



Universitat de Lleida

Gastronomy Tourism, Cultural Heritage, and Quality of Life: Evidences from Taiwan and Catalonia

Min-Pei Lin

<http://hdl.handle.net/10803/689717>



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Universitat de Lleida

DOCTORAL DISSERTATION

**Gastronomy Tourism, Cultural Heritage, and Quality of
Life: Evidences from Taiwan and Catalonia**

Min-Pei Lin

Thesis submitted to qualify for the Doctorate degree at the University of Lleida
PhD Programme in Education, Society and Quality of Life

Supervisors

Dra. Nayra Llonch-Molina

Dra. Estela Mariné-Roig

Tutor

Dra. Nayra Llonch-Molina

2023

FUNDING

This work was supported by the Spanish Ministry of Science, Innovation and Universities under [Grant id.: ECO2017-88984-R] within the TURCOLAB project.

It was also specially supported by the Spanish Ministry of Industry, Trade and Tourism, financed by the European Union - Next Generation EU, within the GASTROTUR project [Grant Id. TUR-RETOS2022-017] "Revaluation of destinations through the semiotic aspects of the gastronomic image and the content generated by tourists".

ACKNOWLEDGEMENTS

Studying in a doctoral programme in Spain has been nothing short of a transformative journey, one made possible by the support of several people whom I would like to thank.

Above all, I would like to express my sincere gratitude to my supervisors, Dr Nayra Llonch-Molina and Dr Estela Mariné-Roig, for their unending support throughout my doctoral study and for their exquisite patience, encouragement, knowledge, and feedback. They conscientiously guided me throughout the research process, from the conceptualisation of the methods, data collection, and extraction of data to the review of the results for each published part of the thesis and, in turn, to this thesis itself.

I also want to thank Prof Isabel Lugo for enlightening me from the beginning of my doctoral journey, for encouraging me to pursue research, for sharing knowledge, and for always supporting me. Thanks also go to Dr Eduard Cristóbal-Fransi, for affording me the opportunity to join the project team and to Dr Gemma Filella Guiu, for motivating me and sharing insightful suggestions.

I additionally wish to thank all of the editors and reviewers who have helped me to improve my publications. Without their insightful comments, this thesis would have never materialised.

Last, I would like to thank my family—my parents and my brother—for supporting me both spiritually and financially in accomplishing my personal goals. Their belief in me has kept my spirits and motivation high throughout my time in the doctoral programme.

ABSTRACT

In the course of human evolution, food has developed from a single-function to a multi-function resource. For individuals, food not only provides sustenance but can also boost quality of life and well-being, while for groups, food has additional economic, cultural, and identity-related functions.

In this thesis, designed to elucidate the relationship between gastronomy tourism, cultural heritage, and quality of life, four theoretical frameworks are applied in two case regions with similar backgrounds: Taiwan and Catalonia. Tourists' TripAdvisor reviews of food-focused tourism experiences in those regions are analysed to assess tourists' satisfaction and subjective well-being following the experiences. The results show that although gastronomy tourism centred on gastronomic heritage positively impacts tourist destinations, gastronomic heritage tourism centred on tourists does not alter the landscape of local gastronomic heritage, because locals remain the primary force in maintaining that landscape.

The results also reveal that, in their perceptions of gastronomy tourism, tourists have expectations concerning destination image and the activities offered at destinations based on induced, autonomous, and organic sources. In this dynamic, if the expectations coincide with the real experiences of the tourists, the destinations will achieve the visitors' satisfaction and well-being, as well as their loyalty to the spot, thus generating a positive word-of-mouth cycle. Indeed, even for Michelin-starred restaurants, increasing guests' satisfaction, maintaining repeat customers, and winning over new ones are all more important than obtaining Michelin stars. With this purpose of generating satisfaction and well-being), cooking classes, for example, can provide entertaining, educational, aesthetic, and escapist experiences; along with stimulating the development of taste and the acquisition of special knowledge and skills, they can also improve quality of life by increasing participants' physical and mental health as well as interpersonal communication.

Regarding dietary needs, the results reflect that perceptions of gastronomic experiences in high-end restaurants are based on food quality, dining environment, and service. Although the popularity and attractiveness of reviewed experiences differed, tourists' satisfaction with and loyalty to them were high in both Taiwan and Catalonia.

In conclusion, regardless of differences in destinations' branding and marketing strategies, tourists' suggestions and improvements undertaken by tourism industries can help to create an environment for gastronomic experiences that better meets customers' needs and thereby benefits tourists and tourism industries alike.

RESUM

En el decurs de l'evolució humana, el menjar ha passat de ser un article amb una sola funció a tenir-ne diverses. Per a les persones, l'alimentació no només proporciona subsistència, sinó que també pot potenciar la qualitat de vida personal i el benestar, mentre que per als grups, el menjar té funcions addicionals econòmiques, culturals i relacionades amb la identitat.

En aquesta tesi, dissenyada per dilucidar la relació entre el turisme gastronòmic, el patrimoni cultural i la qualitat de vida, s'apliquen quatre marcs teòrics en dos casos d'estudi de regions amb antecedents similars: Taiwan i Catalunya. S'analitzen les opinions dels turistes a TripAdvisor sobre experiències turístiques centrades en el menjar en aquelles regions per avaluar la satisfacció i el benestar subjectius dels turistes després de les experiències. Els resultats mostren que, si bé el turisme gastronòmic centrat en el patrimoni gastronòmic té un impacte positiu a les destinacions turístiques, el turisme gastronòmic centrat en els turistes no altera el paisatge del patrimoni gastronòmic local, perquè els habitants locals continuen sent la força principal en el manteniment d'aquest patrimoni.

Els resultats també revelen que, en les seves percepcions relacionades amb el turisme gastronòmic, els turistes tenen expectatives sobre la imatge de la destinació i les activitats que s'hi ofereixen basades en fonts induïdes, autònomes i orgàniques. En aquesta dinàmica, si les expectatives coincideixen amb les experiències reals dels turistes, les destinacions aconseguiran la satisfacció i el benestar dels visitants, així com la seva fidelització al lloc, generant així un cicle al boca-orella positiu. De fet, fins i tot als restaurants amb estrelles Michelin, augmentar la satisfacció dels clients, mantenir els que repeteixen i atraure altres de nous és més important que obtenir estrelles Michelin. Amb aquesta finalitat de generar satisfacció y benestar, les classes de cuina poden proporcionar experiències educatives, entretingudes, estètiques i escapistes; a més d'estimular el desenvolupament del gust i l'adquisició de coneixements i habilitats especials, també pot millorar la qualitat de vida en augmentar la salut física i mental dels participants, així com la comunicació interpersonal.

Pel que fa a les necessitats dietètiques, els resultats reflecteixen que les percepcions de les experiències gastronòmiques en restaurants d'alt nivell es basen en la qualitat dels aliments, l'ambient del menjador y el servei. Encara que la popularitat i l'atractiu de les experiències ressenyades van diferir, la satisfacció i la lleialtat dels turistes van ser altes tant a Taiwan com a Catalunya.

En conclusió, independentment de les diferències en les estratègies de marca i màrqueting de les destinacions, els suggeriments dels turistes i les millores dutes a terme per les indústries turístiques poden ajudar a crear un entorn per a experiències gastronòmiques que satisfaci millor les necessitats dels clients i, per tant, beneficiï tant als turistes com a les indústries turístiques.

RESUMEN

En el transcurso de la evolución humana, la comida ha pasado de ser un artículo con una sola función a tener varias. Para las personas, la alimentación no solo proporciona subsistencia, sino que también puede potenciar la calidad de vida y el bienestar, mientras que, para los grupos, la comida tiene funciones adicionales económicas, culturales y relacionadas con la identidad.

En esta tesis, diseñada para dilucidar la relación entre el turismo gastronómico, el patrimonio cultural y la calidad de vida, se aplican cuatro marcos teóricos en dos casos de estudio de regiones con antecedentes similares: Taiwán y Cataluña. Se analizan las opiniones de los turistas en TripAdvisor sobre experiencias turísticas centradas en la comida en esas regiones para evaluar la satisfacción y el bienestar subjetivos de los turistas después de las experiencias. Los resultados muestran que, si bien el turismo gastronómico centrado en el patrimonio gastronómico tiene un impacto positivo en los destinos turísticos, el turismo gastronómico centrado en los turistas no altera el paisaje del patrimonio gastronómico local, porque los habitantes locales siguen siendo la fuerza principal en el mantenimiento de ese patrimonio.

Los resultados también revelan que, en sus percepciones relacionadas con el turismo gastronómico, los turistas tienen expectativas sobre la imagen del destino y las actividades que allí se ofrecen basadas en fuentes inducidas, autónomas y orgánicas. En esta dinámica, si las expectativas coinciden con las experiencias reales de los turistas, las destinaciones conseguirán la satisfacción y el bienestar de los visitantes, así como su fidelidad hacia el lugar, generando así un ciclo de boca en boca positivo. De hecho, incluso en los restaurantes con estrellas Michelin, aumentar la satisfacción de los clientes, mantener a los que repiten y atraer nuevos clientes es más importante que obtener estrellas Michelin. Con este fin de generar satisfacción y bienestar, las clases de cocina pueden proporcionar experiencias educativas, entretenidas, estéticas y escapistas; además de estimular el desarrollo del gusto y la adquisición de conocimientos y habilidades especiales, también pueden mejorar la calidad de vida al aumentar la salud física y mental de los participantes, así como la comunicación interpersonal.

En cuanto a las necesidades dietéticas, los resultados reflejan que las percepciones de las experiencias gastronómicas en restaurantes de alto nivel se basan en la calidad de los alimentos, el ambiente del comedor y el servicio. Aunque la popularidad y el atractivo de las experiencias reseñadas difirieron, la satisfacción y la lealtad de los turistas hacia ellas fueron altas tanto en Taiwán como en Cataluña.

En conclusión, independientemente de las diferencias en las estrategias de marca y marketing de los destinos, las sugerencias de los turistas y las mejoras emprendidas por las industrias turísticas pueden ayudar a crear un entorno para experiencias gastronómicas que satisfaga mejor las necesidades de los clientes y, por lo tanto, beneficie tanto a los turistas como a las industrias turísticas.

摘要

在人類演化的過程中，食物已經從維持生命這個單一功能，發展為具有多種功能的食品。就個人而言，食物除了可以滿足人們的生存需求外，還可以提升個人的生活質量和幸福感；對人類社會而言，食物具有經濟、文化和身份認同等多項功能。

本文旨在探討美食旅遊、文化遺產和生活質量之間的關係。主要在將四個理論框架應用於兩個具有相似背景的樣區—台灣和加泰隆尼亞，並分析遊客在 TripAdvisor 上的評論，以評估遊客對以美食為主的旅遊體驗滿意度和主觀幸福感。結果顯示，以遊客為中心的美食遺產旅遊對旅遊目的地具有積極影響，但當地人才是維持美食遺產原本風味的主要力量。

另外，在美食旅遊方面，遊客接收來自於誘導的、自發性的和原始訊息後，對目的地提供的活動產生期望。當遊客的實際體驗和期望的符合程度越高，則越容易產生滿意度和幸福感，以及對目的地的忠誠度，並形成良好的口碑循環。在高端美食體驗方面，研究結果顯示，提高客人滿意度、增加回頭客及新顧客有利於餐廳的永續經營，比提高米其林星級更重要。最後，在廚藝教室方面，參加廚藝教室課程的學員一方面可以獲得教育、娛樂、美學和脫離日常生活現實的體驗；另一方面還可以透過刺激味覺的發展和獲得特殊的知識和技能，增加學員身心健康和人際交往，有利於生活品質的提高。

飲食需求反映了對餐廳美食體驗的感知基於食品質量、就餐環境和服務。根據美食體驗的不同，受歡迎程度和吸引力也有所不同，但亞洲地區（台灣）和歐洲地區（加泰羅尼亞）的滿意度和忠誠度都很高。

最後值得一提的是，本研究針對美食旅遊、高端餐廳和廚藝教室等不同美食體驗的研究結果發現，儘管不同目的地品牌和營銷策略存在差異，但經由旅客建議及業者的改善，有助於業者打造更符合顧客需求的美食體驗環境，達到雙贏的美食體驗。

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1. INTRODUCTION AND OBJECTIVES

Although food once served only to support life, today it has become a commodity with multiple functions, including ones related to identity, economic revitalisation, destination authentication (e.g. Forné, 2015; Kivela & Crotts, 2006; Laroche et al., 2005), and even leisure and personal well-being (e.g. Ares et al., 2014; Batat et al., 2019; Cleave, 2020; Williamson & Hassanli, 2020). Much of those functions derive directly or indirectly from the cultural value associated with food. In fact, food and its manifestations are part of a society's set of cultural expressions and, as such, are part of their immaterial cultures (Almerico, 2014; Kniazeva & Venkatesh, 2007).

On 16 May 2001, to protect traditional culture and folklore, the manifestations of which include food, the Executive Board of UNESCO defined *intangible cultural heritage* (ICH) as follows:

Cultural heritage does not end at monuments and collections of objects. It also includes traditions or living expressions inherited from our ancestors and passed on to our descendants, including oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts. (UNESCO, 2001)

However, UNESCO's list of ICH did not include gastronomic heritage until 2010, when all food-related manifestations were added to the list (UNESCO, 2022). The step of recognising food as ICH paved the way towards empowering food's functions for not only identity but also for destination authentication in the realm of tourism. In particular, it has given rise to food-focused activities, sites, and festivals as forms of gastronomy tourism able to attract tourists, improve tourist flows, and increase a destination's income, all of which have contributed to sustaining and revitalising the economies of tourist destinations.

It is worth mentioning that UNESCO's recognition of gastronomic heritage has not only gradually become more internationalized in terms of practice, but has also expanded to different fields in terms of cognition, and this evolution in practice and cognition has indirectly affected the definition of gastronomic heritage. For example, in Korea, Kimchi is a generic term for all preserved and fermented vegetables, and has been consumed for more than 2,000 years. Due to its richness in vitamins, minerals, dietary fibre, and other functional nutrients, it is known to have anti-cancer, anti-oxidation, anti-atherosclerosis, anti-diabetes, and anti-obesity effects

(Park et al., 2014). As a result, it is listed as an intangible cultural heritage. In Korea, Kimchi is a food that transcends social classes and regions. It is made by seasoning and fermenting pickled vegetables with spices and seafood. The preparation of Kimchi often involves the whole family, contributing to family solidarity and cohesion. The Mediterranean diet, listed as an intangible cultural heritage, is characterized by (1) high consumption of legumes, grains (including bread), fruits, and vegetables, (2) moderate consumption of alcohol and dairy products, (3) low consumption of meat and meat products, and (4) a high ratio of monounsaturated to saturated fatty acids (Willett et al., 1995). In an environment where the healthcare system is generally inadequate and there is a high prevalence of smoking, such dietary habits contribute to the longevity of the population compared to developed countries like Europe (Willett, 1994). This carefully prepared and healthy dietary style is the primary reason for being listed as an intangible cultural heritage. These gastronomic heritages involve considerations in sociology, anthropology, human health, and food science, contributing to the evolving definition of gastronomic heritage.

