emphasizes that this technology is not being implemented to reduce human resources and provide automation-focused services, stating that Connie is an assistant who answers routine questions and lightens the load on employees. This allows staff to devote more time to their core tasks and be more productive.	Using Artificial Intelligence as a Support Tool

The satisfaction level of the guests of the business that provides services using the latest generation technologies is high, and its competitive advantage in the market is also high. The company's CEO supports this statement, indicating that they will evaluate every opportunity related to artificial intelligence in order to increase operational efficiency and gain a competitive advantage. The application focuses on guest satisfaction by offering guests a personalized experience directly through a regularly updated database before and during their trip. In addition to superficial tourist recommendations, it provides original advice about the destination. it provides convenience and unique experiences related to discovery. This technology gives the company an image of innovativeness.	Connie enhances satisfaction by offering a unique experience through its ability to analyze questions asked by guests and provide personalized, quick, and accurate recommendations. Connie enables the business to best understand guest expectations by recording guests' questions, requests for advice, and reported shortcomings in order of importance and frequency. It adds an image of innovativeness to the brand because Hilton is trying it for the first time. The ability of guests to get instant results whenever they want is presented as an extraordinary experience. Guests use it not only but also share it with their friends and family, along with professionals mentioning it in their columns, blogs, and articles, has provided Hilton with a significant marketing and competitive advantage. It is possible to say that the company, which effectively utilizes advanced technology, is positioned to be a key player in new applications that will emerge in the market.	Competitive Advantage, Guest Satisfaction, and Image

Marriott International (RENAI) and Hilton Worldwide's (Connie) AI-based technologies offer businesses many opportunities from both macro and micro perspectives. While these opportunities share similarities in some respects, they differ in others. The comparative case study analysis conducted in this study presents findings on the similarities between RENAI and Connie in Table 1. Both technologies enhance the guest experience by providing up-to-date and rich content, offering uninterrupted and fast service with 24/7 access. At the same time, it can be stated that they have the ability to provide personalised service by communicating directly with guests through language support or communication tools such as WhatsApp and SMS. Both technologies are observed to respond smoothly to guests' recurring questions and provide instant information. This reduces the workload of staff, allowing them to focus on more strategic tasks and increasing operational efficiency. However, it is emphasised that in both businesses, these technologies are viewed as supportive rather than as replacing staff. It can be said that the ability of these two businesses, which can be considered pioneers in trialling artificial intelligence, to deliver personalised, seamless and rich experiences through the technologies they implement has significant implications in terms of image, competitive advantage and guest satisfaction. In particular, it positions them to be seen as pioneering and important players in the market in terms of technology usage in the coming years.

Table 2. Findings Regarding Differences Between RENAI and Connie

RENAI	**Conie**	
Differences		*Theme*
RENAI is used as an application.	Connie is a 60 cm tall robot.	Physical
Although RENAI offers similar services to Connie in terms of usage, communicating with a robot is a different experience from communicating with an application on a phone.	It is important for guests to have an experience beyond their daily routine at the hotel they visit. In this sense, communicating with a robot at the hotel and asking for advice and recommendations is presented as an interesting experience.	Different Experience
This application does not just provide guests with superficial tourist recommendations thanks to its combination of hotel staff and ChatGPT databases. It also offers unique advice about the destination and suggests special tours for exploration.	Connie uses only artificial intelligence. It mainly provides guidance on topics such as hotels, transportation, restaurants.	Specific Recommendation
RENAI is an important part of Marriott International's digitalization process, leveraging both people and artificial intelligence.	Connie is a venture by Hilton that focuses on marketing and experience.	Operational perspective

Table 2 shows that there is a significant physical difference between RENAI and Connie. While Connie is a robot physically located within the hotel, RENAI is an application. This creates advantages and disadvantages for each technology. For example, the robot can respond to guests' requests provide a unique experience, while the application can serve requests anywhere (inside or outside the hotel) at any time. Hiton's technology utilises artificial intelligence to provide guests with directions for navigation both inside and outside the hotel, while Marriott's technology provides hybrid service as an autonomous chatbot, integrating staff members' up-to-date information into its memory, in addition to the artificial intelligence database. RENAI is at the core of the business's digital transformation project, while Connie is seen as an experience and marketing service.

5. Discussion

Hotel businesses are making numerous investments in order to survive in a highly competitive environment. They have undertaken many technological initiatives to cater to their guests, driven by consumers' heavy use of technology. Artificial intelligence, considered one of the most effective technologies of our time, has begun to play a significant complementary role both in people's personal lives and in business operations. Consequently, this study conducted a comparative case analysis of artificial intelligence-based technologies (RENAI and Connie) within two leading chain companies in the tourism industry that make intensive use of artificial intelligence.

The analysis revealed that RENAI and Connie exhibit both similarities and differences in terms of certain features and services. Firstly, it was observed that both applications enhance the guest experience through the rich and up-to-date content they offer. Similarly, Orea-Giner et al. (2025) state that artificial intelligence-based technologies are used to improve guest experiences. From another perspective, Mansoor et al. (2025) emphasise that artificial intelligence technology is an important tool for guest experience, satisfaction, and loyalty. The study found that both applications provide uninterrupted service to guests with 24/7 access. Similarly, Salim (2023) highlights that artificial intelligence enhances the comfort of guests' stays by offering 24/7 support, 365 days a year. Similarly, Bulchand-Gidumal et al. (2023) state that ensuring the continuity of the service provided creates satisfaction and loyalty among guests. RENAI and Connie also show similarities in the personalised communication they offer to guests. Both applications provide personalised communication to guests through fast and accurate data analysis, whether through their own applications, or the natural language interaction. Highlighting the ability of artificial intelligence to provide personalised services, Xu et al. (2025) observe that it plays a significant role in creating responses aimed at compensating for service issues, particularly by addressing negative comments. When evaluated in terms of operational efficiency, these technologies play a supportive role for employees and make significant contributions to operations. Kim et al. (2025), noting that artificial intelligence is successful in answering repetitive customer questions, reveals that it reduces the workload of staff while creating customer satisfaction and loyalty. In both examples, it is emphasised that artificial intelligence is seen as a support rather than an alternative to employees. Supporting this, El Hajal & Yeoman (2024) state that artificial intelligence serves as a tool that empowers employees rather than replacing them. From the preceding analysis, it was concluded that Marriott International and Hilton Worldwide, which use AI-based technologies, also gain significant advantages in terms of image and market competition. Similarly, Song et al. (2024) state that artificial intelligence is a strategic asset for creating efficient and personalised interactions and constitutes a source of competitive advantage at the business, brand, and market levels.

Some differences were observed between the two applications in terms of both structure and contribution to the business. Connie, who physically serves as a robot, stands out in terms of the experience it offers customers. However, RENAI offers guests exploratory and original suggestions thanks to its ability to combine artificial intelligence databases and the latest recommendations from employees. Another difference lies in the purposes for which businesses use these technologies. While Marriott views it as the foundation for its future digital transformation, Hilton uses this technology for marketing and experience provision.

6. Conclusion

This study was timely and therefore important as the study results forms a foundation upon which much contribution will be gathered both theoretically by building the body of knowledge on AI-Driven transformation in hotel operations, but also practically by policy makers as well as industry practitioners. Thus, this section was discussed in terms of theoretical and practical implications as well as limitaions and future research below;

Theoretical Implications

This study provides several theoretical contributions to research and the general body of knowledge on AI-driven transformation in the hospitality industry. It presents the global state of application and adoption of AI technologies at the corporate level, with customization in accordance with the varied hotel needs and preferences. Further, this study was able to establish the main functional similarities and differences between Marriott's RENAI and Hilton's Conie; however, both Marriott's RENAI and Hilton's Conie applications were found to enhance the hotel guest experience based on their ability to generate up-to-date and rich content, thus enabling the hotel to offer streamlined, seamless, accurate, fast, and personalized service, and therefore, provide prompt information. By extrapolation, the comparative study avails the opportunity for researchers and practitioners to review the output of this study to focus on the specific key areas which present gaps that warrant action, and therefore provide mitigation against challenges that may ensue as a result of AI adoption.

Practical Implications

In the current era of technological advancements coupled with the high rate of AI adoption not only in hospitality but all sectors, and the magnitude of benefits that AI brings to the industry, this study provides timely insights that are of immediate relevance to industry practice. This study generated a host of knowledge on the practical operational opportunities, capabilities, and benefits, based on a detailed analysis of RENAI and Conie applications within Marriott and Hilton hotels. The comprehension of AI adoption in hotel operations and the resultant knowledge on applicability of the emerging technologies within hospitality, provides important basic information which is relevant for guiding the formulation of policy and industry practice. Based on the study results, hotel managers as well as the general stakeholders are able to access relevant and up-to-date reference points for purposes of making critical decisions on AI adoption within hotel operations. Thus, this study's results will be beneficial to practitioners and industry players in making informed and strategic choices on suitable AI-based tools, enabling them to customize them to their specific corporate needs and preferences. Based on this study's findings, managers of chain hotel brands as well as local brands, currently embroiled in intensive global competition, are able to make varied choices of the most suitable AI application for adoption to enable their hotel brands to gain a competitive edge in the market segment.

Limitations and future Research

The study yielded qualitative data which was collected via online document analysis from the selected hotel brands. Thus, the study was a comparative case study of the two sampled hotel brands which relied on qualitative data.

In consideration for future research therefore, further studies on An AI-Driven transformation based on Quantitative data should be carried out for a more conclusive results and therefore conclusion on the study topic.

Further, studies on AI-Driven transfromation in selected unit chain hotel brands across China, United States, the UK and Thailand, which represents the global picture based on the high rates of AI adoption. Nonetheless, studies on AI-Driven transformation across the global hospitality sectors including accommodation as well as food and beverage service sectors in addition to the different hotel operations departments should also be carried out in order to yield water-tight results.

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Chapter 23

Student and Academician Views on Artificial Intelligence Applications in Gastronomy Education

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1. Introduction

Artificial intelligence stands out as one of the newest technological developments today (Russell & Norvig, 2016). Many concepts previously encountered only in science fiction have become reality thanks to artificial intelligence. Today, artificial intelligence is effectively used in many fields such as industry, energy, agriculture, healthcare, transportation, communications, and software (Dwivedi et al. 2019; Şahin & Ağaoğlu, 2020). In this context, it is unthinkable that artificial intelligence remains ineffective in education (Arslan, 2020). When considering artificial intelligence applications today, one of the first examples that comes to mind is humanoid robots. Especially with the rapid development of technology and the emergence of new needs, interest in artificial intelligence and humanoid robots is increasing (Öztürk & Şahin, 2018). Indeed, the 2018 Horizon Report lists artificial intelligence and adaptive learning technologies as among the most important developments in education (Arslan, 2020). One of the fundamental challenges faced in the education system is that individuals tend to learn in different ways and at different levels. While each student's learning capacity, interests, and abilities vary, schools generally implement a uniform educational model. However, some students excel with their analytical thinking skills, while others are more dominant with their creative, literary, or communicative skills (Boydak, 2015). Chopra states that the goal is to use artificial intelligence technologies

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to customize educational materials for each student, taking into account these individual differences, based on their abilities, preferred learning styles, and previous learning experiences. He also states that 47% of learning tools are expected to be equipped with artificial intelligence capabilities by 2024 (İsler and Kilic, 2021).

Today, research on artificial intelligence in education is not limited to knowledge-based systems but also encompasses data- and logic-based artificial intelligence applications. Various applications such as personalized instruction systems, exploratory learning environments, data mining in education, student text analysis, intelligent agents, chatbots, educational applications for individuals with special needs, child-robot interaction, AI-supported assessment systems, and automated exam creation tools stand out. These systems primarily aim to support learning processes. Furthermore, AI is also used in administrative processes in educational institutions, contributing directly to school administration in areas such as course and personnel planning, exam management, and cybersecurity, and indirectly to teaching processes (Holmes et al., 2019).

The primary objective of this study is to explore how AI technologies are perceived in gastronomy education and the opportunities and limitations they present for students and academics. While AI-related applications in education are becoming increasingly widespread, original research on the use of these technologies in a field as practical and sensory-driven as gastronomy is limited. In particular, the literature lacks sufficient coverage of how AI-based solutions, such as personalized learning, assessment systems, and educational support digital tools, are perceived and proven effective in the context of gastronomy education. In this context, this study aims to fill a significant gap in the field and contribute to both the educational technology and gastronomy education literature by systematically presenting stakeholders' perspectives on the integration of AI applications into gastronomy education. To achieve this objective, the study was guided by the following research questions:

- How do gastronomy students evaluate artificial intelligence applications in their education?
- What are the views of gastronomy academics on artificial intelligence technologies?
- What are the views of gastronomy students and academics on artificial intelligence applications and how do these views differ or resemble each other?

2. Literature

2.1. The Role of Technology in Gastronomy Education

Mevcut teknolojilerin yanı sıra internet bağlantısı ve akıllı telefonlarla bütünleşmiş çalışan teknolojik cihazlar, "dijital" kavramının kapsamını genişletmiştir. Endüstri 4.0 ile ortaya çıkan insansız robotik sistemler önemli bir dönüşüm olarak kabul edilse de insan yaratıcılığının dışlanması halinde geliştirilen teknolojilerin verimliliğinin sınırlı kalacağı görüşü, Endüstri 5.0 devriminin temelini oluşturmuştur. Endüstri 5.0, Endüstri 4.0'dan farklı olarak, yalnızca tüketicinin taleplerini yerine getirmekle kalmayıp; insan ve robot yeteneklerinin etkileşimli iş birliği sayesinde tüketici ihtiyaç ve beklentilerini daha kapsamlı biçimde karşılamayı hedeflemektedir (Güner ve Aydoğdu, 2022). In addition to existing technologies, technological devices integrated with internet connectivity and smartphones have expanded the scope of the concept of "digital." While the unmanned robotic systems emerging with Industry 4.0 are considered a significant transformation, the notion that the effectiveness of developed technologies would be limited if human creativity was excluded formed the basis of the Industry 5.0 revolution. Unlike Industry 4.0, Industry 5.0 aims not only to meet consumer demands but also to meet consumer needs and expectations more comprehensively through the interactive collaboration of human and robotic capabilities (Guner and Aydogdu, 2022).

Digitalization has become integrated into various aspects of daily life, such as entertainment, security, smart cities, childcare, and smart home systems. These technologies are considered a multifaceted concept that enhances the ability of resources such as information, machines, and data to work in harmony with individuals and institutions, supporting businesses in making strategic and accurate decisions. Furthermore, digitalization is widely used in a wide range of areas, from interactions on social media platforms to e-services offered in the public sector (Brennen and Kreiss, 2016). In this context, the infrastructure provided by digitalization and its expanding areas of use enable artificial intelligence technologies to serve people across various platforms. Artificial intelligence technologies and applications today serve people across a wide range of platforms. Examples such as smart home systems, autonomous vehicles, mobile applications, voice assistants, and chatbots demonstrate the widespread use of artificial intelligence in daily life. In this context, artificial intelligence has rapidly become a technology that permeates all areas of human life. The education sector (Pedro et al., 2019; Paek and Kim, 2021) has also become one of the important areas where artificial intelligence is effective. As machine-based algorithmic systems, artificial intelligence has increased its importance in education due to its potential to support learning in different contexts, as well as its prediction, analysis, recommendation development, and decision-making functions (Hwang et al., 2020).

In parallel with the development of technology, the importance of technological contribution in food and beverage businesses is gradually increasing. The change and development in kitchen equipment and business processes used in food and beverage production has continued uninterruptedly throughout history (Kayran, 2021). Among new generation technologies, artificial intelligence is particularly prominent and is used to improve the customer experience in the service area of food and beverage businesses (Curtis, 2016). The integration of artificial intelligence technology with food systems represents a revolutionary change that is transforming all processes in the food industry, from production to consumption. This interactive relationship between artificial intelligence and food systems aims to provide solutions to fundamental problems such as food scarcity, environmental sustainability, and health on a global scale, as well as contributing to the enrichment of culinary experiences (Pravin and Sundarapandiyan, 2024). This technology; It plays a supporting role in many kitchen functions such as creating recipes, developing new recipes based on existing ingredients, increasing creativity in the kitchen, reducing waste, calculating nutritional values, providing time management, menu planning and plate presentation (Kansaksiri et al., 2023). In this context, artificial intelligence has become a technology that has penetrated almost every aspect of human life today. As a machine-based technology with algorithmic processing power, artificial intelligence has become increasingly important in the field of education in recent years due to its functions such as prediction, analysis, suggestion making and decision making, as well as its potential to support learning in different contexts. With the increasing adoption and use of new technologies in education, artificial intelligence applications are also intensively used in this field. In particular, artificial intelligence-based applications such as online education systems, simulation programs and augmented reality have begun to be used effectively in educational processes in recent years (Yigit, 2023).

2.2. Artificial Intelligence and Educational Technologies

Technological advances in the 21st century have led to rapid and radical transformations in education and educational practices. Among the most prominent technological advances in recent years are technologies such as augmented reality, virtual reality, cloud computing, and artificial intelligence. Among these technologies, artificial intelligence stands out due to its transformative power, revolutionary impact in various sectors, and its ability to enable more effective and efficient use of other technologies. In this context, one of the most significant technological advances in recent years is considered the development of artificial intelligence and its adoption by a broader user base. Indeed, research reveals that educational institutions are focusing on examining the potential benefits offered by artificial intelligence-focused technologies (Ustun, 2024).

When looking at current AI studies in education, we see that not only knowledge-based but also data- and logic-based AI applications are present in many areas. These applications include personalized learning systems, conversational education, exploratory learning, data mining in education, article analysis, intelligent agents, chatbots, education for children with special needs, child-robot interaction, AI-based assessment, and automated test generation systems. The vast majority of these areas are aimed at supporting learning processes. Furthermore, AI is also used in the management of educational institutions. Course and personnel scheduling, exam management, cybersecurity, and facility management and security are the main areas where AI directly contributes to school management and indirectly contributes to teaching (Arslan, 2020). Therefore, it is an undeniable fact that AI technologies have significant and significant impacts on educational institutions (Chen et al., 2020). It can also be said that AI applications have significantly transformed the classroom environments where learning takes place. Traditional learning environments, which for many years prioritized academic success and used only blackboards and pencils, are now evolving into technology-supported educational processes with the digital transformation. In this context, with the powerful impact of technology on educational institutions (Nguyen & Tuamsuk, 2022), traditional classroom structures have begun to give way to digital learning environments. Thanks to these digital applications, teacher-student interaction is becoming more flexible (Arroyo et al., 2022), and new-generation teaching-learning environments are emerging. In this context, artificial intelligence plays a functional role in enabling effective communication between components within the digital learning ecosystem (Nguyen et al., 2023).

The ability of AI applications to provide students with learning opportunities tailored to their individual learning pace and capacities and to provide them with a functional role is considered one of the most positive impacts of these technologies. Furthermore, the flexible working opportunities offered by some AI-based applications, allowing students to participate in the learning process whenever they feel ready, have the potential to increase the efficiency of educational processes. Furthermore, AI applications are also used in various administrative functions such as budgeting, student application and registration, course management, purchasing processes, expense management, and facility management, and provide institutional support in these areas. The use of AI-supported systems can increase the overall efficiency of educational institutions, reduce operating costs, provide transparency to revenue and expense processes, and significantly contribute to institutions' decision-making and responsiveness (Kucukali & Coskun, 2021).

3. Research Method

The primary objective of this research is to determine how artificial intelligence technologies are perceived in gastronomy education and to reveal the opportunities and limitations offered by these technologies for both students and academics. Today, artificial intelligence is increasingly being studied and offers the potential to transform educational processes. However, examples of AI integration, particularly in application-based fields such as gastronomy education, are rarely encountered in the literature. This demonstrates the research's unique contribution to filling the gap in the literature. The research is structured in a qualitative manner, employing a phenomenological design. This design allows for an in-depth understanding of the meanings of artificial intelligence based on the participants' experiences. The research population consists of higher education institutions offering gastronomy education in Turkey. The sample was selected using purposive sampling and consisted of 10 academics working in the field of gastronomy and 10 undergraduate students studying in this field. The interviews were conducted between June 4, 2025, and August 7, 2025. Semi-structured interviews with participants were conducted online via Google Forms, and interview forms were specifically designed for two distinct groups. The forms, which included five questions for academics and students, were designed with different content to facilitate comparative analysis. The obtained data were analyzed using the MAXQDA qualitative data analysis program, and the data was systematically coded using thematic analysis, creating themes and subthemes. This provided a multidimensional assessment of how artificial intelligence technologies are perceived in gastronomy education, their contributions to the educational process, and the limitations encountered. The research aims to offer important implications not only for the field of educational technologies but also for the digital transformation of gastronomy education.

4. Findings

The study findings were evaluated under three main headings: academics' views on artificial intelligence education, students' views on artificial intelligence education, and findings regarding the comparison of the views of both groups.