The soil shapes each locality's people and their culture. In times when transportation was not well developed, people had to rely on locally available ingredients to prepare their food. This temporal and environmental context led to the development of regional culinary characteristics. With the increase in mobility, the variety of available ingredients expanded. Furthermore, humans are the only species in the world that prepares food based on social norms, fashion, beliefs, or customs (Ríos, 2009). As a result, food, which serves essential nourishment, not only became diverse but also took on additional functions related to culture and identity. The definition of gastronomy has evolved over time, from the original aristocratic food, slowly developed into the local characteristics of peasant food, and traditional food with cultural significance; this implies that the art of selecting, preparing, serving, and enjoying food is integral to the concept of gastronomy (Richards, 2003). The cultural and identity functions of gastronomy not only preserve the diversity of traditional food but also resist the influence of global mainstream food preferences, contributing to sustainability (Avieli, 2013).

Gastronomy tourism refers to any tourism activity characterised by experiences, products, and activities associated with food, including authentic, traditional, and/or innovative cooking experiences (UNWTO, 2019). In addition, scholars claim that any food-based activity (e.g. restaurant dining, festivals, food factory experiences, travel) can be called food tourism (Hall & Mitchell, 2005; Hjalager & Richards, 2002). Lastly, the ritualization of food in its preparation, creation, consumption, and service not only elevates the flavours of food to a new

level but also serves as a tool for social stratification (Medina & Aguilar, 2019; Poulain, 2005).

Tourism destination image (TDI) can be defined as:

a voluntary, multisensory, primarily picture-like, qualia-arousing, conscious, and quasi-perceptual mental (i.e., private, nonspatial, and intentional) experience held by tourists about a destination. This experience overlaps and/or parallels the other mental experiences of tourists, including their sensation, perception, mental representation, cognitive map, consciousness, memory, and attitude of the destination” (Lai & Li, 2016);

and will affect the tourist flows. Because food is the most direct means for tourists to understand local culture (López-Guzmán & Jesus, 2011), gastronomy has become a chief element of tourism destination image (TDI) (Dixit, 2020), such that gastronomy tourism affects the flow of tourists to destinations. For those reasons, research on gastronomic heritage and gastronomy tourism has increased importance for not only destination management and marketing organisations but also for academia (Grubor et al., 2022).

The formation of a gastronomic heritage of intangible cultural heritage must be recognised by UNESCO, and holds special significance for human survival, cultural inheritance, and identity recognition; gastronomic tourism, on the other hand, involves the selection of suitable cuisine by food industry, paired with different activities (e.g. visits to facilities, festivals, cooking), with the aim of creating a gastronomic experience different from that of a restaurant, often with more economic considerations. However, the distinction between these two is not always straightforward, as appropriate gastronomic heritage may also be incorporated into culinary tourism offerings.

The boundary between travel and leisure is not clearly defined. However, there are typically two key distinctions: recreational activities often involve physical exertion and the acquisition of new skills and abilities, whereas tourism is primarily centred around pleasure and generally doesn't require physical effort or skill development (Adl, 1967). In the case of serious leisure, as proposed by Stebbins (2015), the emphasis is placed on gaining and demonstrating skills, competencies, and knowledge while enjoying cherished experiences. Based on this concept, a cooking classes should be characterized by serious leisure.

Against that background, this thesis investigates the relationship between gastronomic tourism and the creation and communication of TDI. It considers the concept of TDI formation based on Marine-Roig (2019, 2021) framework of destination image formation, which is itself inspired by the work of Gunn (1972) and Gartner (1993), which accounts for three types of

sources of tourists' perceptions: induced sources, autonomous sources, and organic sources. Of those three types, the thesis focuses on analysing organic sources only, especially electronic word of mouth shared on social media—that is, user-generated content (UGC) and, more specifically, content generated by travellers, or *traveller-generated content* (TGC).

TGC encompasses a vast amount of information, namely in the form of big data, that is constantly growing and manifests on numerous platforms. Given those circumstances, the analysis of TGC remains incipient, while work on TGC and gastronomic tourism are nearly non-existent, both of which make the field and the topics studied so broad that they cannot be entirely addressed in a single thesis. For that reason, and because this thesis was produced in a doctoral programme focused on education, society, and quality of life, the thesis focuses on aspects of gastronomy tourism related to quality of life (Block et al., 2011; Bublitz et al., 2013), addressed above all in terms of well-being and satisfaction.

As for other aspects of the thesis's scope, to probe different fields of study in an effort to illuminate potential avenues for future research, the thesis focuses on analysing gastronomic experiences in restaurants, especially those with Michelin stars, of all possible activities associated with gastronomic tourism. In that context, it pays close attention to tourists' evaluation of activities other than eating in restaurants, especially cooking classes. Last, to limit the geographical scope of the thesis's analysis, Taiwan and Catalonia are examined as two regions rich in gastronomic heritage and representative of the two continents with the most UNESCO ICH (i.e. Asia and Europe). Both regions are investigated to provide comparisons that may be of interest to researchers and public and/or private stakeholders.

Thus, the overarching objective of this thesis, using Taiwan and Catalonia as cases, is to elucidate the relationship between gastronomy tourism and cultural heritage by analysing the satisfaction, subjective well-being, and quality of life of tourists who have engaged in gastronomic tourism experiences at destinations in those regions. To achieve that objective, the thesis aims to accomplish six more specific objectives.

First, Objective A is to determine the state of the art of research on gastronomic heritage in relation to UNESCO's ICH and analyse its links with tourist destinations and their management. To achieve Objective A, the thesis presents a bibliometric analysis of international literature on the subject and its evolution in relation to UNESCO's concept of ICH, for an altogether specific study of certain aspects of research in the literature focused on Asia and Europe.

Second, Objective B is to determine how restaurants approach special dietary needs (SDNs) and the satisfaction and well-being of tourists with SDNs who dine there. To achieve Objective B, the thesis presents a content analysis of the online reviews of customers with SDNs on TripAdvisor's online travel review (OTR) platform. The quantitative analysis sheds light on the similarities and differences between the services provided, as well as the satisfaction and well-being generated, in different Michelin-starred restaurants in the two case regions (i.e. Taiwan and Catalonia).

Third, Objective C is to analyse the satisfaction of tourists who engage in gastronomic experiences other than dining at restaurants (e.g. local market tours, winery tours, and cooking classes). To achieve Objective C, the thesis presents a study addressing TGC on TripAdvisor concerning the regions of Taiwan and Catalonia that involved analysing and applying models of the co-creation or co-design of tourist experiences based on the TDI perceived by visitors. Four categories of gastronomic experiences (i.e. learning, drinking, shopping, and other gastronomic tours) and some metrics have been analysed to measure the popularity of the activities, as well as the satisfaction and loyalty towards destination of the visitors who have engaged in them.

Fourth, Objective D is to qualitatively and quantitatively analyse the satisfaction and well-being of tourists who dine in high-end restaurants. To achieve Objective D, the thesis presents a content analysis of OTRs written in English on TripAdvisor that compares three restaurant categories (i.e. 1-star, 2-star, and 3-star) in both case regions. It also evaluates the results by applying a semantic (i.e. designative, evaluative, and prescriptive) and pragmatic (i.e. informative, evaluative, and inciting) analytical model of gastronomic images.

Fifth, Objective E is to qualitatively and quantitatively analyse the satisfaction and improved quality of life of tourists who have engaged in cooking classes at destinations in the case regions. To achieve Objective E, the thesis presents an analysis of OTRs on TripAdvisor that compares those tourists' satisfaction and visitors loyalty towards destination.

Sixth and last, Objective F is to verify similarities and differences in gastronomy tourism on the two continents (i.e. Asia and Europe) associated with the two case regions (i.e. Taiwan and Catalonia, respectively). Achieving Objective F is expected to shed light on the current state of gastronomic tourism in Asia and Europe and allow a comparison of the perceived image of food experiences between different categories of activities and restaurants in two regions with different cultures.

Overall, the thesis’s findings are expected to help destination management and marketing organisations to improve their marketing policies, their destination branding, and their products and services from the perspective of tourist demand. Herein, those findings are presented in four articles (i.e. three published, and one accepted at the time of writing) and a book chapter, all of whose published formatting has been retained in the thesis. All five works are appended to this thesis in the following order:

1. “Gastronomy as a Sign of the Identity and Cultural Heritage of Tourist Destinations: A Bibliometric Analysis 2001–2020”, published in *Sustainability*;
2. “Special Dietary Needs: Evidence from High-End Restaurants”, published in *Investigaciones actuales en ciencias sociales y en turismo* Tirant lo Blanch;
3. “Gastronomic Experience (Co)Creation: Evidence from Taiwan and Catalonia”, published in *Tourism Recreation Research*;
4. “Gastronomy Tourism and Well-Being: Evidence from Taiwan and Catalonia Michelin-Starred Restaurants”, published in the *International Journal of Environmental Research and Public Health*; and
5. “Cooking as a Sign of Healthy Living: Examining the Role of Cooking Classes in Improving Quality of Life”, accepted with modifications in *Leisure Sciences*.

Table 1 lists the titles of the articles and chapter that make up the thesis and the specific objectives (i.e. of Objectives A–F) that they have achieved.

1. Table 1. Titles of the articles and chapter that make up the thesis and the objectives of the thesis that they accomplished.

Article/chapter	Objective(s) accomplished
“Gastronomy as a Sign of the Identity and Cultural Heritage of Tourist Destinations: A Bibliometric Analysis 2001–2020”, published in <i>Sustainability</i>	Objective A: To determine the state of the art of research on gastronomic heritage in relation to UNESCO’s concept of intangible cultural heritage
“Special Dietary Needs: Evidence from High-End Restaurants”, published in <i>Investigaciones actuales en ciencias sociales y en turismo</i>	Objective B: To determine how restaurants approach special dietary needs (SDNs) and the satisfaction and well-being of tourists with SDNs who dine there Objective F: To verify the similarities and differences in gastronomy tourism on two continents (i.e. Asia and Europe) and in two particular regions there (i.e. Taiwan and Catalonia)
“Gastronomic Experience (Co)Creation: Evidence from Taiwan and Catalonia”, published in <i>Tourism Recreation Research</i>	Objective C: To analyse the satisfaction of tourists who engage in gastronomic experiences other than dining at restaurants Objective F: To verify the similarities and differences in gastronomy tourism on two

	continents (i.e. Asia and Europe) and in two particular regions there (i.e. Taiwan and Catalonia)
“Gastronomy Tourism and Well-Being: Evidence from Taiwan and Catalonia Michelin-Starred Restaurants”, published in <i>International Journal of Environmental Research and Public Health</i>	Objective D: To qualitatively and quantitatively analyse the satisfaction and well-being of tourists who dine at high-end restaurants Objective F: To verify the similarities and differences in gastronomy tourism on two continents (i.e. Asia and Europe) and in two particular regions there (i.e. Taiwan and Catalonia)
“Cooking as a Sign of Healthy Living: Examining the Role of Cooking Classes in Improving Quality of Life”, accepted with modifications in <i>Leisure Sciences</i>	Objective E: To qualitatively and quantitatively analyse the satisfaction and improved quality of life of tourists who take cooking classes Objective F: To verify the similarities and differences in gastronomy tourism on two continents (i.e. Asia and Europe) and in two particular regions there (i.e. Taiwan and Catalonia)

In the following chapters, the thesis first presents the materials and methods employed in the research conducted for the thesis, namely the models used, major aspects considered in selecting the case regions, the selection of the sample for quantitative and qualitative analysis, and the collection and organisation of data. After that, the thesis presents a global discussion of the results, followed by some final conclusions and their theoretical implications, practical implications, limitations, and implications for future avenues of research. Last, the thesis closes with a list of references used to prepare the articles, chapter, and the thesis itself.

2. MATERIALS, METHODS AND RESEARCH APPROACH

To achieve the thesis's objectives, as captured in the appended articles and chapter, the research of tourists' gastronomic experiences conducted for the thesis involved scrutinising scientific literature on the topic and analysing TGC posted on social media. Both sources of data primarily represent Asia and Europe in general and their respective regions of Taiwan and Catalonia in particular.

This study, based on its research objectives and relevant theoretical models, acquires corresponding travel reviews from TripAdvisor for content analysis and derive conclusion, which is an inductive reasoning method. Kaarbo & Beasley (1999) defined case study as a method of empirically investigating one or more real-world cases in their natural context, without involving the direct manipulation of phenomena or context. The comparative case research involves systematically comparing two or more cases obtained through the case study method. Taiwan and Catalonia are located in Asia and Europe, respectively, and they share similarities in terms of their natural environment, geopolitical relationships, and representative cuisine (Chen, 2011; Londoño, 2011; Wang, 2007). Conducting a case comparison study on the gastronomic experiences of these two regions can help systematically understand the similarities and differences in gastronomic experiences between Asia and Europe.

Throughout the articles, topics related to Asian and European gastronomy tourism are analysed. Gastronomy tourism (UNWTO, 2019):

is a type of tourism activity which is characterized by the visitor's experience linked with food and related products and activities while travelling. Along with authentic, traditional, and/or innovative culinary experiences, Gastronomy tourism may also involve other related activities such as visiting the local producers, participating in food festivals and attending cooking classes (p. 44).

Gastronomy tourism is included among the products, services and activities located in a Tourism destination (UNWTO, 2019):

is a physical space with or without administrative and/or analytical boundaries in which a visitor can spend an overnight. It is the cluster (co-location) of products and services, and of activities and experiences along the tourism value chain and a basic unit of analysis of tourism (p. 14).

Among the gastronomic experiences, dining experiences (eating in restaurants) and cooking classes are key in this study. Specifically, the fourth article argues that upscale restaurants have a cultural aspect; and the fifth article demonstrates that cooking classes are a

serious leisure activity. Due to their relationship with the culinary heritage of the destination and the visitors' motivation for learning or discovery cultural products, both experiences are included in the concept of Cultural tourism (UNWTO, 2019):

is a type of tourism activity in which the visitor's essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination. These attractions/products relate to a set of distinctive material, intellectual, spiritual and emotional features of a society that encompasses arts and architecture, historical and cultural heritage, culinary heritage, literature, music, creative industries and the living cultures with their lifestyles, value systems, beliefs and traditions (p. 30).

In this vein, the first article analyses gastronomy as a sign of identity and cultural heritage of tourist destinations, through the compilation of research and review articles related to gastronomy. Within the cultural experiences, the third article also analyses activities related to visiting local producers, such as farmer markets (markets for agricultural and livestock products) and winegrowers included in the definition of Wine tourism (UNWTO, 2019):

Eno-tourism (wine tourism), as a sub-type of gastronomy tourism, refers to tourism whose purpose is visiting vineyards, wineries, tasting, consuming and/or purchasing wine, often at or near the source (p. 44).