4.1. Findings Regarding Academicians' Opinions

The code cloud generated as a result of the analysis conducted as part of the research is presented in Figure 1. An examination of the figure reveals positive statements among academics regarding the use of AI in gastronomy education, such as recipe development and the lack of threat to students, as well as critical statements such as laziness. Furthermore, academics appear to support AI education through concepts such as contributing to the development of new techniques, hygiene monitoring, and contributing to the development of special menus. The loss of labor in the cloud, the extinction of traditional production, and the belief that AI will be the end of humanity indicate that academics are cautious about AI applications. In summary, it can be said that academics view AI as a technology with high potential but not yet considered sufficiently secure.

Figure 1: Academician Code Cloud

Figure 1. Academic Code Cloud

Table 1 shows the hierarchical relationships of concepts derived from academics' perspectives, followed by the questions posed and their notable responses. This structure summarizes the conceptual dimension of academics' perceptions of AI and their implications for industry.

Table 1. Code Hierarchy Regarding Academician Opinions

Subcode	Hierarchical Subcode
Contribution to the Education Process	• Giving Ideas About Taste Harmony • Plating and Presentation • Contributing to Special Menu Development • Preventing Thinking • Acquiring New Ideas • Providing Fast Data • Should Be Used as a Supportive Tool
Area Where It Can Be Effective	• Taste Harmony • Hygiene Tracking • Recipe Development • Aesthetics • Idea of Cooking with Available Ingredients • Human Labor Will Decrease • Kitchen Simulation • Possibility of Recipe Comparison
Opinion and Suggestion	• Accepting the Development of Technology • Artificial Intelligence Will Be the End of Humanity • The Absolute Addition of AI-Based Courses to the Curriculum • Observance of Balanced Usage • Providing Benefit to Students with Creativity
Artificial Intelligence Trend/Focus	• Smart Menu Course • Gastronomy and Media Course • Providing Information About the Correct Use of Artificial Intelligence • Gastronomy and Technology Course
How It Will Affect the Professional Future	**Constitutes a Threat** • Disappearance of Traditional Production • Loss of Workforce **Does Not Constitute a Threat** • There Will Always Be a Need for the Human Factor • It is a Supportive Element • Ensures the Emergence of Different Techniques • Taking the Food and Beverage Sector to the Next Level • Providing Practicality
Developing Professional Knowledge and Skills	• Laziness • Contributing to the Development of New Techniques • Blunting Research Skill • Preventing Creative Thinking • Negative Impact on Communication • Fast and Easy Access to Information

What do you think about the contribution of artificial intelligence applications to the educational process within the scope of gastronomy education? Explain.

-I believe that using artificial intelligence applications in the educational process, without neglecting traditional mastery, is a positive development. For example, thanks to AI applications, students can be shown various simulations and shown an image of a dish or plate. (A2)

-Artificial intelligence applications make gastronomy education more interactive and efficient by supporting it with personalized learning experiences, virtual and augmented reality. Artificial intelligence offers students the opportunity to practice creating new recipes, food safety simulations, and inventory management. However, it cannot replace elements such as a chef's creativity and sensory experience; therefore, it should be used as a supplementary tool. (A4)

-It may be practical; however, I think it will generally dull people and hinder their thinking abilities. (A6)

In what areas (e.g., recipe development, kitchen simulation, hygiene monitoring, etc.) do you think artificial intelligence applications can be effective in gastronomy education? Please explain.

-It can provide students with both theoretical and practical information on topics such as recipe development, kitchen and plate simulations, and menu development for people with special needs. Therefore, it both enriches teaching methods in gastronomy education and contributes to the development of more qualified individuals for the sector. (A1)

-It provides effective and accurate information on culinary terminology in recipes, especially when used effectively using academic resources. (A3)

-They can get recipes by entering the ingredients they have on hand or find the best recipe by comparing multiple recipes. (A10)

What advantages and disadvantages do you think artificial intelligence applications have in terms of developing students' professional knowledge and skills? Please explain.

-I believe that artificial intelligence applications are beneficial when used correctly in terms of developing students' professional knowledge and skills. They provide students with easier access to information, facilitate practice, and provide opportunities for self-improvement. Of course, they can also have disadvantages when used inappropriately. These include less practice, excessive reliance on technology, and inhibiting creative thinking. (A1)

- Artificial intelligence applications offer significant advantages and disadvantages in developing students' professional knowledge and skills. On the one hand, personalized learning paths, realistic simulations, and instant feedback make education more efficient, while students have easy access to vast information resources. On the other hand, this technology can lead to a decrease in human interaction, a stifling of creativity, and an overreliance on technology. There are also disadvantages such as inequalities in access to hardware and privacy concerns. (A6)

-Artificial intelligence, which is highly effective in quickly finding answers to students' questions, focuses students on innovation and discovery. A disadvantage is that it doesn't encourage students to read or research written material. (A7)

How do you think artificial intelligence will impact the gastronomy profession in the future? Do you think it will be a threat or a support in terms of job opportunities or the human factor? Please explain.

-I think it will affect employment in the gastronomy field because they can perform some human tasks, such as smart vending machines, but I don't think it's a complete threat. There's always a need for the human element in this field. (A4)

-I don't think artificial intelligence will pose a threat to gastronomy. It can support both new small trends and the use of different techniques and equipment in world cuisines, provided it is used efficiently and at the appropriate time and place. (A5)

-I don't think artificial intelligence will threaten job opportunities in gastronomy. Gastronomy is a field that will always require human labor. It may reduce the number of people working in more autonomous systems, but I don't think it will be a threat, especially in labor-intensive fields. (A7)

In your opinion, what types of courses, modules, or training related to artificial intelligence should be included in university gastronomy departments? Please explain.

-Closely monitoring the industry's use of these artificially supported tools in university departments can provide insights. Therefore, training can be provided as a module within a gastronomy and technology course. (A2)

- In gastronomy departments, artificial intelligence can transform both theoretical and practical training by integrating modules such as smart menu and recipe development, food data analytics, neurogastronomy applications, visual presentation technologies, innovative food science, and the use of AI in gastronomy businesses. (A7)

-Training can be provided specifically to demonstrate how and in which areas artificial intelligence applications should be used. (A8)

4.2. Findings Regarding Students' Opinions

The code cloud representing students' opinions is shown in Figure 2 below. An examination of the figure reveals that opinions focused primarily on practical benefits and ease of learning. The frequent mention of concepts such as practicality, convenience, access, and speed suggests that students consider AI an advantage in the educational process. Expressions such as loss of labor, inhibition of thinking, and monotony can be interpreted as students' critical perspective on technology. In summary, AI stands out as a system that makes lessons easier for students, but can also create trust issues if not used carefully.

Figure 3. Student Code Cloud

Figure 2. Student Code Cloud

Table 2 presents the hierarchical relationships among concepts derived from students' perspectives. The following section presents the questions posed to the students and the notable responses they elicited. This structure provides a more systematic understanding of students' thought processes and the relationships between concepts.

Table 2. Code Hierarchy Regarding Student Opinions

Subcode	Hierarchical Subcode
Developing Professional Knowledge and Skills	• Laziness • Quick/Easy Access to Information • Temporary Knowledge is Acquired • Providing Personal Learning Opportunities • Supporting Studying
Contributing to the Educational Process	• Facilitating Access to Information • Providing Inspiration • Aesthetics • Supporting the Learning Process
Areas Where It Can Be Effective	• Recipe Development • Creating a Work Plan • Using It for Ideas Only • Developing Fusion Cuisine • Contributing to Sustainability • Easing the Work of Academics • Plate Design
How Will It Affect the Profession in the Future?	**Poses a Threat** • Standardization of Recipes and Recipes • Hindering Creative Thinking • Causing Monotony • Loss of Workforce **Non-Threat** • Providing Support • Always Needing the Human Factor • Providing Opportunities for Creative Work
Artificial Intelligence Education	• Inhibiting Thinking/Lossing Imagination • Integrating It into Classrooms Contributes to Education • Should Not Be Integrated into Education • Product Development Using Artificial Intelligence • Analyzing AI-Powered Recipes

What do you think about the contribution of artificial intelligence applications to the educational process within the context of gastronomy education? Please explain.

-I believe that artificial intelligence applications contribute significantly to the educational process within the context of gastronomy education. I believe that artificial intelligence can support theoretical knowledge with practical applications by providing personalized learning experiences, thereby increasing learning efficiency. (S1)

-It contributes to gastronomy students by making it easier for them to access information they are curious about in the field of gastronomy. By quickly scanning

and itemizing the information they want to research, it helps students master relevant information. (S3)

-I think it would contribute significantly to educational processes because you can make a dish beautifully, but if the appearance and presentation of the dish are poor when you put it on a plate, you diminish its appeal. After all, a dish needs to appeal to all five senses, and therefore, it needs to be visually appealing. Therefore, I believe AI should be used, at least in the presentation of dishes for students. (S4)

In what areas (e.g., recipe development, kitchen simulation, hygiene monitoring, etc.) do you think AI applications could be effective in gastronomy education? Please explain.

-I think they could be quite effective in recipe development and kitchen simulation. Creating new recipes, analyzing nutritional values, or identifying allergen-containing products can also reduce the margin of error and increase safety in technical areas such as hygiene monitoring. (S5)

-We can say that AI is making inroads into every aspect of gastronomy. When developing new recipes, simply mentioning the product or region is enough; it can instantly create a fusion and create a recipe, explaining the steps exactly. (S8)

-They could be effective in many areas, such as plate design, recipe preparation, ensuring harmony between food and beverage elements, creativity, personalized recipes, preparing quizzes for exam preparation, internship and job application assistance, CV recommendations, and information about different career paths in gastronomy. (S10)

Do you think AI-based tools can contribute to your learning process? Please explain.

-Yes, because AI is a good application because it provides us with ideas, supports the research topic, and provides insights on the topic. However, knowing that AI can make mistakes, we should definitely conduct our research before proceeding. (S2)

-Yes, I think AI-based tools contribute to my learning process. I can get information directly, quickly, and simply, especially on topics I don't understand, instead of researching them from different sources. By getting support on topics like recipe analysis, technical details, or kitchen management, I save time and improve myself. I can say that it makes learning more practical and effective. (S6)

-Yes, its ability to guide us according to individual learning pace is particularly valuable. It has significant advantages, such as re-explaining topics I don't understand and directing us to different resources. (S7)

How do you think artificial intelligence will impact the gastronomy profession in the future? Do you think it's a threat or a support in terms of job opportunities or the human factor? Please explain.