2.1. Case study

The case regions for the research conducted for this thesis were Taiwan, representing Asia, and Catalonia, representing Europe. On the one hand, there are more than 400 kinds of Asian cuisine (Ang et al., 1999). From the perspective of consumers in the United States, the greatest advantage of Asian cuisine is its affordability, with the exception of Japanese cuisine, whereas the food's freshness, cleanliness, healthiness, digestibility, and visual attractiveness could all be improved. Along those lines, if aspects of such cuisine (e.g. aroma, richness of colour, and spiciness) can be enhanced and exotic features added, then the competitiveness of Asian cuisine in the United States can be strengthened (Jang et al., 2009). In Europe, on the other hand, European eating habits, which can be roughly divided into single-course meals and compound meals, have developed into different food cultures, including Northern European, Central European, Scandinavian, and Southern European. Beyond that, the cuisine and food

culture of Latin Europe have gradually spread to various metropolises across Europe (Askegaard & Madsen, 1995).

In Asia, Taiwan, an island situated off the continent's southeast coast, covers approximately 36,000 square kilometres marked by a wealth of natural resources (Li & Jones, 2021) (Figure 1a). Given Taiwan's proximity to mainland China, residents of the two places have travelled frequently between the two locations since ancient times. For centuries, factors such as war, immigration, and trade have also increased the interaction of residents of the two places in terms of lifestyle, gastronomy, and culture in general. Under the influence of such ethnic integration, Taiwan's cultural diversity has also increased significantly. Taiwan's cuisine is internationally renowned (Horng & Tsai, 2010, 2012), especially for its rich gastronomy and numerous local delicacies (Lin et al., 2011). In a particularly special consumption pattern on the island, night markets are not only places where locals visit and shop but also gathering places for local culture (Hsieh & Chang, 2006). According to a survey conducted by the Statistical Information of Tourism Bureau (2003), Taiwan's night markets rank among the island's top-three most popular tourist attractions. Moreover, in the past three years, more than 50% of tourists have ranked gourmet food as their top reason for visiting Taiwan, with night markets accounting for 60% of those tourists' more specific motivations. Supported by the government's promotion of cultural activities, the spread of various forms of media (e.g. periodicals, TV shows, and social media), and the demand for local development, Taiwan has become an emerging tourism market in the Asia-Pacific region, one where food tourism plays a central role (Chuang, 2009). Indeed, in 2019, prior to the COVID-19 pandemic, Taiwan's annual tourism revenue was €13,648 million (Tourism Bureau, 2019, 2020a, 2021).

Meanwhile, in Europe, Catalonia is located in the north-eastern Iberian Peninsula (Felipe-Sotelo et al., 2006). With a surface area of 32,113 square kilometres, the region is approximately the same size as Taiwan (Figure 1b). Since ancient times, Catalonia has been a gateway for other Europeans and their cultures to enter the Iberian Peninsula, and, as a result, its tourism industry has developed over the course of centuries. Due to its rich natural, cultural, historical, and human resources, Catalonia today is a popular tourist attraction of international renown that offers an important variety of tourist activities and attracts tourists from all over the world for cultural reasons. In fact, within Spain, Catalonia received the second-most number of international tourists in 2019, prior to the COVID-19 pandemic. With €21,318 million in total tourism revenue, which accounts for 23% of all tourism revenue and ranks first in Spain (INE, 2022), Catalonia plays an important role in the Spanish economy.

Both Taiwan and Catalonia extend from the sea into central mountain ranges with peaks exceeding 3000 metres; more specifically, Catalonia extends from the Mediterranean Sea to the Pyrenees (Figure 1b), while Taiwan spans from the Taiwan Strait and Philippine Sea to the Yushan Range (Felipe-Sotelo et al., 2006; Li & Jones, 2021) (Figure 1a). Due to similar biological and geographical features, both regions possess rich resources that contribute to diverse cuisine, ranging from seafood to mountain food and potherbs—for example, *fideuà*, artichokes, and bolets in Catalonia and bluefin tuna, millet, and boar in Taiwan (Chen, 2011; Londoño, 2011).



(a) Taiwan geographical map.
(Nations Online Project, n.d.)

(b) Catalonia regional map.
(Institut Cartogràfic i Geològic de Catalunya, n.d.)

1. Figure 1. Map of Taiwan and Catalonia

2.2. Literature review

The literature review is the basic research method of providing a general understanding of the current state of research in a discipline and making recommendations for future research in that discipline (Cropanzano, 2009). A literature review can also be a systematic, comprehensive, straightforward way to appraise knowledge gained in academic research (Reining et al., 2019). Of all types of literature reviews, systematic reviews involve identifying,

analysing, and synthesising literature in a stepwise, systematic fashion for results that are as reliable as possible (Booth et al., 2021).

2.2.1 Systematic review

Of all study designs, systematic reviews have been rated as affording the highest quality of data collection, data analysis, data interpretation, and discussion of data for addressing specific research questions (Crowther & Lim, 2010). Systematic reviews are generally conducted to perform comprehensive research on both published and unpublished literature concerning a given topic by using precise methods to lower publication bias. Applying systematic processes also enhances the efficiency of research work because the approaches are replicable—that is, other researchers can easily produce the same results following the methods described (Tranfield et al., 2003).

A systematic review is a complex task that requires numerous rigorous steps to achieve its objectives. In good systematic reviews, the procedure begins with determining the topic, formulating specific questions to answer, and, to answer those questions, identifying the most appropriate literature within all possible publications on the topic according to specific inclusion and exclusion criteria. Once data from the selected literature is collected, the data are collated to obtain answers to the research questions. To that end, the statistical method of meta-analysis (e.g. bibliometric analysis) is usually applied to integrate and analyse different data in pursuit of results. The results of collating data require qualitative and quantitative analysis and are ultimately presented in textual, tabular, and/or graphical form. The more carefully planned and executed all of those steps are, the more convincing the results will be (Booth et al., 2021).

First, selecting the research topic determines the direction of the literature search and the source(s) of data (e.g. a literature database or specific journal) (Booth et al., 2021). The higher the quality of systematic review, the more likely it is that the target data are available. Some scholars select more than two sources (e.g. more than two databases) for their literature searches (Chu et al., 2020; Mariani & Baggio, 2022; Nave et al., 2021) in order to avoid overlooking relevant literature and subsequently select key terms for the literature based on the topic and remove duplicate literature. Generally speaking, different databases have different search strategies, the most common of which is using brackets to separate the title, abstract, and keywords of each data source and, in turn, using Boolean logic to link the different key terms identified from those fields. In Boolean logic, “AND” represents a relatively restrictive search condition with rigid filters and yields restricted results; “OR” represents a relatively open search

condition with loose filters and yields relatively expansive data; and “NOT” removes concepts that are not related to the key terms (Crowther & Lim, 2010). Researchers may also choose to filter search results according to the type of document, the period of publication, and the language of the data depending on the purpose of the study, thereby limiting the data to a manageable, more or less specific range. Last, if those tasks are performed by multiple researchers, then the results need to be cross-verified and discussed before further literature searches are conducted, which can help to obtain more accurate data.

While conducting systematic reviews, researchers need to strictly follow certain guidelines (Booth et al., 2021). For example, when selecting articles, they have to perform a comprehensive review of the titles, abstracts, and full-text content of the literature in order to ensure that irrelevant literature is excluded. Along with the quantitative and qualitative analysis of the selected literature, each article has to be critically evaluated to ensure the validity of its research methods and findings. After that, the synthesis of findings from different sources may enable novel insights (Mays et al., 2005). Overall, each systematic review is a series of meticulous, rigorous scientific search strategies and methods through which target data can be obtained in order to achieve the research objectives and generate convincing findings.

The objective of systematic reviews is to include the greatest number of relevant sources, as well as to conduct a reproducible, transparent process so that other scholars can replicate the research (Gusenbauer & Haddaway, 2020). At present, more than 20 databases are commonly used in academia, including JSTOR, PubMed, Web of Science (WoS), Scopus, and Google Scholar. Among them, WoS, Scopus, and Google Scholar are the most popular and provide an array of literature presenting research studies. Of those three, Scopus and WoS are the two databases that contain indexed, high-impact articles that have been widely cited in academic research (Knani et al., 2022; Muritala et al., 2020; Ochoa Jiménez et al., 2022), and are useful for bibliometric studies because they represent different disciplines (Sánchez et al., 2017). Google Scholar, by comparison, is a crawler-based web search engine that offers ample results, including from grey literature, which is sometimes not suitable for research (Gusenbauer & Haddaway, 2020), as was the case in the research conducted for this thesis. For those reasons, as well as to improve the efficiency of the research work, the research for the thesis involved performing systematic Boolean searches of WoS and Scopus.

2.2.2 Bibliometric analysis

Bibliometric analysis is a type of systematic review that scholars have increasingly used in conducting research. Okumus et al. (2018), for example, examined the evolution of gastronomic research in the tourism industry from 1976 to 2016 and found that though gastronomy has gradually become a reason for tourist to visit destinations, it has not received much attention from academia. Naruetharadhol and Gebsoombut (2020), who studied Southeast Asian cuisine by conducting a bibliometric analysis as well, found that, at a macro level, a variety of foods, services, and activities are incorporated in marketing destinations and tourist attractions. Rodríguez-López et al. (2020) also performed a bibliometric analysis to investigate more than 700 research articles on restaurants from 2000 to 2018. Their findings show that customer satisfaction has been the chief focus of research, the focus on healthy eating in research has increased, but customer sentiment has been relatively unexamined. Among their other findings, brand equity, culture, and innovation have surfaced as new themes in research on gastronomic tourism.

For researchers, bibliometric analyses provide insights into general concepts concerning the field of research represented, including about trends in research in past decades and about collaborative relationships between authors and/or institutes, and examine the chosen topic through the quantitative and qualitative analysis of the literature (Donthu et al., 2021). To produce reliable, valid bibliometric research, the selection of databases due to different fields may be an important factor.

As the product of literature reviews in general, a review article is an interpretation, synthesis, and assessment of the literature in a field conducted by an author or authors with extensive research experience in that field (Moher et al., 2009). Although the scope of a review article cannot exceed the scope of the findings in the literature being synthesised, new understanding can be gained from synthesising that literature. To avoid misunderstandings and biases caused by including too many opinions by some authors without taking into account differences in the quality of the literature, scholars formed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) group in 2009 that was subsequently responsible for developing the PRISMA guidelines (Moher et al., 2009). The PRISMA guidelines provide clear standards for each step of systematic reviews and meta-analyses, so that the authors of review articles can follow the guidelines and avoid making common mistakes that can reduce the persuasiveness of their review articles. In the research conducted for this thesis, the PRISMA guidelines for the implementation of systematic reviews and meta-analyses were followed.

2.2.3 Differences between systematic reviews and bibliometric analyses

Systematic reviews and traditional narrative reviews both require the analysis of a large body of scientific literature, with the primary distinction lying in their access to this literature (Linnenluecke et al., 2020). Systematic reviews follow a reproducible, scientific, transparent process whose value depends on the rigor of the methodology, the clarity of reporting, and the application of scientific strategies to limit possible errors and biases (Moher et al., 2009). By adhering to such a process, researchers can obtain unbiased datasets and substantially reduce errors in subsequent analyses (Tranfield et al., 2003).

Systematic reviews were first applied in the field of medicine but in recent decades have convened around a somewhat fixed model and yielded useful findings. Even so, no usable model for systematic reviews has been established in the social sciences. Compared with samples in the natural sciences, samples in the social sciences are complex and diverse in terms of the nature of the sampled data, the context in which the data were obtained, and even the research context, which makes it impossible to replicate the model for systematic reviews used in the natural sciences (Mallett et al., 2012; Young et al., 2002). Therefore, to compile results across studies, researchers in the field of management have begun adopting meta-analytical approaches to accommodate various attributes of data (Combs et al., 2019). Datasets obtained from that method are more convincing because the sample's information and background have more known components (Fischer & Mansell, 2009).

In recent years, with the advancement of software (e.g. Leximancer and VOSviewer) and the improvement of user-friendly literature databases, bibliometric analyses have been greatly improved in terms of the volume of data that they can accommodate and the impact of their findings and have thus become quite popular in commercial research (Donthu et al., 2021). By using bibliometrics, researchers can discover not only the quality of articles and journals, new trends in cooperative models, and emerging components in research but also the knowledge structure of specific domains in the literature—for instance, according to links between authors' keywords and their strength (Donthu et al., 2021). In addition, a relatively large amount of data and objective results can be obtained.

In short, systematic reviews represent a scientific sampling process performed to obtain a representative sample of data, and the depth and breadth of results and conclusions from the analysis of the data sample depends on the merits of the researchers. By contrast, bibliometric analyses not only integrate the research results in the same field, but also analyses the

connection network and strength of the knowledge system of each scientific document (such as title, author keywords, author's country and unit, and among authors). However, bibliometric analyses are difficult to distinguish from systematic reviews in terms of how large amounts of unstructured data are understood, the degree of scientific knowledge developed, and differences in the development of mature fields.

In this thesis, a systematic review and bibliometric analysis were conducted for the first article, which addresses the gastronomic heritage of tourist destinations.

2.3. Data source: Traveller-generated content (TGC)

With the current continuous development of the Internet and social media, it is increasingly convenient for tourists to receive information from others and to share their experiences online (Kaosiri et al., 2019; Narangajavana et al., 2017). That kind of information spontaneously provided by Internet users is called “user-generated content” (i.e. UGC), the most common type of which is OTRs. Compared with the traditional research methods of interviews and surveys, analyses of UGC offer the opportunity to analyse big data representing customers’ behaviours and/or experiences without asking them to provide their personal information. UGC has been used in many fields, including computer science, information science, business, management, and hospitality and tourism (Santos, 2022). In that last field, researchers have often focused on tourists’ decision-making (Cheong & Morrison, 2008), the sharing economy for accommodations (Zhang & Fu, 2020), and gastronomy tourism (Seyitoğlu & Alphan, 2021). After all, by way of UGC, tourists share stories, pictures, opinions, comments, and ratings about their travel experiences on social media—that is, TGC—that reveal the TDI perceived by tourists and their feelings towards destinations (Mariné-Roig & Huertas, 2020).

At present, sources of TGC (e.g. Airbnb, TripAdvisor, Booking.com, and Facebook) are gradually being established and becoming widely used in the field of gastronomy. For example, Wise and Farzin (2018) analysed TGC on Facebook and found that due to the influx of Western travellers, the cuisine of certain tourist destinations in Iran is gradually becoming commoditised and losing its original flavour. More recently, Mandić et al. (2020) analysed TripAdvisor data about five Mediterranean destinations (i.e. Greece, Croatia, Italy, France, and Spain) and found that cooking, service, price-to-quality ratio, and price were the core factors influencing the competitiveness of restaurants. Moreover, Yu and Sun (2019) analysed Instagram data and found that Taiwanese food, especially food from local cafés and local delicacies, was the most popular cuisine in Macau.

TripAdvisor, currently the most extensive online travel guide with 411 million visitors per month and over 700 million available travel reviews (Filieri et al., 2021), has become the most exciting source of research data for academics. A TripAdvisor OTR includes narratives, reviews, ratings, images, locations, and dates; distinguishes dining activities from other activities; and has an entire section dedicated to restaurants. Therefore, TripAdvisor was chosen as the source of data for the research conducted for this thesis. In this thesis, sources of data on TripAdvisor are examined in the articles on dietary needs in Michelin-starred restaurants, gastronomy tourism, gastronomic experiences in high-end restaurants, and tourists' experiences in cooking classes.

2.4. Data collection

Although nearly any research method that is applicable to other research topics can be used to study TDI, the inherent weaknesses of those methods also affect the study of topics related to TDI. In the case of interviews, for example, the interaction between the interviewer and the interviewee in face-to-face interviews can severely compromise the content of the data obtained (Oltmann, 2016). Moreover, interviewing requires a lot of time and human resources, especially for telephone interviews, which are also expensive. Although MSN Messenger interviews can expand the scope of interviews and avoid the high cost of telephone interviews, one of their greatest drawbacks is the lack of social cues (e.g. tone of voice) available. Beyond that, though email interviewing may avoid those drawbacks, interviewees may sometimes have to wait days or weeks before they can answer questions, which runs the risk of their losing interest in the study and forgetting to answer the questions (Opdenakker, 2006). By contrast, a carefully designed questionnaire can be a cost-effective, reliable way of collecting accurate, relevant data for both qualitative and quantitative research (Wilson, 2014). Even so, questionnaires pose several potential problems. For one, participants may be unable to access answers to their questions about completing the questionnaire. In turn, the analysis can easily incorporate answers generated by participants' misunderstanding of the questions, which can bias the results (Taherdoost, 2016).

Researchers have extensively used OTRs on social media to evaluate TDI. Kim et al. (2017), for example, studied how content and non-content cues of the quality of tourism information on impact perceptions of destinations on social media. Their empirical analysis revealed that some content cues and non-content cues positively affect tourists' cognitive and

affective images, which consequently generates consumption intentions. Meanwhile, Ghazali and Cai (2013) compiled literature to assess social media's effect on TDI formation and found that the overall image of a destination is formed by the overlap and intersection of information provided by suppliers, consumers, and third parties, together with cognitive and affective information. However, along those lines, further research is needed to clarify the conceptual relationships outlined in the model and to empirically examine them in order to advance research on destination image and help the tourism industry to make the most of social media accounts for image building. More recently, Lin et al. (2021) investigated the strengths and weaknesses of social media and traditional visitor intercept surveys and found that social media data reveal a relatively diverse, specific image of destinations, whereas data from visitor intercept surveys provides insights into specific subjects about destinations. Intercept data also include tourists' subjective judgements and levels of attachment to destinations. When combined, social media data and data from traditional surveys can help to provide a comprehensive understanding of perceptions of destinations.

Tourists receive information about a destination in a variety of ways and form positive or negative TDI based on their cognitive and affective assessments of the destination. Thus, TDI is not only subjective but also influences their behaviour and attitudes towards the destination. For those reasons, tourists' emotions can trigger desires, generate the intention to pursue tourism activities, alter their experiences and perceptions, and create varying degrees of connection with a destination (Diaz-Pacheco et al., 2022). The research for this thesis involving using a variety of support software to analyse not only TDI but also OTRs, as well as a variety of alternative strategies to collect and analyse online data according to its structure.

2.5. Data arrangement

An OTR contains textual and paratextual elements that offer valuable information that can be extracted from downloaded web pages through a search-and-replace utility (e.g. regular expression pattern) using software such as Notepad++. As a result, a file of comma-separated values can be obtained with the structured organisation of data from OTRs. In TripAdvisor OTRs, textual elements may include the main body text, whereas paratextual elements can include information such as title of the OTR, geographic code, resource code, review code, establishment offering the activities (e.g. restaurant name), user name, user country, user rating, visit date, and posting date (Mariné-Roig, 2022).

2.6. Content analysis

Content analysis is a core method used in communications research that helps to integrate unstructured and/or symbolic information into an accessible format for quantitative and qualitative analysis through sequential data processing (GAO, 1989; Roberts, 2001). Put differently, content analysis can be used to extract valuable, insightful information from UGC. Although any content analysis is designed to meet specific research targets, challenges can easily arise when conducting the content analysis of online data. For example, scholars who analyse UGC may experience some general difficulties (Schneider &Foot, 2004). After all, media is an ever-changing platform and, as such, has limitations in terms of how quickly data can flow, change, and be retained. Although UGC is highly responsive and personalised, which allows more detailed, valuable information regarding customers' reviews, sentiment, and behaviour, it is relatively complex to use because it relies on the continuous collaboration of the product's users and because there is no prescribed periodicity (Naab &Sehl, 2017). Therefore, to be able to work with changeable types of data and content and to generate valid, reliable findings, researchers have to keep the techniques associated with content analysis up to date and adapted to the content to be examined.

Content analysis helps to integrate unstructured or symbolic information into an accessible format for quantitative and qualitative analysis through a sequence of data processing (GAO, 1989; Roberts, 2001). Therefore, along with appropriate techniques, having a clear subject of analysis accommodates a more focused research purpose. In the quantitative analysis conducted for this thesis, the frequency of key terms was analysed and categorised according to three semiotic aspects: designative, appraisive, and prescriptive.

2.6.1. Designative aspect

In research on tourism, the designative aspect of semiotics provides information about a destination, for instance, and can be divided into spatial and temporal elements that can be subjected to a priori coding and/or emergent coding (Mariné-Roig, 2022). For spatial elements, there are classifications of different sizes of territories (e.g. region and country), whereas for temporal elements, classifications are based on the time when people participate in activities or post comments (Mariné-Roig et al., 2019). Taking restaurants and gastronomic activities as an example, Michelin-starred restaurants can be classified according to region (e.g. Taiwan or Catalonia) and number of stars (e.g. one star, two stars, and three stars), while the category of

gastronomic activities can be divided into learning, drinking, shopping, and other food-related tours.

2.6.2 Appraisive aspect

By contrast, the appraisive aspect of semiotics represents the feeling towards the destination. In that aspect, people are emotional and easily affected by other people, the time, and the place. Because the destination landscape will also change due to changes in people, events, time, places, and objects, it will also dynamically impact tourists' emotions. Tourists' emotional expressions about TDI are not only presented internally but also in words (e.g. in OTRs) and symbols (e.g. star ratings) posted on travel review platforms.

2.6.3 Prescriptive aspect

Last, the prescriptive aspect of semiotics captures the intention to experience or revisit the destination. When people have an emotional reaction to a destination, they also engage in corresponding behaviours, including becoming or not becoming a repeat customer, relaying positive or negative word of mouth to others, and writing positive or negative comments or recommending or not recommending the destination on travel review platforms.

To probe the content of tourists' OTRs and verify the research theory, the research conducted for this thesis involved selecting distinctive OTRs based on the theoretical background and conducting qualitative analysis and data collation in an attempt to clarify intension in gastronomy tourism.

3. PUBLISHED ARTICLES, BOOK CHAPTER, AND ACCEPTED MANUSCRIPT

This section includes three published articles, one book chapter, and one accepted manuscript. The first article employs bibliometric analysis to examine literature related to gastronomic heritage from 2001 to 2020, aiming to identify research trends in gastronomic heritage related to the concept of intangible cultural heritage. The results indicate that UNESCO has a significant influence on the development of gastronomic heritage and that the sustainability of gastronomic heritage is a key focus of the research.

The second article conducts a content analysis of travel reviews on TripAdvisor to determine how high-end restaurants meet special dietary needs (SDN) and assess customer satisfaction and well-being. It also verifies regional differences in SDN practices. The results show that good dining environment and service are the main reasons for positive reviews; on the contrary, poor hygiene, slow service, poor dining environment, high prices, and lack of respect for customers are major factors in negative reviews. Additionally, Europe and Asia offer different approaches to accommodating SDN. Lastly, obtaining favourable travel reviews is more important than “improving Michelin star ratings.”

The third article examines the satisfaction of gastronomic tourists and explores the similarities and differences across geographic regions, through a content analysis of travel reviews on TripAdvisor. The results show that the popularity of gastronomic tourism products and speciality beverages differed between the two regions, and customers rate highly in both regions.

The fourth article, using content analysis of travel reviews on TripAdvisor, explores the satisfaction and well-being of high-end restaurant diners and regional differences. The results show that there are regional differences in branding, marketing, restaurant popularity, and diner satisfaction and well-being.

The fifth article, through content analysis of travel reviews on TripAdvisor, assesses the satisfaction and improvement in the quality of life of visitors attending cooking classes, along with regional differences. The results show that cooking classes in both regions receive high ratings. Moreover, through the marketing of the cooking classes, the brand and speciality products in different regions had different effects. Finally, instructors play a critical role in the success of the activity, and personal and social rewards obtained during the event contribute to an improved quality of life.

3.1. Gastronomy as a sign of the identity and cultural heritage of tourist destinations: A bibliometric analysis 2001-2020 (Lin et al., 2021)

Min-Pei Lin ¹, Estela Marine-Roig ^{2,*} and Nayra Llonch-Molina ³

^{1,2,3} University of Lleida, 25003 Lleida, Catalonia, Spain

¹ PhD candidate, Department of Special Didactics; lm16@alumnes.udl.cat

² Serra Hunter Fellow (Senior Lecturer), Department of Business Management; estela.marine@udl.cat

³ Senior Lecturer, Department of Special Didactics; nayra.llonch@udl.cat

* Correspondence: estela.marine@udl.cat

Abstract: Gastronomy represents a significant part of the cultural heritage and identity of tourist destinations; however, related scientific literature is scarce. Considering these aspects within the field of tourism and hospitality, and selecting the articles written in English indexed in the Web of Science and in Scopus from 2001 to 2020, the objective of this research is twofold: (1) to present a bibliometric analysis of the literature on gastronomic heritage (71 articles); and (2) to analyse some aspects (main topics, frequency of key terms, methods, and data sources) of the research on case studies in Asia and Europe (46 articles), as they are the most prominent regions on the representative list of the intangible cultural heritage of humanity (UNESCO). The study shows the temporal evolution of the literature on gastronomic heritage in parallel with UNESCO's actions on cultural heritage. The results reveal that most articles relate gastronomic heritage to the sustainability of tourist destinations, and that European case studies address sustainability more than Asian studies do. Regarding the methodology to analyse Asian and European case studies, qualitative research predominates. Within quantitative studies, the use of online content generated by consumers and marketers as a data source is rare.

Keywords: hospitality; intangible cultural heritage; gastronomic heritage; destination identity; sustainable tourism; literature review; bibliometric analysis; Asia; Europe; UNESCO

Citation: Lin, M.-P.; Marine-Roig, E.; Llonch-Molina, N. Gastronomy as a Sign of the Identity and Cultural Heritage of Tourist Destinations: A Bibliometric Analysis 2001-2020. *Sustainability* **2021**, *13*, x. <https://doi.org/10.3390/xxxxx>

Academic Editor: Firstname Lastname

Received: date

Accepted: date

Published: date

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1. Introduction

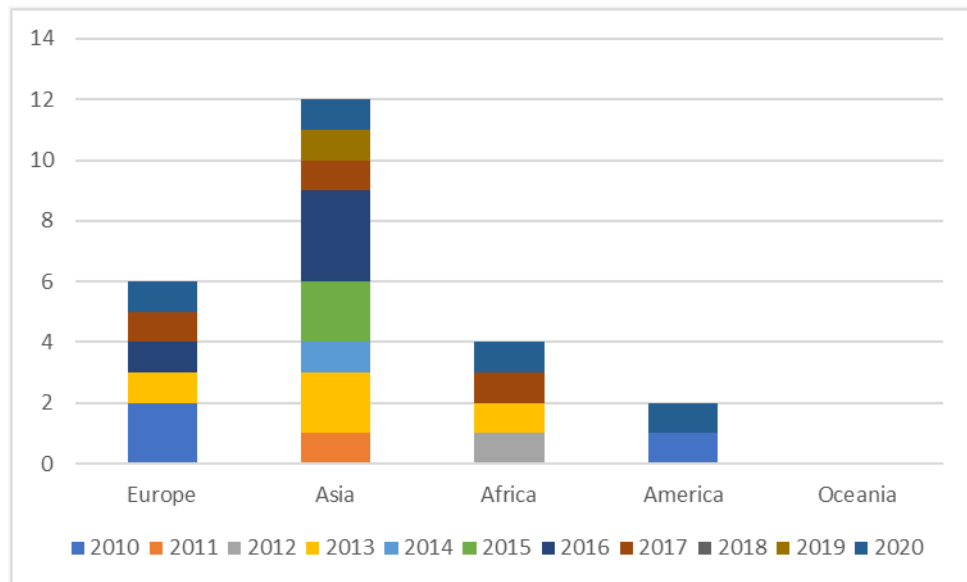
To create or develop a food identity for gastronomic heritage in multicultural countries, acculturation, assimilation, adaptation and longitudinal gazetting are necessary (Laroche et al., 2009). These are then passed from generation to generation to, finally, become a gem of wisdom among local people (Nor et al., 2012). Ethnography defines a specific cultural moment as a continuous static cultural pattern (Avieli, 2013); however, as time goes by, this is a dynamic process of constant modification. On 16 May 2001, the Executive Board of UNESCO approved a preliminary study on the protection of traditional culture and folklore, as well as working definitions of the concept of 'intangible cultural heritage' or ICH (UNESCO, 2001). The ICH safeguard was definitively approved at the 2003 convention (UNESCO, 2020). The term ICH includes

traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices related to nature and the universe, or the skills needed to produce traditional crafts. However, gastronomic heritage was not fully recognized until 2010, when UNESCO included in the ICH list the traditional cuisine of Mexico and gastronomic dining of the French, plus a comestible handmade product (a gingerbread craft from Northern Croatia) (UNESCO, 2022). According to the UNWTO (UNWTO, 2019), gastronomy tourism is a type of tourism activity characterized by the visitor's experience linked with food and related products and activities while travelling, including authentic, traditional, and/or innovative culinary experiences (p. 44). Therefore, gastronomic heritage fits into the practice of gastronomy tourism through the authentic or traditional culinary experiences of travellers.

Regarding gastronomic heritage, two clearly differentiated periods can be distinguished: (1) the period before the full recognition of gastronomy as an ICH domain (2001–2010) and (2) the period after this recognition (2011–2020). Prior to 2001, two outstanding studies on the subject appeared in 1998, one on traditional cuisine as a tourist attraction in rural French areas (Bessière, 1998) and the other on the evolution of cultural heritage in Americans' eating habits (Parsa, 1998). Another interesting article, published in 1999, looked at the relationship between gastronomy and heritage as a key motivator for travelling (vanWestering, 1999). Before the recognition of gastronomic heritage by UNESCO, several countries stood out for successfully promoting gastronomy as an attraction factor for tourist destinations. Examples include Malaysia with halal food (van der Spiegel et al., 2012) and Croatia with Dalmatian cuisine (Kivela & Crofts, 2006), which not only attracted the attention of various countries who sought to imitate it. Malaysia was also regarded by the UNWTO as a model and has received international publicity. In recent years, several authors have addressed traditional cuisine as a cultural element and identity of tourist destinations (Oliveira et al., 2020) as well as gastronomic heritage as a factor in sustainable place development (Rinaldi, 2017). Moreover, tourism destination marketing and management organizations (DMOs) are interested in the influence of gastronomic heritage as a factor in tourism development (Rachão et al., 2019).