-I believe artificial intelligence will positively impact the gastronomy profession in the future. In terms of job opportunities, it can create opportunities by increasing the demand for employees familiar with new technologies. In terms of the human factor, it can automate routine tasks, supporting a focus on creative and strategic work. Therefore, I see it as a support, not a threat. (S1)

-I think that when used correctly, artificial intelligence is a support, not a threat. It can save time, especially in intensive and repetitive tasks. However, the creative aspect still requires humans. Therefore, it won't completely take away from the profession, but it will play a supporting role. (S5)

-If used correctly, it will definitely be a support. However, if we rely solely on technology, the human touch, which is the soul of the profession, can be lost. Balance is important. (S7)

Would you like your university to integrate AI applications into gastronomy education? What kind of content/applications do you think would be beneficial?

-Yes, it will contribute to many areas such as recipe development, research and development, R&D studies, and product storytelling, and it will contribute to the advancement of existing studies, such as gaining knowledge on thematic gastronomy. (S2)

-I definitely would. Interactive course materials, digital recipe development tools, or virtual kitchen simulations could be developed. It would also be useful in explaining technical topics such as hygiene monitoring and ingredient analysis. (S5)

-Artificial intelligence has become so ingrained in our lives that it's almost difficult to remove it. Given this situation, it's difficult for gastronomy to stay away from it, but I'm not a fan of integrating AI into the kitchen. I see it as a threat, both in terms of thinking, development, and business. (S8)

4.3. Comparison of Academician and Student Opinions and General Evaluation

The density of codes obtained from academic and student opinions is presented in Figure 5 below. The findings indicate that students' evaluations of AI focused on its daily benefits, while academics evaluated the technology in terms of pedagogical, ethical, and long-term impacts. This difference reveals that generational perspectives are becoming evident in approaches to technology.

Table 3. Density of Participant Opinions

Code System	Academic	Student	Total
Contribution to the Educational Process	16	20	36
Areas of Impact	19	24	43
Developing Professional Knowledge and Skills	17	24	41
How It Will Affect the Profession in the Future	22	25	47
Artificial Intelligence Training	9	10	19
Opinions and Suggestions	6	-	6
TOTAL	***89***	***103***	***192***

Table 5 contains two case studies that allow a direct comparison of the views of academics and students. The right side represents the views of students; the left side represents the views of academics; and the middle section represents the shared views of both groups. It appears that academics generally define AI as "an innovative technology that will transform teaching methods," while students see it as "a practical facilitator for homework and access to information." The intersection of the two groups is the acceptance of AI as an inevitable tool for transformation in education. This table clearly reveals the multilayered nature of perceptions of AI in gastronomy education.

Table 4. Two Case Analyses of Academician and Student Opinions

Academician	Consensus	Student
- Does Not Pose a Threat - Providing Information on the Proper Use of Artificial Intelligence - Smart Menu Course - Observing Balanced Use - Gastronomy and Technology Course - Poses a Threat - Inhibiting Creative Thinking - Inhibiting Thinking - Adding Artificial Intelligence-Based Courses to the Curriculum - Providing Students with Creativity Benefits	- Recipe Development - Always Needing the Human Factor - Laziness - Providing Fast Data - Accessing Information Quickly/Easily - Hygiene Monitoring - Being a Supportive Element - Providing Practice - Using as a Supportive Tool - Kitchen Simulation	- Providing Personal Learning Opportunities - Supporting Studying - Integrating and Contributing to Courses - Hindering Thinking/ Stifling Imagination - Product Development Using Artificial Intelligence - Causing Monotony - Contributing to Sustainability - Aesthetics - Analyzing AI-Based Recipes - Easing the Work of Academics

When the participants' opinions and analyses were evaluated holistically within the scope of the research, it was determined that their views on the use of artificial intelligence in gastronomy education were multifaceted. The most striking finding within the research was that both groups viewed technology as an element that can no longer be considered separate from the educational process. It is also noteworthy that both groups considered the potential obstacles to creative thinking, security issues, and ethical concerns.

5. CONCLUSION AND RECOMMENDATIONS

Tüm bu bakış açılarından yola çıkarak tasarlanan bu çalışmanın temel amacı yapay zekâ teknolojilerinin gastronomi eğitiminde nasıl algılandığını belirlemek ve hem öğrenciler hem de akademisyenler açısından bu teknolojilerin sunduğu olanakları ve karşılaşılan sınırlılıkları ortaya koymaktır Today, artificial intelligence stands out as a rapidly developing field that has become a focal point of scientific research over the past few decades. The primary goal of artificial intelligence is to enable the development of systems with human-like learning and reasoning abilities. Thanks to its extensive advantages, remarkable achievements have been achieved in various industrial application areas such as image classification, speech recognition, autonomous vehicle technologies, and computer vision (Zhao et al., 2020). Similarly, the gastronomy sector has begun to benefit from the opportunities offered by artificial intelligence applications. In this context, the contributions of artificial intelligence to gastronomy include the classification of food products, the optimization of labor-intensive and costly processes, the enhancement of predictive reliability, the support of food and beverage safety, and the standardization of products (Turkoglu and Yilmaz, 2022). Designed from all these perspectives, the primary objective of this study is to determine how artificial intelligence technologies are perceived in gastronomy education and to reveal the opportunities and limitations of these technologies for both students and academics.

When the findings from the study were examined, it was determined that both participant groups expressed that the advantages and disadvantages of using artificial intelligence in gastronomy education could differ depending on the form and scope of use. Academics evaluated AI applications primarily in terms of the quality of applied education, technological transformation, and educational contributions, while students emphasized their advantages by highlighting everyday benefits such as facilitating lessons, providing practicality, ease of access to information, and speed. Focusing on the disadvantages, academics' statements that they consider ethical concerns and accustom students to ready-made solutions are noteworthy. Students, on the other hand, emphasized negative aspects such as over-dependence and misleading information. Generally, the consensus view of both groups is that AI is a powerful tool that can transform educational processes but cannot completely eliminate the importance of human creativity and sensory experience in applied fields like gastronomy. Regarding this topic, Capecchi et al. (2025) discussed the benefits of generative AI applications in education, such as providing personalized learning experiences and facilitating interactive dialogue. The authors' views support the research findings. Similarly, Ilić et al. (2024) stated that AI applications (smart devices, cooking equipment, etc.) accelerate kitchen work, contributing to kitchen workflows through temperature control systems, inventory tracking, and automated cooking processes. The authors also noted challenges such as high startup costs, technical issues, training requirements, potential job losses, maintenance needs, and cybersecurity risks. Ultimately, this study demonstrates that AI in culinary education is not merely a tool but also a multifaceted phenomenon that raises ethical and generational debates.

In light of the research findings, several recommendations were developed within the scope of the study. First, the integration of innovative tools such as virtual kitchen environments, augmented reality, and simulation should be encouraged to effectively utilize AI technologies in practical courses. This way, students can both benefit from an AI-supported learning experience and develop their practical skills. Second, to mitigate the trust concerns and ethical issues noted by academics, ethical standards for the use of technology should be established, and a balance should be established to protect students' creativity. To achieve this, it is recommended that universities develop guidelines for the use of AI. Student concerns about over-dependence and misinformation should be addressed, and digital literacy training should be provided on how to safely use AI. This way, students can not only benefit from technology but also develop a conscious learning process. Finally, the inherently experiential, sensory, and creative aspects of gastronomy education should not be overlooked. Therefore, a balanced integration of human factors and technology in educational programs is crucial.

This study has several limitations. The first is that it was conducted with only 10 academics and 10 undergraduate students working at higher education institutions offering gastronomy education in Turkey. Therefore, the findings obtained within the scope of the study do not claim to represent a broad population. The limited number of participants limits the generalizability of the findings. Collecting data online may limit the depth and contextual richness of the interviews to a certain extent. Finally, only qualitative data was collected in the study; it was not supported by quantitative data. Therefore, future studies using quantitative methods or a mixed-methods approach would be beneficial to further support the obtained results.

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Chapter 24

Development of a Cognitive Dissonance Scale for University Students: Preliminary Findings from a Pilot Study

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1. Introduction

Cognitive dissonance theory (Festinger, 1957) posits that inconsistencies between an individual's thoughts, attitudes, and behaviors result in psychological discomfort. It is regarded as one of the fundamental psychological theories that explain how individuals strive to resolve such internal conflicts. According to the theory, when individuals are encouraged to act in ways that contradict their existing beliefs, they tend to modify those beliefs to reduce the resulting dissonance (Festinger & Carlsmith, 1959).

In recent years, the concept of cognitive dissonance has gained increasing significance in the field of education (Swain et al., 2021), particularly for its role in understanding student behavior (Habib et al., 2025) and enhancing the effectiveness of instructional planning (Köpeczi-Bócz, 2025). Studies have emphasized the need for a more comprehensive investigation of cognitive dissonance within educational contexts (Abdul-Gafaar et al., 2024). During the learning process, students may encounter conflicting knowledge, beliefs, or expectations (Ren et al., 2025), which can induce cognitive dissonance. Such experiences may influence learning motivation,

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cognitive development, and academic performance—either positively or negatively (Seran et al., 2025).

Within the framework of cognitive dissonance theory, numerous theoretical and empirical studies have explored topics such as education and climate change (Nikula et al., 2023), teacher education (Heaton & Quan, 2023), student learning (de Vries et al., 2023), and teacher–student relationships (Treacy & Leavy, 2021). However, there remains a lack of comprehensive and valid instruments that directly measure cognitive dissonance—particularly at the higher education level (Luintel & Timsina, 2024). Most existing studies evaluate cognitive dissonance indirectly or adapt instruments originally developed for different contexts to fit educational settings (Atoum & Al-Adamat, 2023). Such approaches may fall short of capturing the unique nature of cognitive dissonance as it manifests in educational environments.

The primary aim of this study is to present preliminary findings concerning the validity and reliability of a newly developed scale designed specifically to assess cognitive dissonance within educational contexts. These preliminary evaluations are based on data collected through a pilot study. This study seeks to address a critical gap in literature by introducing the initial version of the scale, which is intended to lay the groundwork for more comprehensive validation and reliability analyses in future research. In doing so, the study contributes to the development of a new theoretically grounded measurement tool that can be utilized by both researchers and educational practitioners.

2. Method

This study was designed according to the scale development methodology, a widely used approach in quantitative research. It presents the findings of a pilot study conducted to develop a scale aimed at measuring university students' cognitive dissonance experiences during their educational processes. The target population consisted of university students in Türkiye, while the sample comprised 77 volunteer undergraduate students enrolled at a public university during the 2024–2025 academic year.