Gastronomy is an important component of ICH because of its cultural value. Gastronomy combines functions such as identity, historical characteristics, reference time points, or just simply heritage and becomes a key development project that encompasses tradition and modernity, and specificity and universality. These should be integrated into an area's local life and activities, and they form the cultural value of gastronomy (Bessière, 2013; Castells-Valdivielso, 2008). Although traditional cuisine is part of the history, culture, identity and economy of any tourist destination, its gastronomic heritage, recognised as an ICH by UNESCO, represents a major contribution worldwide. For that reason, this study focussed on gastronomic heritage as a more general concept that includes other important types of heritage such as culinary heritage. However, world gastronomic heritage as recognised by UNESCO has not received relative attention in academia (Oliveira et al., 2020). Gastronomic heritage tourism for the purpose of revitalising a region or country's economy rarely seems to include world gastronomic heritage as a theme.

There are currently 584 intangible world cultural heritage manifestations distributed in 131 countries. Of these, 24 are world cultural heritage cases related to gastronomy and are distributed in 33 countries, accounting for 4.1% of the intangible heritage. In terms of different geographic regions, Asia has the largest number with 12 gastronomic heritage manifestations and Europe has six (Figure 1). Regarding the country, Turkey, coincidentally a country whose territory lies between the Asian and European continents, has three world gastronomic heritage manifestations and ranks first in the world (UNESCO, 2022).



3.1. Figure 1. Gastronomic ICH recognised by UNESCO (UNESCO, 2022) per continent and year. Own elaboration.

At present, there are many regions that consider gastronomic heritage as a theme for local development, and they all seem to focus on economic development (Bessière, 2013; Kranjčević & Gartner, 2019; Rachão et al., 2019). However, any systematic study of gastronomy as a cultural or identity intangible heritage of tourist destinations is rare. Therefore, to narrow this gap in the literature, this study aims to integrate the literature of the 21st century on gastronomy as a cultural heritage and identity of tourist destinations.

Hence, a focus of this study is to narrow those gaps and present a literature review (providing a comprehensive bibliometric research) on this trend in relation to gastronomic heritage, which is relevant to culture and identity. That is to say, the major aims of this study are to conduct a review of the concept in the academic sphere, to identify how this notion is used and what disciplines address it, and to define the existing research lines for the study of gastronomic heritage through the review of related literature written in English in the field of travel, tourism and hospitality indexed in the Scopus and Web of Science (WoS) databases from January 2001 to December 2020. The research mainly highlights regions of Asia and Europe because, as previously stated, most of the world's gastronomic heritage belongs to these two continents (UNESCO, 2021); moreover, from a geographic and historical perspective, Asia and Europe are connected. Most of the countries in Asia were European colonies as a result of their advantageous locations for trading and strategic military factors, and Europe transmitted its civilization and languages to Asia to

build a national image there as well. Similarly, Europe has been culturally influenced by Asian peoples since ancient times; thereby, cultural, technological and other ideas have been exchanged between these continents for millennia. Because of their geographic relationship, Europe and Asia have communicated through migration, trade or colonization. Thus, a deep mutual influence on culture and lifestyle have developed (Said, 1978).

In summary, the aims of this research are: (1) to present a state-of-the-art study on the gastronomic heritage at the world level; (2) to analyse some aspects of research on case studies in Asia and Europe; (3) to explore the background of destination identity and cultural heritage formed by gastronomic heritage; and (4) to contribute to the academic research and body of knowledge in the field.

2. Literature Review

Before analysing previous reviews related to gastronomy, this section contextualises the relevance of the gastronomic heritage as a catalyst for economic development, a pole of attraction for tourists, and a sign of identity and cultural legacy of tourist destinations.

2.1. Gastronomic heritage and economic development

After a decade (2003–2013) of efforts by UNESCO and related academic circles to promote gastronomic heritage, the concept progressed from an abstract definition. It gained regionally specific recognition as an entity and, finally, gained international recognition. Although international gastronomic heritage has cultural, identity and economic functions, it has not attracted relative attention in academic circles. Thus far, only Oliveira et al. (2020) has published scientific literature related to international gastronomic heritage through a literature review. Faced with this apparent lack of academic interest, some data highlights the importance of the impact of gastronomic heritage on economic development. After Croatia (Kivela & Crotts, 2006) and Malaysia (UNWTO, 2002) successfully saved their declining economies by tapping into their gastronomic heritage, tourism products based on traditional foods or local cuisines began to be valued by the government and the private sectors of other countries.

There are many examples of the economic impact generated by gastronomic heritage in an increasing number of countries. For instance, one study showed that the production value of Italian food products with protected denomination of origin (PDO) and protected geographical indication (PGI) is 2.84 billion euros, which accounts for about 7% of the total gross production value (GPV) of Italy's agriculture (DeRoest & Menghi, 2000). In a 16-day Munich Oktoberfest in Germany, about 6.2 million visitors spent approximately 955 million euros on beer, local pork sausages, and local chicken (Kim et al., 2009). In the United States, sales of ethnic foods total 11 billion USD and were projected to increase to 12.5 billion U.S. dollars by 2018 (Tomić et al., 2018). Because of the significant potential of local cuisine, traditional foods and gastronomic heritage to increase a country or region's economy, their promotion has become the goal of development for private stakeholders and for governments.

2.2. Gastronomic heritage as an attraction factor for tourism

Although the goal of developing gastronomic heritage tourism to revitalize the economy is the same in most countries, the strategies for accomplishing this are quite different. As far as tourists are concerned,

eating local foods is a way to break out of their routine daily activities and to venture into unfamiliar cuisines. They consider doing so as part of the travel experience, and this is very different from eating exotic foods at home or at nearby restaurants in their everyday lives (Bessière & Tibere, 2013). Therefore, the design of gastronomic heritage tourism products must, primarily, be able to meet tourists' expectations and create a satisfactory gastronomic heritage tourism experience in order to achieve the objectives noted above in the highly competitive international tourism market (Daries et al., 2021). Adapting a gastronomic heritage; changing the ingredients, recipes and methods of preparing and cooking traditional foods to meet the tastes of international tourists; matching the natural and cultural heritage to increase the attraction of local cuisine; and maintaining the original appearance of the gastronomic heritage to the extent possible are all important. These and other strategies related to gastronomic heritage must be designed specifically to achieve economic development.

However, if too much attention is focussed on the benefits of gastronomic heritage for economic development, there is a danger that the original gastronomic heritage will be sacrificed. The development of gastronomic heritage products based on economic development is a double-edged sword. On the one hand, gastronomic heritage is not only beneficial to economic recovery or promotion but also conducive to the sustainable operation of the industry. On the other hand, the 'tourist-oriented' model of product development may result in the loss of tourists who pursue 'authenticity' after a while. Therefore, from the perspective of economic and tourism sustainability, it is necessary to ensure a balance between the authenticity of the gastronomic heritage of a destination and the gastronomic products offered to tourists.

Among the many types of travellers and their reasons for tourism, those who pursue an authentic experience play an important role that may change a destination's food landscape. As the post-modern dining experience is full of symbolic motivations, tourism-related industries aim to recreate, modify and present a gastronomic heritage that is adapted to meet tourists' expectations and perceptions of authenticity and aesthetic appeal (Crang, 1997). These gastronomic heritages include the processes of adaptation, simplification and vulgarization (Avieli, 2013); additionally, some tourists pay increasingly growing attention to the authenticity of the cultural elements in the gastronomic heritage tourism experience (Gyimóthy & Mykletun, 2009).

In addition, to fully attract all kinds of tourists, even cities with international certifications (such as those recognized by UNESCO as a Creative City of gastronomy) must strengthen the development of tourism products that bind food with various activities (Pérez Gálvez et al., 2021). Satisfying the travel goals of 'survivors' (for which food is not the main intention), 'enjoyers' (for which food is the main intention), and 'experiencers' (for which food paired with other activities is the main objective) can have an absolute advantage in the highly-competitive international tourism market (Daries et al., 2018b).

2.3. Gastronomic heritage and cultural patterns

For a country that is multi-ethnic or characterized by cultural diversity, the formation of identity is not only related to national identity but also provides a positive image of the country. Traditional foods represent a simple way to be part of a national identity; therefore, creating

an identity for traditional foods has become a goal of many countries (Vanhonacker et al., 2010).

Cultural patterns such as social practices, lifestyles and the gastronomic culture of specific cultural moment longitudinally are dynamic and continue to change (Avieli, 2013). The formation of a region's cultural identity is the product of a series of processes such as acculturation, assimilation, adaptation, public recognition and even gazetting (Laroche et al., 2009; Ramli et al., 2013). Likewise, the formation of a food identity as a cultural element follows similar processes and, after its elaboration and improvement over time and the added wisdom of local people, ends up selectively granting special recognition to certain foods that will be representative of that gastronomic identity. The so-called acculturation process involves absorbing new cultural patterns and integrating these into the daily life of a region, and then adapting them to the prevalent culture while retaining their unique cultural roots (Noriza et al., 2012). The assimilation process includes a combination of the characteristics inherent to the host culture, with the background of the original culture of gastronomic heritage (Mukherji, 2005). This process of the host culture and the original one co-existing in the same time and place while maintaining their differences is called adaptation (Cleveland et al., 2009). Officially certifying the cultural heritage of a place or region is one way to preserve and maintain its culture and food and is known as gazetting. After gazetting, the gastronomy or cultural heritage becomes a regional or ethnic product, which has positive significance for its cultural preservation (Bessière, 1998).

Since group, region and time are important factors in the formation of gastronomic heritage, the definitions of these three terms from different dimensions such as politics, language and religion will produce different results, thereby making gastronomic heritage a somewhat vague and amorphous term (McCoy, 2012). The process of creating a gastronomic heritage is not a staged and superficial phenomenon but a continuous, self-generating process that can influence and change the local gastronomic scene, and the relationship between tourists and destination is also very important (Avieli, 2013).

2.4. Gastronomic heritage as a hallmark of tourist destinations

For tourists, one the fastest and most direct ways to understand local culture is to consume its traditional foods. Nevertheless, not all tourists, especially short-term tourists, necessarily choose traditional foods for their three daily meals. Studies have found that tourists consistently spend time seeking the tastes of home-cooked dishes with which they are familiar or that they identify as close to their favourite dishes (Gilly, 1995; Thompson & Tambyah, 1999). Similarly, other studies have shown that tourists tend to desire familiar tastes and resist foreign ones (Thompson & Tambyah, 1999). When they travel to a place with a different environment, culture and even language, many tourists want a feeling of 'home' for comfort, and perhaps the simplest and most direct way to accomplish that is through food (Allen, 2002; Marshall, 2005). Therefore, when they crave familiar tastes, travellers look for either traditional dishes similar close to the 'taste of home' or global fast-food chain restaurants (Bardhi et al., 2010). Tourists in unfamiliar environments have been found to show more resistance to changing their normal food consumption patterns. This natural resistance allows them to access a familiar feeling,

on the one hand, and on the other, creates an interpersonal boundary with foreigners or residents in the destination (Bardhi et al., 2010).

In relation to traditional foods, although the pursuit of modernization, industrialization, consumerism and tourist-oriented trends interferes with the concept of local specialties, it cannot affect or change preferences for traditional foods to which local residents are accustomed. No matter how tourists or local restaurants have made changes in order to adapt traditional dishes, local residents will still prepare them using high-quality ingredients according to traditional recipes and cooking techniques (Avieli, 2013).

Gastronomic heritage, which includes culture and identity elements, can evoke image, memory and pride or inspire habitual consumption. It can also become a way of life and even a source of revenue (Alonso & Krajsic, 2013). Regardless of whether it is to maintain, modify or create a gastronomic heritage, the primary condition must be related to the local culture, and it must also have the function of revitalizing the economy before becoming a gastronomic heritage product. It is worth mentioning that only after undergoing processes of acculturation, assimilation, adaptation and gazetting will the gastronomic heritage function as an 'identity' (Laroche et al., 2009). From this perspective, whether the gastronomic heritage can become the local identity depends on the area's residents, and this is also the main factor in regard to it being passed on through generations. In other words, people with the same cultural background share collective experiences different from those of individuals or groups that may not have contact with each other, and thereby, food, identity, and culture are maintained or reproduced (Parasecoli, 2014).

Food complements other elements of the cultural environment. Food itself and the manufacturing process are both important parts of the food heritage because they not only reflect cultural norms and values, geography and the physical reality of the place but also involve generations. They may also entail other elements of human civilization such as religion, language, politics and power, agricultural landscape and family relations (Timothy, 2011). As far as travellers are concerned, they participate in gastronomic heritage tourism that integrates culture, history or narrative; some aim for gastronomic heritage itself, while others hope to experience complete and authentic gastronomic heritage tourism. Still others, the so-called post-tourists, don't care whether or not they experience authentic gastronomic heritage tourism (Ritzer & Liska, 1997). In terms of industries, the development of gastronomic heritage tourism products that combine culture with history or narrative must consider cost and sustainable-operation factors. Therefore, it is necessary to carefully plan for manpower consumption, food preparation, and the authenticity and actual operational logistics (Ron & Timothy, 2013). Therefore, the greatest challenge for industries has consistently been whether to provide expensive and authentic but unsustainable products or to budget for inauthentic products that might result in the loss of some customers.

The economic growth prior to the COVID-19 pandemic resulted in people spending more time and money on gastronomic experiences (Richards, 2012a). Gastronomic tourism can offer participants pleasure related to food; it can also give them an understanding of and familiarity with the cultural knowledge behind particular foods. In recent decades, this type of tourism has strived to meet the needs of a new generation of

gourmets, also called 'foodies', and is the main reason for the surge in the number of gastronomic tourists (Castells-Valdivielso, 2008). Tourists experience culture through food. The UNWTO (UNWTO, 2017) emphasizes the importance of food when tourists choose destinations since it ranks third after culture and nature. Moreover, according to Mora et al. (Mora et al., 2021), 'gastronomic experiences form the backbone of the motivations and subsequent satisfaction and loyalty of travellers in a tourist destination' (p. 1). With the increase in the variety of tourists and their aims for travelling, diverse, innovative and rich gastronomic heritage products can create advantages for industries and destinations in the highly competitive international tourism market.