Based on a comprehensive review of literature and grounded in cognitive dissonance theory, the researchers initially developed a 34-item item pool. These items were evaluated for content validity through a qualitative review conducted by six academic experts and three undergraduate students, focusing on the clarity, relevance, and representativeness of each item. Following this evaluation, 10 items were removed due to content inadequacy, semantic redundancy, or low theoretical alignment, resulting in a refined 24-item scale.

An exploratory factor analysis (EFA) was first conducted to examine the underlying factor structure. Five additional items that displayed cross-loadings or substantial loadings on multiple factors were identified and sequentially removed. This process yielded a two-factor structure consistent with the theoretical framework. To validate this structure, a confirmatory factor analysis (CFA) was conducted using the AMOS software, employing the maximum likelihood estimation method.

3. Findings

Descriptive statistics, including frequency (f) and percentage (%), were used to examine the demographic characteristics of the participants. Table 1 presents an overview of the demographic profile of the undergraduate students who participated in the study.

Table 1. Frequency Analysis Results Regarding Demographic Characteristics

Variables	**Groups**	f	%	**Variables**	**Groups**	**f**	**%**
Gender	Female	44	57.1	**Year of Study**	1st Class	60	77.9
	Male	30	39.0		2nd Class	12	15.6
	Prefer Not to Say	3	3.9		3rd Grade	5	6.5
University Type	State	77	100	**Contradiction Experience**	Yes	50	64.9
	Foundation	0	0		No	27	35.1

According to Table 1, the gender distribution of the participants reveals that the majority were female students, comprising 57.1% of the sample. Male participants accounted for 39.0%, while 3.9% preferred not to disclose their gender. In terms of year of study, the findings indicate that a substantial proportion of the participants (77.9%) were first-year students. Second- and third-year students were relatively underrepresented, constituting 15.6% and 6.5% of the sample, respectively. Regarding university type, 98.7% of the participants were enrolled in state universities, whereas only 1.3% were attending foundation universities. With respect to contradiction experience, 64.9% of the participants reported having encountered cognitive dissonance during their educational experience, while 35.1% indicated that they had not experienced such a situation.

3.1. Exploratory Factor Analysis (EFA) Findings

During the exploratory factor analysis (EFA), it was observed that several items exhibited substantial loadings on more than one factor, which hindered the clarity of factor distinction. Specifically, five items (s1, s5, s13, s14, and s15) demonstrated cross-loadings exceeding .40 or presented loading values that were too similar across factors. These items were removed from the analysis to improve the interpretability of the factor structure and to preserve conceptual coherence. Following the removal of these items, the EFA was rerun, resulting in a more robust factor distinction. Each of the remaining items loaded strongly on a single factor, thereby confirming the two-factor structure of the scale in alignment with the theoretical framework. Table 2 presents the results of the exploratory factor analysis based on the cognitive dissonance theory within the educational context.

Table 2. Exploratory Factor Analysis Rotated Loadings Matrix and Common Variance (Extraction Method: Principal Components Analysis. Rotation Method: Varimax)

Factor Name	Expressions	Factor Loading	Explanatory Factor (%)	Reliability of the Factor (0.70<α)
Expectation-Reality Dissonance	I couldn't find the environment I expected in my education environment, so I'm bored.	,878	36,378	.95
	I felt sad when my educational environment did not provide the satisfaction I initially expected.	,870		
	After starting my training, I felt frustrated by the gap between my expectations and the reality I encountered.	,860		
	When I started training, the situations I encountered left me feeling demoralized.	,787		
	Before starting my studies, I thought the educational environment would meet my expectations, but I felt angry because my experiences contradicted these expectations.	,786		
	I am disappointed that the educational environment is not what I expected.	,769		
	After starting my training, I felt uneasy due to the mismatch between my expectations and the actual training environment.	,767		
	Some situations in the educational environment make me think that my rights are being violated.	,678		
	After I started my training, I was angry inside.	,653		

Educational Identity Dissonance	The methods applied in this branch of education are incompatible with my moral values.	,857	33,709	.93
	I feel a discrepancy between the explanations given for this branch of education and the reality of education.	,787		
	After I started my education, I thought I was deceived by choosing this branch of education.	,763		
	I feel that the educational conditions are incompatible with the requirements of my education.	,757		
	I feel like this field of study does not offer the opportunities I need to achieve my career goals.	,749		
	I feel a mismatch between faculty expectations and job requirements.	,719		
	I questioned whether I was doing the right thing by taking this training.	,678		
	After starting my education, I questioned whether this education was really for me.	,660		
	There is a big difference between the support I expect from faculty members and the support I receive.	,630		
	I was worried that the educational culture at my school conflicted with my personal values.	,624		
		Total	70,088	
KMO: .907; Bartlett's Test of Sphericity: Approx. Chi-Square 1439,540; Sig.: .000				

In Table 2, the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity were first examined to assess the suitability of the data for factor analysis. The KMO value was found to be .907, indicating excellent sampling adequacy. Bartlett's Test of Sphericity was statistically significant (χ^2 = 1439.540; df = 171; p < .001), confirming that the correlations among variables were sufficient to proceed with factor analysis.

As shown in Table 2, the scale demonstrated strong construct validity, accounting for 70.088% of the total variance. The first factor—Expectation–

Reality Dissonance—explained 36.378% of the variance and included items such as "I could not find an environment in my educational setting as I expected" and "I was frustrated by the difference between my expectations and the reality I encountered." The second factor—Educational Identity Dissonance—accounted for 33.709% of the variance, with representative items such as "This branch of education is incompatible with my values" and "I questioned whether this education is suitable for me."

According to the results of the rotated component matrix, factor loadings ranged from .624 to .878, exceeding the commonly accepted minimum threshold of .40. These values indicate that all items are loaded significantly onto their respective factors. Accordingly, the two factors were labeled Expectation–Reality Dissonance and Educational Identity Dissonance, respectively, in alignment with the underlying theoretical framework.

3.2. Confirmatory Factor Analysis (CFA) Findings

Confirmatory factor analysis (CFA) was conducted to test the adequacy of the factor structure identified through exploratory factor analysis (EFA). The results of the CFA, including model fit indices, are presented in Table 3.

Table 3. Confirmatory Factor Analysis Measurement Model Results

Indicator	Value	Accepted Limit	Comment
Chi-Square/df (CMIN/DF)	2,569	≤ 3	Acceptable
RMR	,291	≤ .08	High (outside the ideal limit)
GFI	,624	≥ .90	Low
AGFI	,543	≥ .90	Low
RMSEA	.144 (LO: .129 – HI: .159)	≤ .08	Poor compliance
CFI	,816	≥ .90	Below the acceptance limit
TL	,795	≥ .90	Below the acceptance limit
NFI	,733	≥ .90	Low

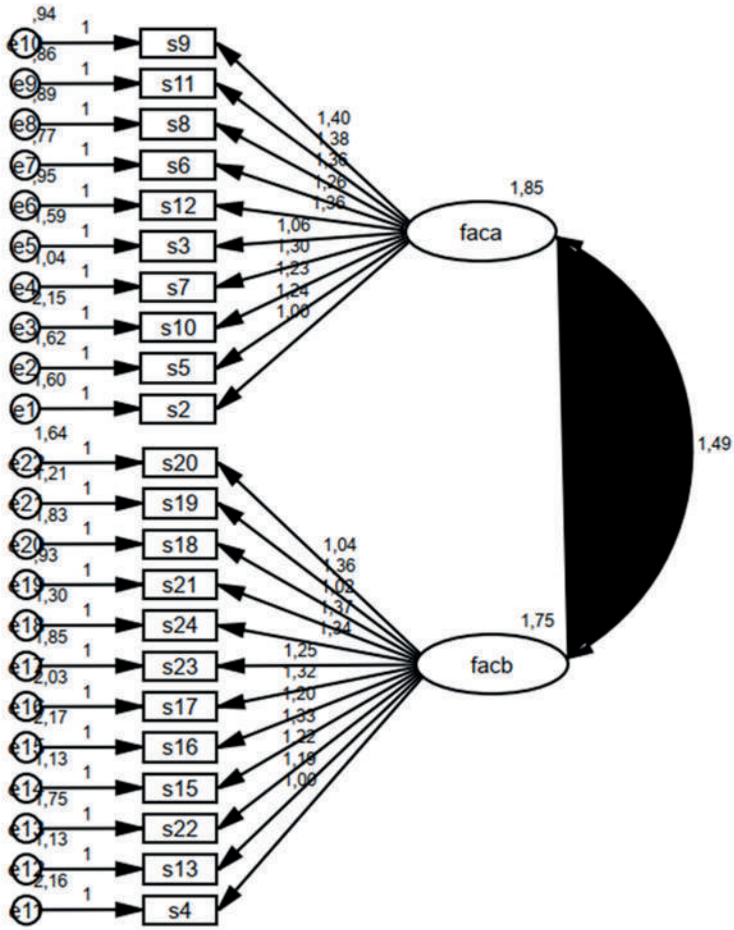

Figure 1. First-Level Path Diagram of the Confirmatory Factor Analysis Model

Table 3 presents the fit indices derived from the confirmatory factor analysis. The chi-square to degrees of freedom ratio (χ^2/df = 2.569) indicates an acceptable level of model fit. However, several other indices fall below the recommended thresholds, including RMSEA (.144), GFI (.624), AGFI (.543), CFI (.816), and TLI (.795). These values suggest that the model demonstrates a poor overall fit to the data. In particular, the low values of GFI, AGFI, and RMSEA highlight the need for model refinement or restructuring.

On the other hand, the model's parsimony fit indices—PNFI (.660) and PCFI (.734)—are within acceptable ranges, indicating that the model maintains a degree of simplicity and efficiency. Nevertheless, the low Hoelter index value (35) points to limited model stability with respect to sample size, suggesting that the current model may lack robustness when generalized to larger populations.

4. Discussion

This pilot study aimed to develop a preliminary scale to measure cognitive dissonance experienced by university students in educational contexts. Based on theoretical foundations and expert reviews, a two-factor structure emerged from the exploratory factor analysis, representing "Expectation–Reality Dissonance" and "Educational Identity Dissonance." The internal consistency of both factors was high, and the factor loadings were strong, suggesting promising initial construct validity.

These findings are in line with previous literature emphasizing the multidimensional nature of cognitive dissonance in educational settings (e.g., Ren et al., 2025; Heaton & Quan, 2023). The two identified factors support the notion that students' psychological discomfort can stem from both unmet institutional expectations and personal identity conflicts within the educational environment.

However, the confirmatory factor analysis revealed that most model fit indices did not meet accepted standards. In particular, the values of RMSEA, GFI, AGFI, and CFI indicated a poor model fit. Similar issues have been reported in pilot-scale development studies with small samples (e.g., Abdul-Gafaar et al., 2024), highlighting the sensitivity of CFA to sample size. The Hoelter index (35) further confirms the limited statistical power of the analysis.

Overall, while the EFA results demonstrated theoretical and empirical consistency, the CFA outcomes underscore the need for cautious interpretation and further testing. Similar scale development efforts (e.g., Atoum & Al-Adamat, 2023) have undergone multiple rounds of revision and revalidation before yielding robust instruments.

5. Conclusion

The study provides valuable preliminary insights into how cognitive dissonance can be operationalized and measured among university students. While the scale demonstrated strong internal reliability and theoretically meaningful structure, the confirmatory factor analysis results reflected weaknesses largely attributable to sample size limitations.

Given these limitations, the scale is not yet suitable for widespread application but offers a solid foundation for future research. Subsequent studies should aim to validate the instrument with larger, more diverse samples and explore alternative factor structures. Additional analyses, such as second-order CFA or bifactor modelling, may improve model fit and clarify the construct's dimensionality.

However, the generalizability of the findings remains limited due to the pilot nature of the study and the relatively small sample size (n = 77). Because the sample was drawn from a single university and consisted largely of first-year students, the results may not fully represent the broader university student population. Therefore, the findings should be interpreted with caution, and future studies should validate the scale using larger and more diverse samples to strengthen its psychometric robustness and general applicability.

In sum, this pilot study represents a first step toward building a valid and reliable measurement tool for assessing cognitive dissonance in higher education contexts. Future research should continue to refine and expand this initial work to enhance its psychometric robustness and practical applicability.

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Chapter 25

Perceptions of Sustainability in Michelin Green Star Restaurants: A Qualitative Analysis of Instagram Posts

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1. Introduction

The gastronomy sector is being reshaped by sustainability principles in the face of global environmental crises and processes of social transformation. Sustainable gastronomy encompasses multidimensional goals such as reducing environmental impacts, supporting local producers, preserving cultural heritage, and raising social awareness (Richardson & Fernqvist, 2022). This approach transforms not only food production processes but also consumer behavior and business strategies. In particular, awards such as the Michelin Green Star make restaurants' sustainability practices visible and act as catalysts for sectoral transformation (Gazzola et al., 2024). These restaurants fulfill their environmental responsibilities through practices such as the use of local and seasonal products, zero-waste strategies, and ethical supply chain management, while simultaneously conveying this vision to wider audiences through digital communication tools (Huang et al., 2025).

This study aims to analyze the sustainability strategies of Michelin Green Star restaurants in Turkey through their social media content. Specifically, posts shared on the Instagram platform were examined to reveal how restaurants construct their sustainability discourses and through which themes they communicate. The digital communication dimension of sustainability practices in the gastronomy sector has not been sufficiently

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addressed in either academic literature or sectoral practice. This study makes a unique contribution by evaluating the impact of social media content on sustainability perception. Furthermore, by analyzing the communication strategies of Michelin Green Star restaurants in Turkey, it demonstrates how local gastronomy movements intersect with global sustainability trends.

A qualitative content analysis method was adopted in the study. Posts shared between December 6, 2024, and September 1, 2025, on the official Instagram accounts of 10 Michelin Green Star restaurants in Turkey were examined. Posts containing a sustainability theme were identified and analyzed using thematic coding. This method provides an appropriate framework for interpreting digital content and evaluating sustainability strategies at both visual and textual levels (Cappelen & Pedersen, 2024).

2. Sustainability Approaches in Gastronomy

Sustainability in the field of gastronomy encompasses not only the reduction of environmental impacts but also dimensions of social benefit and economic responsibility. In particular, restaurants contribute to reducing the environmental burden in supply chains and supporting regional producers by promoting the use of local and seasonal products (Mishra, 2023). This approach is considered critical for reducing the carbon footprint and ensuring food security. In addition to relying on local resources, the preference for organic agricultural products also helps restaurants build a healthier, ethical, and conscious image in the eyes of consumers (Pırnar & Çelebi, 2019).

At the same time, the zero-waste movement in gastronomy is gaining increasing importance. Within the framework of circular economy principles, restaurants apply practices such as reusing food waste in kitchens, composting, or producing animal feed (Camilleri, 2021). Studies have shown that reducing kitchen waste not only provides environmental benefits but also lowers operational costs, enabling restaurants to gain a competitive advantage (Lagioia et al., 2024). For this reason, zero-waste strategies are regarded as one of the cornerstones of sustainability goals in the gastronomy sector.

The literature also emphasizes the social benefit dimension of sustainable gastronomy. Gastronomy festivals organized in Europe highlight practices such as supporting local producers, raising consumer awareness about sustainable food consumption, and increasing sustainability awareness through educational activities (Csapody et al., 2021). Similarly, studies conducted on young consumers in Turkey reveal that sustainable food preferences are closely linked to individuals' value systems and environmental concerns (Duman & Keser, 2025). In this context, sustainable gastronomy creates transformation not only in professional kitchens but also in the food consumption habits of society.

Sustainability approaches in gastronomy represent a multidimensional process of transformation. The use of local and seasonal products, organic production, zero-waste strategies, and social awareness initiatives are among the fundamental components of this process. Current research demonstrates that sustainable gastronomy practices provide environmental benefits while strengthening consumer perception, thereby supporting the brand image and economic sustainability of restaurants (Misik & Nagy, 2025).

2.1. Zero-Waste and Circular Economy Practices

The zero-waste movement and circular economy practices in the gastronomy sector constitute one of the most critical areas of sustainability. Since restaurants are businesses that generate large amounts of food waste, the approaches they adopt in waste management have both environmental and economic impacts.

Prominent studies in the literature reveal that approaches such as the 5R model (Refuse, Reduce, Reuse, Recycle, Recover) are being adopted by restaurants in reducing food waste (Sobaih & Elnasr, 2024). For example, a study conducted in Australia demonstrated that the attitudes of restaurant managers and employees are critical to the success of food waste management. It was noted that strategies developed through a circular economy approach reduce the amount of waste and serve as an important communication tool for conveying restaurants' environmental responsibilities to consumers (Münir, 2024).

In Northern Europe, circular economy laws and regulations encourage customer-oriented recycling practices in restaurants. A study on fast-service restaurants in Iceland showed that consumer behavior in waste separation and recycling practices plays a key role in enabling businesses to achieve their sustainability goals (Þorsteinsdóttir, 2025). In developing countries, the use of biological recovery methods for food waste has come to the forefront. The study by Enweremadu et al. (2025) revealed that market and restaurant waste can be converted back into economic value through methods such as composting and biogas production. Such practices highlight the multifaceted contributions of the circular economy, particularly in terms of food security and energy production.

Research on gastronomy entrepreneurship indicates that zero-waste business models provide a competitive advantage for restaurants. Daryana et al. (2025) emphasized that zero-waste-based business models in restaurants in Medan not only provide cost advantages but also increase customer loyalty. Similar trends are observed in high-end Michelin-starred restaurants, where these businesses adopt circular business models and regard sustainability as a marker of prestige (Costa et al., 2025).

2.2. Social Contribution and Cultural Dimension in Sustainable Gastronomy

Sustainable gastronomy is not limited to reducing environmental impacts; it also encompasses multidimensional goals such as social contribution, the preservation of cultural heritage, and the support of local communities. The literature demonstrates that this dimension is directly related to social responsibility, cultural identity, and community participation within gastronomy. First, the social dimension of sustainable practices in gastronomy contributes to the economic and social empowerment of local communities. The study by Oropeza-Tosca et al. (2024) on rural communities in Mexico revealed that traditional gastronomic knowledge and practices provided economic benefits through micro-entrepreneurship and contributed to the preservation of cultural heritage. This example illustrates that gastronomy can also be understood as a tool for food production and community development.

Tekin (2025) emphasized that urban agriculture practices play a critical role in the transmission of intangible cultural heritage, thereby contributing to sustainable food production while ensuring that traditional knowledge systems are passed on to future generations. This underscores the importance of the cultural dimension of gastronomy within the framework of sustainability.

In terms of social benefits, festivals and gastronomic events emerge as significant areas of practice. The literature review by Kamble and Shah (2025) showed that community participation and social responsibility projects in gastronomy festivals are effective in raising awareness of sustainable gastronomy. Festivals not only support local producers but also facilitate consumer awareness regarding sustainable food consumption.

Rao (2025) argued that positioning traditional knowledge at the center of the circular bioeconomy aligns gastronomy with long-term goals of resilience and social justice. In this way, gastronomy supports not only economic sustainability but also social equity and the preservation of cultural identities. Social sustainability in gastronomy is also directly related to consumer behavior. The social life cycle assessment conducted by Ziegler-

Rodriguez et al. (2025) demonstrated that community participation, educational programs, and social responsibility projects in small-scale food production systems are fundamental elements in achieving the goals of sustainable gastronomy.

2.3. Sustainability Strategies in Michelin-Starred Restaurants

Michelin-starred restaurants are regarded as leading actors in the understanding of sustainability within gastronomy. These restaurants attract attention not only with their culinary excellence but also with their environmentally conscious production and consumption practices. Recent research has shown that the Michelin Green Star award has been a significant catalyst in this transformation. Breitenbach and Brandão (2025), in their discussion of the concept of sustainable haute cuisine, reveal that Michelin-starred restaurants directly associate food production processes with environmental responsibility, ethical supply chains, and agricultural practices.

Another prominent element in sustainability strategies is the use of local and seasonal products. Dönmez's (2025) research, based on interviews with Michelin-starred chefs, demonstrates that chefs prioritize respect for nature, waste minimization, and the preservation of regional cultural heritage in their menus. In this context, sustainability is also shaped as both an environmental and cultural responsibility. By including local products in their menus, Michelin restaurants reduce their carbon footprint while simultaneously positioning gastronomy as a representation of regional identities.

Studies also show that Michelin-starred restaurants adopt circular business models to minimize food waste. The work of Costa et al. (2025) emphasizes that Green Star restaurants embrace the principles of the circular economy, optimizing resource use and turning environmental sustainability into an operational advantage. This approach contributes both to reducing operational costs and to creating an ethical and environmentally friendly brand image in the eyes of consumers.

The sustainability strategies of Michelin restaurants are not limited to the kitchen but are also supported by supply chain management, employee awareness, and social responsibility projects. The study by Fusté Forné and Leer (2025) highlights that suppliers play a key role in this process and that the chefs' sustainability vision extends throughout the supply chain. For this reason, sustainability in Michelin-starred restaurants is seen as a holistic business strategy and serves as a model for the future of gastronomy.