2.5. Literature reviews related to gastronomic heritage

Food and drink are essential during any journey (Quan & Wang, 2004). Gastronomic heritage is an indispensable element for travellers to better understand local culture (López-Guzmán & Jesus, 2011) and functions to enhance the cultural identity of an area and revitalize its economy (Bessière, 1998). Therefore, many authors have addressed food and wine in relation to tourism and others have focussed on gastronomy as ICH. Table 1 presents a sample of researchers who analysed the literature related to gastronomy through a systematic review or bibliometric analysis. The two articles (deMiguel Molina et al., 2016; Oliveira et al., 2020) that considered gastronomy in relation to UNESCO's ICH are not replicable because the keyword combinations used in the search are indeterminate and cover periods prior to the definition of ICH. The first article search formula (deMiguel Molina et al., 2016) was imprecise because, on the one hand, it combined the keywords 'intangible' and 'heritage' and, on the other, 'gastronom*' and 'heritage'. The authors did not find a common definition of gastronomic heritage in their search nor a significant impact of the ICH list on the marketing of gastronomy. In relation to the second article (Oliveira et al., 2020), the authors used indeterminate combinations of the keywords 'food', 'culinary', 'cuisine', 'heritage' and 'UNESCO' and found references to UNESCO's ICH list, such as 'French gastronomy' and 'Mediterranean diet'. The rest of the literature analyses in Table 1 are focussed on 'food tourism' (Lyu et al., 2020; Okumus et al., 2018; Rachão et al., 2019), 'wine tourism' (Amarando et al., 2019; Gómez et al., 2019; Montella, 2017; Sánchez et al., 2017) and 'gastronomy tourism' (DeJong et al., 2018). The latter article (DeJong et al., 2018) is interdisciplinary in nature and collected publications from six bibliographic databases.

3.1. Table 1. Sample of related literature review

Ref.	Research topic	Time span	Database	Type	N
(deMiguel Molina et al., 2016)	The impact of UNESCO gastronomy elements	1991-2013	WoS	BA	231
(Sánchez et al., 2017)	Wine tourism	1994-2014	Sc, WoS	BA	238
(Montella, 2017)	Wine tourism and sustainability	1994-2015	Sc	LR	43
(DeJong et al., 2018)	Gastronomy tourism	1985-2015	Six DDBB	LR	214
(Okumus et al., 2018)	Food and gastronomy research	1976-2016	16 journals	BA	462
(Rachão et al., 2019)	Food tourism and regional development	1985-2017	Sc, WoS	LR	538
(Gómez et al., 2019)	Wine tourism research	1995-2014	20 vintages	LR	176
(Amarando et al., 2019)	Asian wine tourism research	2000-2018	Internet	LR	89
(Oliveira et al., 2020)	Culinary intangible cultural heritage of UNESCO	2000-2016	EBSCO	BA	28
(Rodríguez-López et al., 2020)	Restaurant research	2000-2018	WoS	BA	740
(Lyu et al., 2020)	Destination food research	2000-2018	WoS	BA	176

Note. WoS = Web of Science; Sc = Scopus; BA = Bibliometric analysis; LR = Literature review

Unlike the investigations in Table 1, the present study collects the articles in the WoS and Scopus databases using equivalent Boolean search formulas that guarantee consistent results. Within the field of travel, tourism and hospitality, the terms related to gastronomy are combined with the keywords 'heritage' and 'identity'. The results section begins with a general bibliographic analysis that mainly contains bibliometric data (Donthu et al., 2021), followed by a segmentation by periods and continents. Finally, the results show some aspects of the research related to Asia and Europe, taking into consideration the locations of the case studies.

3. Materials and Methods

The bibliometric method can be based on scientific research published and indexed in databases through quantitative analysis. By using the database combined with statistical analysis within a specific research scope, analysing the characteristics of the publication over a certain period, and distributing the content (such as the number of documents, authors, journals, and countries, etc.) to understand current research trends and important topics in this field (Donthu et al., 2021), we can see that, in the earlier stage of research, the selection of appropriate databases is closely related to the accuracy of bibliometric analysis. In addition, there are differences between fields and journals according to different databases, and a suitable database can improve the reliability and validity of bibliometric research.

Scopus, the largest database, is known for its interdisciplinary scientific literature dating back to 1970, including peer-reviewed journals, books and conference proceedings or conference papers, in total over 77.8 million publications. Additionally, the collected documents are widely cited by scholars in various fields (Sánchez et al., 2017). By contrast, Web of Science (WoS) was the first database to track journal quality and collect critical scientific literature from the year 1900 onward, with a total of more than 159 million publications. In the field of tourism management, the relevant documents collected by WoS are appropriate in terms of number and type and are recognized by scholars (Okumus et al., 2018). Therefore, both databases were selected to ensure the comprehensiveness of the bibliometric analysis.

This study systematically uses narrative statistics and inferential statistics (Corral-Marfil & Cánoves-Valiente, 2016; Lee & Law, 2012). Then, tables and figures are applied to present the results of quantitative analyses in order to clarify the observed phenomena. On the one hand, the development characteristics of contemporary gastronomic heritage can be discovered from the focus of academic research on gastronomic heritage; on the other, it also shows the research trends in different geographic regions. Finally, based on the research findings, implications for stakeholders are provided in regard to future research on gastronomic heritage.

The study plans to map the main countries, journals, universities and authors of gastronomic heritage research in Scopus and WoS databases and aims to understand the research trends, focusses and evolutionary paths in different regions. In regard to scientific research on tourism, hospitality and gastronomy, the Scopus and WoS databases are complementary (Rachão et al., 2019; Sánchez et al., 2017). Furthermore, many scholars consider Scopus and WoS two representative databases for bibliometric analysis in this field (DeJong et al., 2018).

3.1. Data collection

The two databases, Scopus and WoS, provide a highly diverse classification of documents, including according to year, authors' names, subject category, document type, source publication name, institution, etc. In bibliometric analysis, the design of keyword research is strongly related to the accuracy of search results. A systematic literature review is applied through the ensuing section: the advanced keyword search of gastronomic heritage-related articles in hospitality and tourism field by Boolean formulas in Scopus and WoS databases (Box 1) from 2001 to 2020. The advanced keyword search uses terminology regarding gastronomy, heritage, identity, tourism and hospitality fields, and 73 articles in Scopus and 32 articles in WoS are acquired, and by eliminating those that are repeated (27) and irrelevant (7), 71 articles in all were obtained as shown in Figure 2. *Bibliometrix* (Aria & Cuccurullo, 2017), a tool run on an RStudio console, made it possible to merge articles from the two bibliographic databases with the elimination of duplicates.

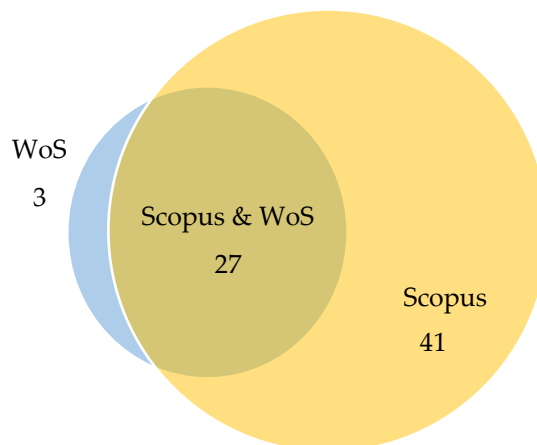
Box 1. Boolean search formulas for gastronomic heritage terminology.

Scopus:

```
DOCTYPE ( ar ) AND LANGUAGE ( english ) AND PUBYEAR > 2000 AND PUBYEAR < 2021  
AND TITLE ((gastronom* OR food* OR wine* OR drink* OR culinary OR dining OR restaurant*)  
AND (heritage* OR identit*)) AND TITLE-ABS-KEY (travel* OR touris* OR hospitality)
```

Web of Science (WoS):

```
(((TI=((gastronom* OR food* OR wine* OR drink* OR culinary OR dining OR restaurant*) AND  
(heritage* OR identit*))) AND TS=(travel* OR touris* OR hospitality)) AND LA=(English)) AND  
DT=(Article)) AND PY=(2001-2020)  
Indexes: SCI-EXPANDED, SSCI, A&HCI.
```



3.1. Figure 2. Venn Diagram: number of publications on Scopus and WoS.

3.2. Coding criteria

Within the variety of publications on the database, only the articles in English in scientific journals (e.g. WoS SCI-Expanded, SSCI and A&HCI) were collected, and two approaches (Stemler, 2001) were conducted in regard to the research methods in the bibliometric study. First, a priori coding, in which the data can be classified based on the existing theory or research (Gallardo-Gallardo et al., 2015; Okumus et al., 2018), was used;

second, emergent coding, for which classifications are created from content analysis (Boyce & Bowers, 2018; Strydom & Els, 2016), was applied. After reviewing the context, theory is generated to produce the outcomes that highlight the deduction, the current subject matter and the major perspectives of the written accounts. These coding systems are universal for classifying bibliometric research and practice (Anderson & Lemken, 2020).

The study applied two stages of the research method: bibliometric and content analysis (Gallardo-Gallardo et al., 2015). Aiming to contribute to the body of knowledge on gastronomy heritage and to provide a review on the research trends, such as the publication year, journals, countries, authors and universities, quantitative methods based on a priori coding were processed. Regarding the analysis of Asian and European case studies, a classification by continent, period, subject, methodology, data source, and destination was established according to emergent coding.

Any action taken by international organizations on gastronomic heritage may attract the attention of academia, government and the private sector, which may result in an increase in publication-related activities. Therefore, this study divides the evolution of publications into two periods: 2001–2010, from the preliminary definition of ICH to de facto recognition of gastronomy as ICH, and 2011–2020, after such recognition.

4. Results and Discussion

As mentioned, the study was conducted through the Scopus and WoS databases for literature research by bibliometric and content analysis methods. For the quantitative aspect, results include the following: (1) the most-common keywords; (2) articles from 2001–2020; (3) major publishing countries; (4) major journals; (5) major authors; (6) major university affiliations; (7) most-cited articles; and (8) research trends and focus in different geographic areas regarding location of the first author and the tourist destination studied. Regarding the analysis of the case studies in Asia and Europe, the results include the following: (1) the most-frequent keywords by periods and continents; (2) relationships between sustainability and gastronomic heritage; and (3) objectives, methods and data sources of the case studies.

4.1. Bibliometric Analysis

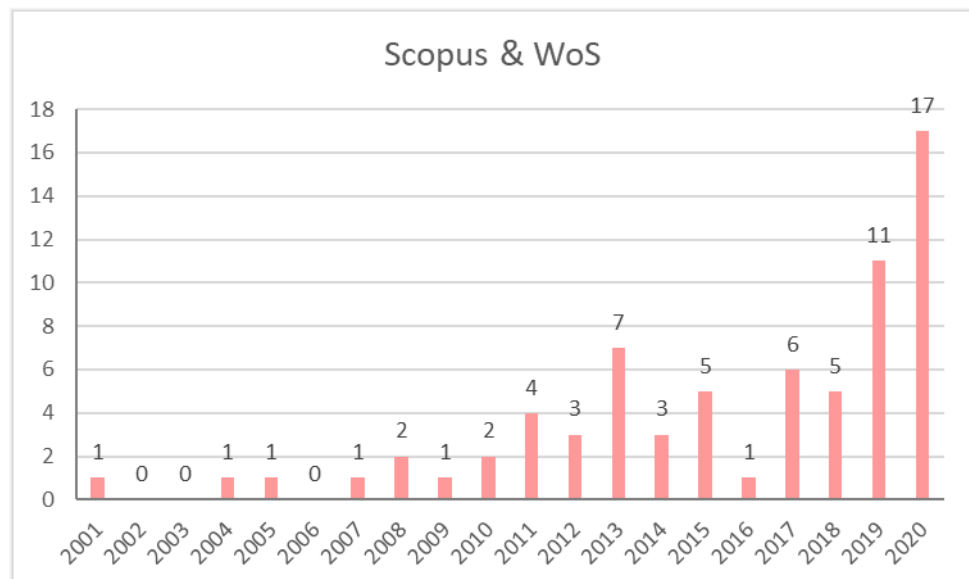
The keywords entered by the authors are a crucial source of data in the search formula in Box 1. Figure 3 shows the 50 most-frequent authors' keywords. The key terms related to tourism, gastronomy, cultural heritage, authenticity and identity stand out considerably, which is consistent with the rationale of the research.



3.1. Figure 3. 50 most-common authors' keywords.

4.1.1. Evolution of scientific articles on gastronomic heritage

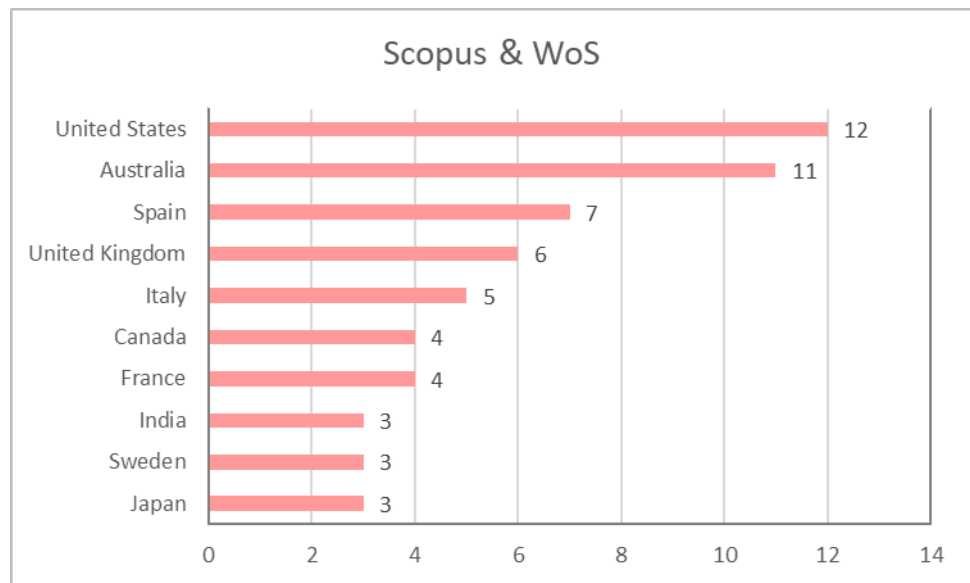
As seen above in the introductory chapter, only three articles appeared in the previous period, 1998–2000. Similarly, Figure 4 shows that the scientific literature on gastronomic heritage remained minimal during the first period (2001–2010), with an average of less than one publication per year. This means that more than 87% of scientific production was concentrated in the second period (2011–2020), with a considerable increase during the years 2019 and 2020.



3.1. Figure 4. Number and evolution of scientific articles on gastronomic heritage.

4.1.2. Main countries publishing articles on gastronomic heritage

The top 10 countries with the most publications about gastronomic heritage during 2001 to 2020 are analysed. The results found that the top countries with the highest number of publications were the United States and Australia, with the total number of publications in these two countries (23) accounting for 32.4% of all publications (71); followed by Spain (7), the United Kingdom (6) and Italy (5). Canada (4) and France (4) are tied in sixth place, and India, Sweden and Japan occupy seventh place (Figure 5).



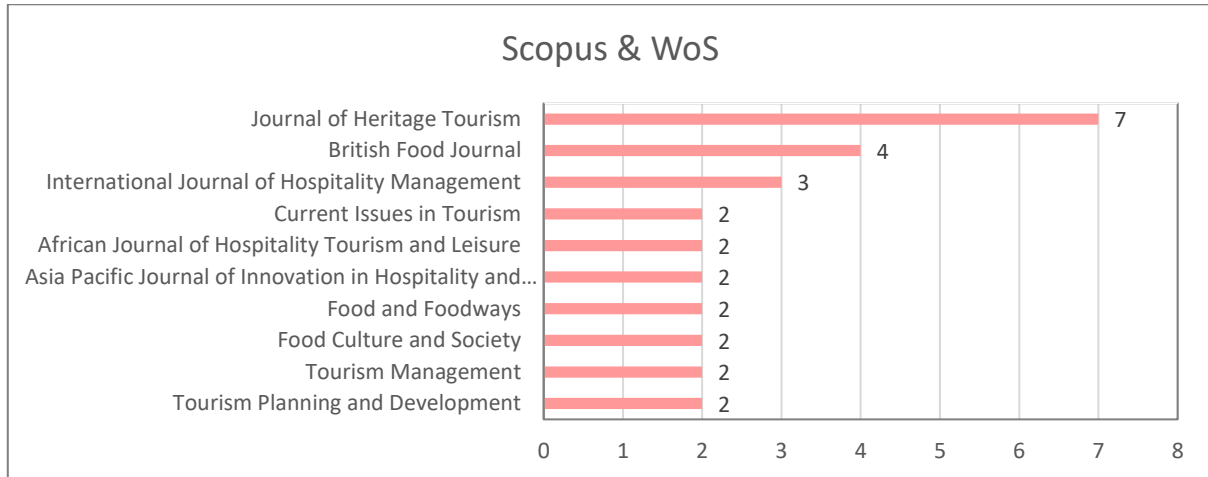
3.1. Figure 5. Number of articles per country of publication.

4.1.3. Main scientific journals with articles on gastronomic heritage

Journals with two or more publications were analysed. The results show that the Journal of Heritage Tourism has the most articles (7) on gastronomic heritage (accounting for 9.7% of the total number of publications; Figure 6).

An important proportion of the research on gastronomic heritage was published in mainstream journals (such as those related to food, culture and tourism). These include the Journal of Heritage Tourism, International Journal of Hospitality Management, Current Issues in Tourism, Food and Foodways, Food Culture and Society, Tourism Management, and Tourism Planning and Development. Moreover, gastronomic heritage research articles were also published in other journals as follows: regional journals, e.g. the Asia Pacific Journal of Innovation in Hospitality and Tourism and the African Journal of Hospitality Tourism and Leisure; journals with a country reference in their title, e.g. the British Food Journal, Australian Geographer, and Bulletin of Spanish Studies; or those that mention a specific food product in their title, e.g. the Journal of Wine Research (Figure 6).

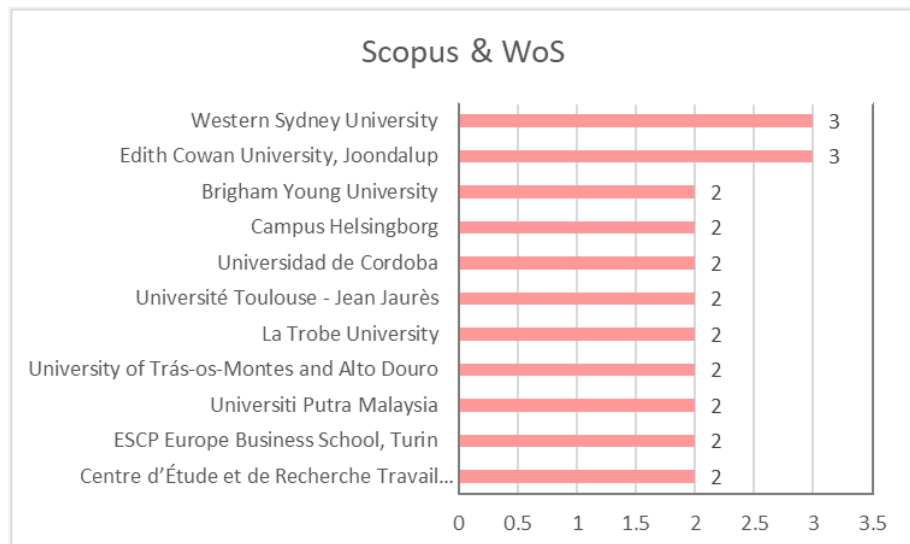
There are also a few publications in scientific journals that are less related to gastronomic heritage in tourist destinations. These journals presented seven publications and accounted for 9.9% of the total, which highlights that the study of gastronomic heritage is gaining attention and is of increasing interest even to other fields of knowledge.



3.1. Figure 6. Journals with two or more articles on gastronomic heritage.

4.1.4. Main universities and authors on gastronomic heritage

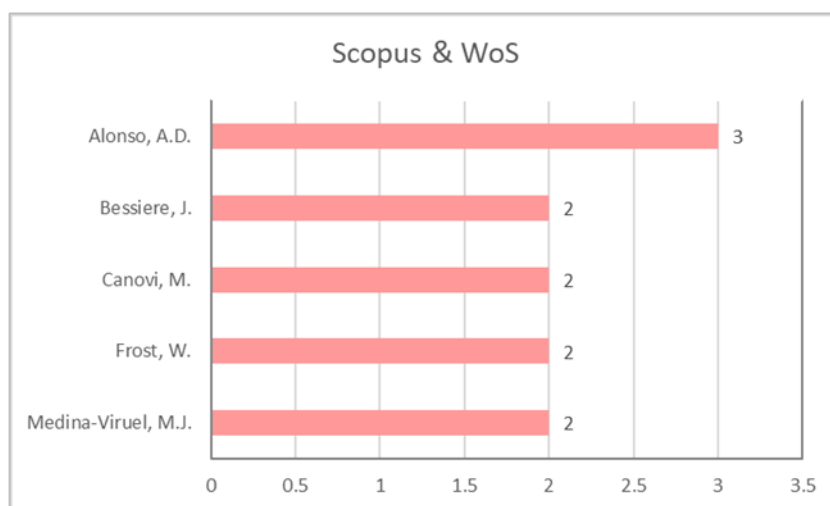
Based on the quantitative analysis of universities with two or more publications related to gastronomic heritage, those with the most publications are located in Australia (Western Sydney University and Edith Cowan University, Joondalup; Figure 7). Among these 10 universities, European universities accounted for 73%, and there was only one in Asia (Universiti Putra Malaysia).



3.1. Figure 7. Main universities with articles on gastronomic heritage.

Figure 8 displays the main authors with articles on gastronomic heritage, whereas Table 2 compiles the principal information about the most-cited articles. The results show that there are five authors with at least two publications, with three being the maximum number of

publications per author: Alonso, A.D. (Australia; three publications with a total of 32 citations); Bessiere, J. (France; two publications with a total of 64 citations); Canovi, M. (Italy; two publications with no citations); Frost, W. (Australia; two publications with a total of 17 citations); and Medina-Viruel, M.J. (Spain; two publications with no citations). Their publications account for 15.5% (11/71; Figure 8) of the total.



3.1. Figure 8. Main authors with articles on gastronomic heritage.

As mentioned, Table 2 lists the articles that have obtained more than 25 bibliographic citations in Scopus.

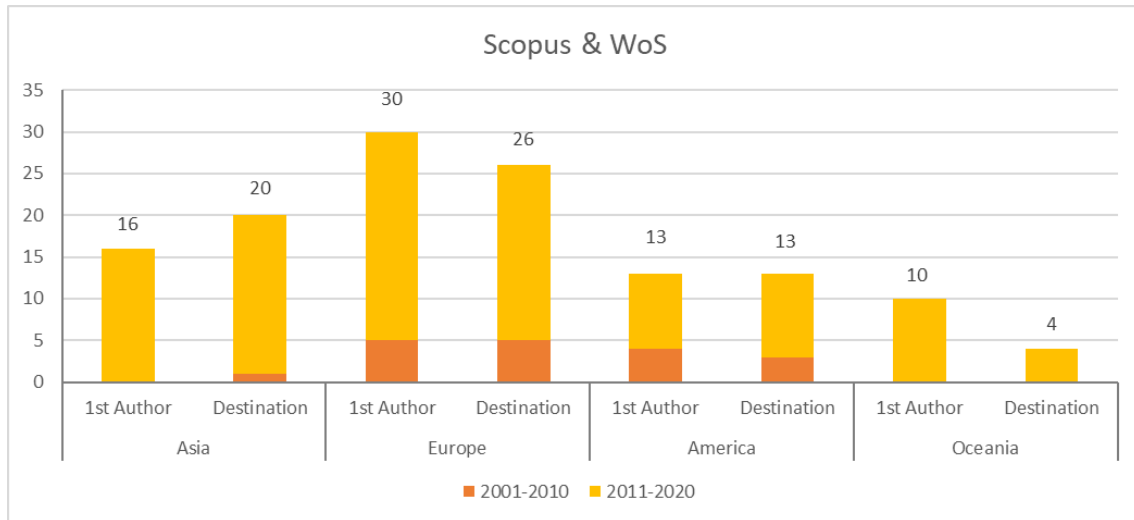
3.1. Table 2. Most cited articles in Scopus on 2021-08-31.

Ref.	Journal	Sc.	WoS
(Everett & Aitchison, 2008)	J. Sustainable Tour.	233	222
(Lin et al., 2011)	Tour. Hosp. Res.	138	
(Fox, 2007)	Int. J. Hosp. Manage.	124	
(Bardhi et al., 2010)	Consum. Mark. Cult.	71	67
(Gyimóthy & Mykletun, 2009)	J. Vacat. Mark.	66	
(Bessière, 2013)	J. Herit. Tour.	54	
(Bessière & Tibere, 2013)	J. Sci. Food Agric.	52	45
(Contò et al., 2014)	Br. Food J.	38	29
(Nilsson et al., 2011)	Curr. Issues Tour.	38	37
(Ron & Timothy, 2013)	J. Herit. Tour.	36	
(Ganzaroli et al., 2017)	Tour. Manage.	33	34
(Alonso & Krajsic, 2013)	J. Herit. Tour.	31	
(Avieli, 2013)	J. Herit. Tour.	30	
(Josiam et al., 2004)	Tour. Manage.	28	25
(S.Kim & Iwashita, 2016)	Tour. Recreat. Res.	27	

4.1.5. Articles on gastronomic heritage per destination and region

According to the three categories of Europe, Asia and other destinations (Figure 9), research on gastronomic heritage began in Europe (2001), and Asia is the latest to contribute to this body of research (2010). However, in the two periods, both Europe and Asia reached a large number of publications. Gastronomic heritage has gradually garnered an

increasing amount of attention in international academic circles (Figure 9), and this result is also in line with the time sequence of the recognition of gastronomic heritage.



3.1. Figure 9. An overview of the continent of the first author and research destination.

Moreover, although recognition of world gastronomic heritage in Asia is not the earliest, the quantity is the largest (12) and is twice that of Europe (6) (Figure 1). In terms of the level of concern about the gastronomic heritage of the continent, the Asian scholars (14/16, 87.5%) are slightly more prolific than the European scholars (26/30, 86.7%), which fully reflects the difference in the amount of world gastronomic heritage.

It is also interesting to note that Africa is absent in Figure 9 despite the fact that it is the third continent in terms of the number of gastronomic heritage examples recognized by UNESCO (2021) (Figure 1) and that the first element to be recognised was as early as 2012.

A total of nine articles were published from 2001 to 2010, including one on Asia, five on Europe, and three related to other destinations. A total of 62 articles were published from 2011 to 2020, including 19 on Asia, 21 on Europe, and 22 about other destinations (Figure 9).

4.2. Analysis of Asian and European case studies

This section focuses on the research in the two periods: (1) up to time of full recognition of gastronomy as an ICH factor (2001–2010, 9 articles) and (2) after this recognition (2011–2020, 62 articles). Therefore, as previously stated, there are 71 articles written in the 21st century (26 in Europe, 20 in Asia and 25 on other continents). Since this research focusses on Europe and Asia, the content of all European and Asian publications (46) was analysed with special attention.

The above results (mainly Figure 9) show that most of the case studies on gastronomic heritage are located in Asia and Europe, which coincides with UNESCO's list on ICH provided in the introduction.

4.2.1. Most common keywords

Figures 10 and 11 show the most-frequent words in the article's summary (i.e. title, abstract and keywords). Considering both continents (Figure 10) highlight tourism and heritage, the principal difference is food and identity in Asia versus wine and culture in Europe. The

preponderance of research on wine in Europe aligns with previous studies (Lin et al., 2022a). Another difference is that Europe presents more diversity of keywords, with several having a similar rate of frequency, whereas Asia presents fewer keywords with a much higher frequency level than the rest. Regarding the periods, both highlight tourism and food. In the period 2001–2010, the tourist as well as the destination stands out, while in 2011–2020, wine, heritage and culture stand out (Figure 11). The preponderance of heritage and culture in the second period may be due to de facto recognition of gastronomic heritage by UNESCO’s ICH list.



3.1. Figure 10. The 25 most-frequent keywords from 2001–2020 case studies in: (a) Asia and (b) Europe.



3.1. Figure 11. The 25 most frequent keywords from Asian and European case studies between: (a) 2001–2010, (b) 2011–2020.

4.2.2. Relations between gastronomic heritage and sustainability

Table 3 shows that most articles on gastronomic heritage and identity in Asia and Europe address sustainability: 36 of the total (46) documents accounted for 78%, indicating the importance of the research trend within the academic field from the perspective of regional identity (Everett & Aitchison, 2008) and cultural heritage (Nilsson et al., 2011), with 70% (14/20) of Asian destination research with an average of six (84/14) instances and 85% (22/26) of European destination research with an

average of 15 (331/22) instances. In summary, case study research in Europe addresses sustainability more often than case study research in Asia does.

3.1. Table 3. Articles containing “sustainab*” and number of instances.

Articles	Instances	Region	Articles	Instances
36/46 (78%)	415 (avg: 12)	Asia	14/20 (70%)	84 (avg: 6)
		Europe	22/26 (85%)	331 (avg: 15)

4.2.3. Subject, methodology, data source and tourist destination

Since most case studies (46/71) are located in Asia (20) and Europe (26), in order to understand the development and trend of gastronomic heritage research by regions and periods, a content analysis of the scientific literature is focussed on both regions (Table 4).

Table 4 demonstrates that most researchers used qualitative and mixed methodologies, mainly through interviews, participant observation and secondary sources. Regarding quantitative methodologies, most researchers obtained data through questionnaire surveys. Taking into account the sources or agents of destination image formation (Marine-Roig, 2019, 2021; Park & Lee, 2021; Sun et al., 2021), only two articles on European case studies collected online data generated by marketers and consumers. The first (Dulaň et al., 2010), published in 2010, collected data on the websites of destination managers and restaurateurs. The second (Ganzaroli et al., 2017), published in 2017, collected online customer reviews from numerous restaurants.