2.4. Social Media Use of Michelin Restaurants and Sustainability in Digital Communication

Michelin-starred restaurants have also become pioneers in sustainability communication. Social media, particularly Instagram, serves as a crucial tool through which these establishments convey their sustainability practices to wider audiences by means of both visual and textual content.

Research shows that Michelin restaurants highlight sustainability on social media through various strategies. In their study analyzing the content of 135 Michelin three-star restaurants, Huang and Hall (2023) found that restaurants most frequently emphasized themes such as locality, seasonality, and supply chain transparency. In contrast, fewer restaurants addressed more technical aspects of sustainability, such as waste management or carbon footprint reduction.

Another study on Michelin restaurants in Italy revealed that Instagram content played a critical role in maintaining consumer engagement during crisis periods (e.g., COVID-19), while visual elements reinforced the sustainability narratives of brands (Fissi et al., 2023). It is emphasized that social media functions not only as a promotional tool but also as a medium for establishing interaction and trust with customers. Content analyses focusing on Michelin Green Star restaurants have found that these establishments frequently employ visual elements such as natural landscapes, farmer-chef collaborations, recycling symbols, and nature-themed colors in their sustainability communication (Huang et al., 2023). Such visual strategies contribute to consumers perceiving the restaurant not merely as a dining experience but as an ethical and environmentally responsible brand.

At the same time, it has been observed that Michelin-starred restaurants sometimes adopt a cautious approach in foregrounding sustainability themes on social media. A study conducted in New Zealand indicated that some restaurants pursue silent strategies instead of actively promoting their sustainability practices, which may at times be related to efforts to preserve their elitist image (Koupaei et al., 2025). Furthermore, the individual posts of chefs on social media have also been shown to enhance perceptions of brand sustainability. The research by Irimiás and Volo (2023) revealed that the aesthetic and ethics-oriented Instagram posts of Michelin chefs increased followers' interest in sustainable gastronomy.

The cultural and social dimension of sustainability is also highlighted in the social media communication of Michelin restaurants. The study by Breitenbach and Brandão (2025) demonstrated that haute cuisine restaurants develop a holistic narrative of sustainability by linking it to food production, culture, and agricultural practices.

3. Academic Discussions and Future Research Areas

Although the literature on sustainable gastronomy and restaurant management has made significant progress in recent years, there are still gaps to be addressed and areas for future research. The impact of social media and digital communication on sustainability perception remains insufficiently understood. Ozilgen et al. (2024) note that social media is a powerful tool for sustainability communication among actors in the food sector but emphasize the need for more multimedia-based experimental research in this field. In particular, the long-term effects of restaurants' social media content on consumer behavior constitute a critical area for future studies.

Studies aimed at understanding the relationship between digitalization and sustainability are increasing. Piot-Lepetit's (2025) research on digitalization in agri-food value chains revealed that the level of digital literacy among different actors directly affects the success of sustainability practices. For the restaurant sector, this finding indicates the need for research into how small businesses can benefit from digital sustainability strategies.

Sustainability research in gastronomy has mostly focused on environmental impacts, while dimensions such as social equity, cultural heritage preservation, and community participation need to be explored further. The study by Mansour and Vadell (2024) highlights that the future research agenda should focus on how finance, law, and digitalization intersect with sustainability in the field of gastronomy. Such interdisciplinary approaches will contribute to examining gastronomy not only as a food production process but also as a social, cultural, and economic phenomenon.

Future research is recommended to adopt more comprehensive approaches that integrate both quantitative and qualitative methods. The integration of social media content analysis, life cycle assessment, and consumer behavior studies can more clearly reveal the effects of sustainability practices in the gastronomy sector on both businesses and society.

4. Research Methodology

A qualitative research approach was adopted in this study. As part of the research, an examination of the Michelin Guide website identified 10 restaurants operating in Turkey that had been awarded the Green Star. The official Instagram accounts of these restaurants were accessed, and the posts shared on these accounts were subjected to content analysis. Content analysis is defined as “a qualitative data analysis technique that aims to reach concepts and relationships capable of explaining the collected data.” The content analysis process consists of coding the data, identifying themes, organizing codes and themes, examining the data with these codes and themes, and finally presenting and interpreting the findings (Sığrı, 2021).

The posts of the selected restaurants indicate that they were awarded the Green Star certification on December 6, 2024. For this reason, the study focused on posts shared between December 6, 2024, and September 1, 2025. The data were gathered during the period from August 1 to September 1, 2025. Only the posts made within this timeframe were analyzed. Posts emphasizing sustainability were included within the scope of analysis, while regular posts unrelated to sustainability were excluded. At the end of the content analysis, the restaurants’ posts were evaluated based on six main themes identified, as well as the most frequently repeated hashtags used in the captions of these posts.

5. Findings

Within the scope of the research, information regarding the Instagram accounts of the Michelin Guide Green Star restaurants is presented in Table 1.

Table 1. Instagram Profiles, Number of Posts, and Followers of Michelin Green Star Restaurants

Restaurant Name	Instagram Account	Total Posts	Followers
Agora Pansiyon	@agorapansiyon	620	27.2 K
Asma Yaprağı	@asmayapragialacati	1,583	102 K
Vino Locale	@urlavinolocale	303	65.8 K
Hiç Urla	@hicurla	1,802	67.1 K
Neo Lokal	@neolokal	316	88,5 K
The Barn	@thebarn_in_thefarm	196	10,1 K
Telezzüz	@telezzuz.ist	188	33,9 K
Mezra	@mezra.yalikavak	38	20,4 K
Casa Lavanda	@casalavanda	1.098	111 K
Od Urla	@odurla	777	210 K

Table 1 demonstrates that the restaurant with the highest number of followers is Od Urla. In addition, Asma Yaprağı has the largest number of posts.

Table 2. Od Urla Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	3
Emphasis on Seasonal Menu	9
Organic / Sustainable Agriculture	17
Social Responsibility / Community Support	11
Energy Efficiency / Eco-Friendly	0
Waste Reduction / Zero Waste	0
TOTAL	40
Total Number of Posts Since 06.12.2024	50

As presented in Table 2, the distribution of posts reflects that most of them fall under Organic / Sustainable Agriculture (17) and Social Responsibility / Community Support (11). These are followed by Emphasis on Seasonal Menu (9) and Use of Local Products (3). No posts were shared under the themes of Energy Efficiency / Eco-Friendly and Waste Reduction / Zero Waste. Overall, it was determined that the total number of sustainability-themed posts was 40, and that 80% of the total posts shared after the date of receiving the Green Star were related to sustainability.

Table 2.1 Hashtags Used in Od Urla's Instagram Posts

Hashtag	**Frequency**
#ODUrla	46
#OD	44
#SustainableGastronomy	44
#OsmanSezener	37
#FarmtoTable	33

When Table 2.1 is examined, it is observed that the restaurant has frequently used hashtags related to its own name and brand. In addition, the use of hashtags such as #SustainableGastronomy (44) and #FarmtoTable (33) highlights the theme of sustainable gastronomy.

Table 3. Neo Lokal Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	23
Emphasis on Seasonal Menu	10
Organic / Sustainable Agriculture	7
Social Responsibility / Community Support	4
Energy Efficiency / Eco-Friendly	0
Waste Reduction / Zero Waste	0
TOTAL	44
Total Number of Posts Since 06.12.2024	44

Table 3 reveals that most posts are associated with the themes of Use of Local Products (23) and Emphasis on Seasonal Menu (10). These are followed by Organic / Sustainable Agriculture (7) and Social Responsibility / Community Support (4). No posts were shared under the themes of Energy Efficiency / Eco-Friendly and Waste Reduction / Zero Waste. Overall, it was determined that the total number of sustainability-themed posts was 44, and that after the date of receiving the Green Star, all of the posts shared (100%) were related to sustainability.

Table 3.1. Hashtags Used in Neo Lokal's Instagram Posts

Hashtag	**Frequency**
#neolokal	41
#10YearsMovingForward	41
#10yearsofneolokal	41
#FineDining	41
#istanbul	3

According to Table 3.1, it is observed that the restaurant has frequently used hashtags related to its own name and brand.

Table 4. Mezra Yalıkavak Instagram Post Analysis

Sustainability Themes	Total Posts
Use of Local Products	7
Emphasis on Seasonal Menu	0
Organic / Sustainable Agriculture	1
Social Responsibility / Community Support	7
Energy Efficiency / Eco-Friendly	2
Waste Reduction / Zero Waste	0
TOTAL	17
Total Number of Posts Since 06.12.2024	38

Table 4 reveals that most posts are associated with the themes of Use of Local Products (7) and Social Responsibility / Community Support (7). These are followed by Energy Efficiency / Eco-Friendly (2) and Organic / Sustainable Agriculture (1). No posts were shared under the themes of Emphasis on Seasonal Menu and Waste Reduction / Zero Waste. Overall, it was determined that the total number of sustainability-themed posts was 17, and that since 06.12.2024, 44.7% of the posts shared were related to sustainability (17 out of 38).

Table 4.1. Hashtags Used in Mezra Yalıkavak's Instagram Posts

Hashtag	Frequency
#michelin	1
#greenstar	1
#sustainability	1

It is observed that the restaurant used hashtags only once each.

Table 5. Urla Vinolocale Instagram Post Analysis

Sustainability Themes	Total Posts
Use of Local Products	11
Emphasis on Seasonal Menu	4
Organic / Sustainable Agriculture	12
Social Responsibility / Community Support	4
Energy Efficiency / Eco-Friendly	4
Waste Reduction / Zero Waste	0
TOTAL	35
Total Number of Posts Since 06.12.2024	75

As shown in Table 5, the distribution of posts according to sustainability themes indicates that the majority are categorized under Organic / Sustainable Agriculture (12) and Use of Local Products (11). These are followed by Emphasis on Seasonal Menu (4) and Social Responsibility / Community Support (4). Under the theme of Energy Efficiency / Eco-Friendly, 4 posts were shared, while no posts were made under Waste Reduction / Zero Waste. Overall, a total of 35 sustainability-themed posts were identified out of 75 posts shared after the Green Star certification. The findings also reveal that the restaurant did not use hashtags in its posts.

Table 6. Agora Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	12
Emphasis on Seasonal Menu	4
Organic / Sustainable Agriculture	5
Social Responsibility / Community Support	10
Energy Efficiency / Eco-Friendly	0
Waste Reduction / Zero Waste	0
TOTAL	31
Total Number of Posts Since 06.12.2024	31

As presented in Table 6, the distribution of posts according to sustainability themes shows that the majority fall under Use of Local Products (12) and Social Responsibility / Community Support (10). These are followed by Organic / Sustainable Agriculture (5) and Emphasis on Seasonal Menu (4). The data also reveal that no posts were made under the themes of Energy Efficiency / Eco-Friendly or Waste Reduction / Zero Waste. It was further identified that, since receiving the Green Star, all posts shared by the restaurant were related to sustainability themes.

Table 6.1. Hashtags Used in Agora's Instagram Posts

Hashtag	**Frequency**
#bafagölü	28
#agorapansiyon	27
#bafalake	24
#michelinguide	15
#gastronomi	14
#michelingreenstar	14
#gurme	12
#michelinbibgourmand	9

According to Table 6.1, the restaurant made frequent use of hashtags connected to its name and geographical location, while also drawing attention to sustainable gastronomy through the hashtags #michelinguide (15) and #michelingreenstar (14).

Table 7. Hiç Urla Instagram Post Analysis

Sustainability Themes	Total Posts
Use of Local Products	7
Emphasis on Seasonal Menu	5
Organic / Sustainable Agriculture	11
Social Responsibility / Community Support	5
Energy Efficiency / Eco-Friendly	1
Waste Reduction / Zero Waste	4
TOTAL	33
Total Number of Posts Since 06.12.2024	39

Table 7 reveals that the majority of posts are categorized under Organic / Sustainable Agriculture (11) and Use of Local Products (7). These are followed by Emphasis on Seasonal Menu (5) and Social Responsibility / Community Support (5). The data also show that there was 1 post under Energy Efficiency / Eco-Friendly and 4 posts under Waste Reduction / Zero Waste. In total, 33 sustainability-themed posts were identified out of 39 posts shared after the Green Star certification.

Table 7.1. Hashtags Used in Hiç Urla's Instagram Posts

Hashtag Group	Variants	Frequency
urla	#urla, #urlasanatsokağı, #urlacookingclass, #urlagastronomi, #urlafood, #urlalezzelleri, #urlalezzetleri, #urlanature, #urlaflavors	39
hicurla	#hicurla, #hiçurla	30
hiclokanta	#hiclokanta, #hiçlokanta	30
michelin	#michelinstar, #michelin, #michelinguide, #michelinurla, #michelingreenstar, #greenmichelinstar	22
hiçzeytinormanı	#hiçzeytinormanı, #hicoliveforest, #hicoliveforest, #hiçzeytinormanı	16
sustainability	#sustainability, #sürdürülebilirlik, #sürdürülebilirmutfak, #sürdürülebilirrestoran, #sürdürülebilirtarım, #sürdürülebilirtasarım, #sürdürülebiliryaşam, #sürdürülebilirüretim	15
greenstar	#greenstar, #greenmichelinstar, #michelingreenstar, #greenmichelinstar	10
ormandantabağa	#ormandantabağa, #ormandanmutfağa, #ormandansofraya	6
#sustainableagriculture	#sustainableagriculture	3
#sustainablerestaurant	#sustainablerestaurant	3
#sustainabletourism	#sustainabletourism	3
#sustainablegastronomy	#sustainablegastronomy	3

According to Table 7.1, the restaurant frequently used hashtags related to its own name and brand. In addition, the hashtags #michelin (22) and #sustainability (15) highlight the theme of sustainable gastronomy. The findings also indicate that sustainability was emphasized in different dimensions using hashtags such as #greenstar (10), #hiczeytinormanı (16), #ormandantabağa (6), as well as #sustainableagriculture, #sustainablerestaurant, #sustainabletourism, and #sustainablegastronomy (3).

Table 8. Casalavanda Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	2
Emphasis on Seasonal Menu	2
Organic / Sustainable Agriculture	19
Social Responsibility / Community Support	1
Energy Efficiency / Eco-Friendly	0
Waste Reduction / Zero Waste	0
TOTAL	24
Total Number of Posts Since 06.12.2024	79

The data in Table 8 indicate that most posts are categorized under Organic / Sustainable Agriculture (19) and Use of Local Products (2). These are followed by Emphasis on Seasonal Menu (2) and Social Responsibility / Community Support (1). It is also evident that no posts were shared under the themes of Energy Efficiency / Eco-Friendly or Waste Reduction / Zero Waste. In total, 24 sustainability-themed posts were identified out of 79 posts shared after the Green Star certification.

Table 8.1 Hashtags Used in Casa Lavanda's Instagram Posts

Hashtag Adı	**Frequency**
#CasaLavandaBoutiqueHotel	31
#CasaLavandaMoments	31
#FarmToTable	23
#SustainableKitchen	21
#CasaLavanda	14
#EscapeToNature	13
#WinterSeason	9
#CasaLavandaWeddings	5

Table 8.1 shows that the restaurant frequently used hashtags related to its own name and brand, while also highlighting the theme of sustainable gastronomy with the use of the tags #SustainableKitchen (21) and #FarmToTable (23).

Table 9. Asma Yaprağı Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	4
Emphasis on Seasonal Menu	3
Organic / Sustainable Agriculture	23
Social Responsibility / Community Support	9
Energy Efficiency / Eco-Friendly	3
Waste Reduction / Zero Waste	0
TOTAL	42
Total Number of Posts Since 06.12.2024	78

Table 9 shows the distribution of sustainability themes according to the number of posts. Most posts were shared under the Organic/Sustainable Agriculture theme (23) and the Social Responsibility/Community Support theme (9). These themes are followed by Local Product Use with 4 posts and Seasonal Menu Focus with 3 posts. There were 3 posts under the Energy Efficiency/Environmentally Friendly theme, while there were no posts under the Waste Reduction/Zero Waste theme. Overall, it was determined that there were 42 sustainability-themed posts and a total of 78 posts shared after the date the green star was received.

Table 9.1. Hashtags Used in Asma Yapragi's Instagram Posts

Hashtag	**Frequency**
#sustainablegastronomy	47
#seasonal	39
#farmtotable	33
#chefslife	18
#bostandansofraya	12
#aegean	8
#homecooking	5
#local	5
#greenstar	4
#sürdürülebilirgastronomi	4
#sustainableagriculture	3

Table 9.1 shows that the restaurant stands out with its use of the #SustainableGastronomy (47) and #FarmtoTable (33) tags, highlighting the theme of sustainable gastronomy. Additionally, the #Seasonal (39) tag

emphasizes seasonality, while the #BostandanSofraya (12) tag highlights the farm-to-table approach. Furthermore, the #Aegean (8), #HomeCooking (5), and #Local (5) tags highlight the use of local products in regional cuisine. In addition, the #GreenStar (4), #SürdürülebilirGastronomi (4), and #SustainableAgriculture (3) tags draw attention to the themes of the Michelin Green Star, sustainable gastronomy, and sustainable agriculture.

Table 10. The BARN Instagram Post Analysis

Sustainability Themes	**Total Posts**
Use of Local Products	4
Emphasis on Seasonal Menu	13
Organic / Sustainable Agriculture	18
Social Responsibility / Community Support	6
Energy Efficiency / Eco-Friendly	0
Waste Reduction / Zero Waste	3
TOTAL	44
Total Number of Posts Since 06.12.2024	79

Table 10 shows the distribution of sustainability themes according to the number of posts. Most posts were shared under the Organic/Sustainable Agriculture theme (18) and the Seasonal Menu Focus theme (13). These themes were followed by Social Responsibility/Community Support with 6 posts and Local Product Use with 4 posts. While there were no posts under the Energy Efficiency/Environmentally Friendly theme, 3 posts under the Waste Reduction/Zero Waste theme stand out. Overall, it was determined that there were 44 posts on sustainability themes and a total of 79 posts shared after the date the green star was received.

Table 10.1 Hashtags Used in The Barn's Instagram Posts

Hashtag	**Frequency**
#theBARN	60
#MichelinRecommended	60
#ZeroWaste	59
#FarmFresh	58
#NewMenu	56
#FarmToTable	53
#GreenMichelinStar	46
#GreenMichelin	15
#theBARNintheFarm	8

Table 10.1 shows that the restaurant frequently uses hashtags related to its own name. In particular, the #theBARN (60) and #MichelinRecommended (60) tags emphasize the brand's own name and its connection to Michelin. In addition, tags such as #ZeroWaste (59), #FarmFresh (58), #NewMenu (56), and #FarmToTable (53) highlight the restaurant's emphasis on sustainable gastronomy. Furthermore, the #GreenMichelinStar (46) and #GreenMichelin (15) tags highlight that the restaurant has a Michelin Green Star. The #theBARNintheFarm (8) tag reflects the brand's own name.

Table 11. Telezzüz Instagram Gönderi Analizi

Sustainability Themes	**Total Posts**
Use of Local Products	0
Emphasis on Seasonal Menu	25
Organic / Sustainable Agriculture	5
Social Responsibility / Community Support	0
Energy Efficiency / Eco-Friendly	1
Waste Reduction / Zero Waste	2
TOTAL	33
Total Number of Posts Since 06.12.2024	84

Table 11 shows the distribution of sustainability themes according to the number of posts. The majority of posts were shared under the Seasonal Menu Focus theme (25) and the Organic/Sustainable Agriculture theme (5). These themes are followed by Waste Reduction/Zero Waste with 2 posts and Energy Efficiency/Environmentally Friendly with 1 post. It is noticeable that there were no posts under the Local Product Use and Social Responsibility/ Community Support themes. Overall, it was determined that there were 33 sustainability-themed posts and a total of 84 posts shared after the date the green star was received. It was determined that all 84 posts used only the #telezzüz hashtag.

Conclusion

This study aimed to analyze the sustainability strategies of Michelin Green Star restaurants in Turkey through their social media content. Using a qualitative content analysis method, the research examined how sustainability themes were represented visually and textually in the Instagram posts of these restaurants. The findings revealed that the restaurants structured their sustainability discourses particularly around themes such as the use of local products, emphasis on seasonal menus, and organic farming.

The results indicate that Michelin Green Star restaurants do not limit their sustainability practices to the kitchen; they also disseminate this vision to wider audiences through digital communication strategies. However, it was also observed that some restaurants did not make their sustainability themes sufficiently visible on social media. This suggests that digital sustainability communication in the sector has not yet been institutionalized and remains an area open to development.

By focusing on the digital communication dimension of sustainability practices in the gastronomy sector, this study provides an original contribution to the literature. Furthermore, it is significant as one of the first examples to analyze the sustainability strategies of Michelin Green Star restaurants in the Turkish context.

Among the limitations of the study is the fact that only the Instagram platform was examined and that the analysis of posts did not cover levels of visual engagement. Future research could conduct comparative analyses across different social media platforms; in addition, sustainability perception could be evaluated more comprehensively through metrics such as consumer interaction, comments, and the number of likes.

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