3.1. Table 4. Asian and European case studies.

C.	Period	Ref.	Subject	Method	Data source	Destination
EU	2001-2010	(Hodges, 2001)	heritage tourism	ethnographic portrait	people involved in food heritage	Languedoc, France
		(Fox, 2007)	gastronomic identity	literature review	7 national reports	Croatia
		(Everett & Aitchison, 2008)	food tourism, regional identity	mixed	3040 surveys, 3 reports and 12 interviews	Cornwall, England
	2011-2020	(Gyimóthy & Mykletun, 2009)	culinary heritage	qualitative mixed	in-depth interviews, printed media and ethnographic fieldwork	Voss, Norway
		(Dulaň et al., 2010)	gastronomic heritage	web mining	42 city-halls and 169 restaurants.	Romania
		(Nilsson et al., 2011)	gastronomic heritage	qualitative	9 semi-structured interviews and systematic observations	North-western Italy
		(Bessière, 2013)	food heritage	qualitative	90 semi-structured interviews	South-west France
		(Bessière & Tibere, 2013)	food heritage	mixed	480 survey questionnaires, observations and 30 interviews	South-west France
		(Kavrečič, 2014)	food heritage	descriptive	culinary events	Istria, Croatia
		(Contò et al., 2014)	wine cultural heritage	deductive reasoning	rural development project	10 European countries
		(Lourenço-Gomes et al., 2015)	wine and cultural heritage	quantitative	249 visitors survey	Alto Douro, Portugal
		(Prat Forga & Cànoves Valiente, 2017)	food and beverage heritage	quantitative	191 personal surveys	Catalonia, Spain
		(Alder, 2015)	food identity	qualitative	54 semi-structured in-depth interviews	Poland
		(Ganzaroli et al., 2017)	cultural heritage	quantitative	TripAdvisor reviews of 575 restaurants	Venice, Italy
		(daSilva et al., 2018)	wine heritage	descriptive	wine regions	Portugal
(Skinner, 2019)	wine heritage	descriptive	cultural landscape	Hvar, Croatia		
(Skowronek et al., 2019)	culinary heritage	quantitative	493 visitors survey	Poland		
(Canovi, 2019)	wine heritage, identity	qualitative	20 winery owners semi-structured interview	Langhe, Italy		
(Kranjčević & Gartner, 2019)	wine heritage, regional identity	quantitative	technical reports and 29 tourism boards survey	Croatia		

		(Baraja Rodríguez et al., 2019)	wine heritage, regional identity	quantitative	technical reports	Salamanca, Spain
		(Mercer & Song, 2020)	gastronomic identity	descriptive	Literature and guidebooks	Catalonia, Spain
		(Pérez-Gálvez et al., 2021)	food heritage	quantitative	558 visitors survey	Cordoba, Spain
		(Canovi et al., 2020)	wine heritage, identity	qualitative	28 wine producers survey	Langhe, Italy
		(Fusté-Forné, 2020)	gastronomic heritage, regional identity	qualitative	observations, autoethnography and 9 local actors' interview	Gouda, The Netherlands.
		(Andrade-Suárez & Caamaño-Franco, 2020)	wine heritage, identity	quantitative	100 residents survey	Vila Nova de Gaia, Portugal
AS	2001- 2010 2011- 2020	(Albert, 2020)	wine heritage	qualitative	4 semi-structured interviews	Tokaj, Hungary
		(Bardhi et al., 2010)	food heritage	qualitative	28 American consumers interview	China
		(Lin et al., 2011)	food identity	quantitative	24 brochures, 35 websites, 83 stakeholders survey	Taiwan
		(Dursteler et al., 2012)	food identity	literature review	Ottoman travel literature	Turkey
		(Ron & Timothy, 2013)	food heritage	qualitative	observations and in-depth interviews	Israel
		(Avieli, 2013)	culinary heritage	qualitative	ethnographic fieldwork, participant observation of food events	Hoi An, Vietnam
		(Dursteler, 2014)	food and identity	literature review	Ottoman travel literature	Turkey
		(Raghavan et al., 2015)	food, identity	qualitative	semi-formal conversations and observation	Mumbai, India
		(S. Kim & Iwashita, 2016)	food heritage, regional identity	qualitative	12 Japanese tourists' interview	Gunma, Japan
		(Torabi Farsani et al., 2018)	food heritage	qualitative	15 experts' in-depth interview	Isfahan, Iran
		(deSt. Maurice, 2017)	culinary heritage	qualitative	Interviews and participant observation	Kyoto, Japan
		(Quee-Ling et al., 2017)	gastronomic heritage	quantitative	1132 visitors survey	Melaka and George Town, Malaysia
		(Latiff et al., 2019)	gastronomic heritage	mixed	20 interviews, 470 questionnaires	Melaka and George Town, Malaysia
		(Suna & Alvarez, 2019)	gastronomic identity	quantitative	164 residents, 214 tourists survey	Gaziantep, Turkey
		(Sharma et al., 2020)	culinary heritage	quantitative	450 tourists, 50 hoteliers	Rajasthan, India

(Sahoo, 2020)	culinary heritage	mixed	interviews, observations, 402 questionnaires survey	India
(Tunming et al., 2020)	gastronomic identity	qualitative	experts and stakeholders' interview	Loei, Thailand
(Duan et al., 2020)	winery's identity	qualitative	30 winery visitors interview	Yunnan, China
(Khatami et al., 2020)	food heritage	quantitative	98 stakeholders survey	Torqabeh, Iran
(Mercado & Andalecio, 2020)	culinary heritage	qualitative	stakeholders' in-depth interview	Luzon Island, Philippines
(Wang, 2021)	wine heritage	qualitative	local actors' interview, participant observation at wine tourism events	Yamanashi, Japan

Note. C. = Continent, EU = Europe, AS = Asia

5. Conclusions

Bibliometric methods on all articles and analysis of some aspects (main topics, frequency of key terms, methods, and data source) of the research on case studies in Asia and Europe were conducted to investigate the current situation of gastronomic heritage, and the following conclusions can be drawn.

On the whole, the trend of the publications correlates with the recognition by UNESCO. The ICH was adopted by UNESCO in 2003 and gastronomy has been listed as an ICH since 2010. In addition, the internationalization of world gastronomic heritage can be considered a consequence of both milestones. Although the United Kingdom and the United States have never been included in the list of world gastronomic heritage, the amount of scientific literature published in these two countries has consistently outpaced the rest of the world. Australia, which is also an Anglo-Saxon country, has caught up in the second decade of the 21st century to become one of the leading countries in gastronomic heritage research. However, Oceania does not yet have the recognition of a single gastronomic heritage element by UNESCO (Figure 1). By contrast, consider Africa, which despite being well-represented on UNESCO's list of ICH and the fact that some journals such as the *African Journal of Hospitality Tourism and Leisure* and the *African Journal of Microbiology Research* have published articles on gastronomic heritage, has produced no articles on this topic that focus on the continent.

It is worth mentioning that those countries listed as having world gastronomic heritage (e.g. Turkey, Croatia, Italy, Azerbaijan and Morocco) are far behind the three countries mentioned above (i.e. the UK, US and Australia) in terms of scientific production about gastronomic heritage. The total number of publications in Europe is not far from that in Asia, but the first study in Europe (1998) was published nearly 10 years earlier than the first Asian study (2007). However, with the gradual recognition and internationalization of gastronomic heritage, the number of gastronomic heritage elements in Asia has begun to surpass that of other continents, which has also prompted Asian academic circles to pay attention to Asian gastronomic heritage. This demonstrates that UNESCO's recognition of gastronomic heritage has had a significant impact on academia.

Eating represents much more than meeting one's physiological needs as a human being because, when it becomes part of a culture, the role of the food itself is no longer simply to satisfy the appetite; it takes on a diverse and functional role. The ways that food is presented in different regions and the knowledge behind it are the result of a series of cultural processes such as acculturation, assimilation and adaptation, the effect of which is the configuration of a specific gastronomy identity. Overall, on the one hand, this gastronomic identity based on intangible cultural parameters conforms to the Convention for the Safeguarding of the ICH (UNESCO, 2020) and the Convention on the Protection and Promotion of the Diversity of Cultural Expressions (UNESCO, 2005). On the other hand, activities combined with gastronomy, additional roles such as the cultural heritage tourism related to the Last Supper in Israel (Ron & Timothy, 2013), or related services can also be regarded as ICH. The impact behind gastronomic heritage has gone beyond the meaning and function of the food itself; specialized research contributes to the development and stabilization of gastronomic heritage, and the involvement of non-direct-

related fields serves to increase the vision and diversity of gastronomic heritage.

Apart from the influence of international organizations, another influence on the development of gastronomic heritage comes from the awareness of its importance for different countries. The Malaysian government as well as that country's private sector are committed to gastronomic heritage to boost the economy, and UNESCO has long considered Malaysia a model. Turkey has a reputation for having the most significant gastronomic heritage worldwide, and its government and private sector have exerted great effort to revitalize the economy through this heritage. The scholars in both countries are expected to pay greater attention to the study of gastronomic heritage.

In summary, the present study aimed to explore and describe the evolution and current status of gastronomic heritage research. Further, the study offers suggestions for the direction of future research so that it can be considered regardless of the depth and breadth of the field, with a view toward having a positive impact on the societies, cultures and economies of countries. The literature review has highlighted that the number of studies that analysed gastronomy as an element of cultural heritage and identity of tourist destinations is relatively small despite the fact that publications increased considerably in 2019 and 2020. In addition, within these investigations, on the one hand, the use of online content generated by restaurateurs and diners as a source of data is rare, unlike other studies that have focussed on gastronomic image (Daries et al., 2019; Kattiyapornpong et al., 2021; Marine-Roig et al., 2019); on the other hand, most use qualitative methodologies through in-depth interviews, participant observation, etc.

Thus, scholars have rarely expressed concern about culture and identity, an original function of the gastronomic heritage. There are also few publications on gastronomy such as UNESCO's ICH (Oliveira et al., 2020). Greater attention has been given to sustainability (Montella, 2017), which governments and industries care about. While most articles mention sustainable tourism, empirical research on European case studies addressed the relationship between gastronomic heritage and sustainability more than research on Asian case studies. Regarding theoretical implications, the authentication of gastronomic heritage culture and identity contributes to cultural preservation and increases social cohesion, factors that have been confirmed by numerous studies (Espeitx, 2004). It is critical to unite the theoretical frameworks obtained through the integration of cases on applying those gastronomic heritage functions to tourism markets and, especially, on the image projected by stakeholders and different genres of perceived image sources of destination landscape. In terms of practical implications, although gastronomic heritage tourism products that cater to all kinds of tourists can bring substantial business opportunities and economic benefits to the destination, gastronomy tourism stakeholders and the government must also invest resources to cooperate with local people and to contribute to the preservation of local gastronomy. Moreover, this research is one of the few gastronomic heritage bibliometric studies on the subject of culture and identity aspects in the scientific literature.

Specifically, according to the findings presented here, the authors believe that the developed research shows that revitalizing economies through promoting countries' gastronomic heritage as a national identity is the main purpose. This contributes to helping researchers understand

the main factors in recent research in the 21st century and can further provide governments and industries with sustainable management perspectives.

There are some limitations regarding the bibliometric analyses, which can lead to a certain bias in the research, since rankings and ratings are followed to the detriment of the factual analysis of the articles, this type of analysis has been chosen since it gives us an initial overview of a topic of study on which there are few works. Due to the fact that the selected bibliographic databases included only WoS and Scopus, and this study limited the analysis to articles written in English, there may be other related investigations that have not been contemplated. Moreover, the analysis results do not fully present the knowledge system of the obtained articles. Regarding future research, an operational definition of gastronomic image formation (R. C. Y.Chang & Mak, 2018) along with cultural (Moira et al., 2015) and identity (Fox, 2007) features of gastronomic heritage should be more central aspects.

Author Contributions: Investigation, M.P.L.; writing—original draft preparation, M.P.L.; supervision, E.M.R. and N.L.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

3.2 Special dietary needs: evidence from high-end restaurants (Lin et al., 2022b)

MIN-PEI LIN¹, ESTELA MARINE-ROIG² & NAYRA LLONCH-MOLINA³

This research was supported by the Spanish Ministry of Economy, Industry and Competitiveness [Grant id.: ECO2017-88984-R].

X.1. INTRODUCTION

The term ‘restaurant’ first appeared in the 16th century and originally meant food that restores physical and mental strength (Gita Subakti, 2013). As the global economy takes off, more and more people choose to leave a place they are familiar with in the short-term or long-term (short-range or long-range) to travel or live in another place, where three meals a day are still a must. With the evolution of the times, ‘where to eat and what to eat’ has become the core of tourism or living in other places through supporting roles. With the increasingly fierce competition in the catering industry, the introduction of innovative dishes that rivals cannot imitate has become the goal of most restaurants (Harrington, 2005). Successful innovation can benefit restaurants in unpredictable ways, including improving their reputations (or their chefs’) and increasing the loyalty of existing customers (Ottenbacher & Harrington, 2007). Today, the restaurant is no longer just a place that provides food, but it has developed into a social place to meet the increasing socialization and diversification needs of customers, as well as to provide a good experience (Walker, 2007). In the case of increased competition and choice among enterprises, the customer experience formed by food and peripheral services has become a vital basis for developing new and repeat customers (Shaw & Ivens, 2002). Both academia and business recognize that customer experience will be the battlefield of the future and the key to the success of business operations (McCall, 2015; Pine & Gilmore, 1998).

Gronroos (1984) believes that customer experience is composed of three parts: technical quality, functional quality, and image as a quality. Technical quality is usually related to material aspects, while functional quality and image are related to immaterial aspects. Parasuraman et al. (1985) subdivided the customer experience into ten determinants: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles. Among these, non-material determinants account for the majority. With respect to customers, ‘tasty’ food is already a basic requirement for dining in a restaurant, and other immaterial experiences will increasingly impact on customer experience.

Before the advent of the Michelin rating, restaurants all over the world tried their best to create a good customer experience. In addition to the taste of the food, they also attended to presentation and display (Gita Subakti, 2013). The Michelin tire company published the first *Michelin Guide* in France in 1900, and it has been updated every year since. Due to its professional and rigorous rating standards,

¹. Min-Pei Lin, PhD student at University of Lleida, Catalonia, Spain.

². Estela Marine-Roig, Senior Lecturer in Tourism Marketing at University of Lleida, Catalonia, Spain.

³. Nayra Llonch-Molina, Senior Lecturer in Social Science Education at University of Lleida, Catalonia, Spain.

it has become the target at which restaurants all over the world aim to enhance their competitiveness, both in cities and rural areas. Under this trend, Michelin-starred restaurants (MSR) have always been synonymous with gastronomy and a symbol of dignity; furthermore, they are an important basis from which people can pursue gastronomic experiences. The five criteria of Michelin stars awarded to restaurants are 1) quality of products, 2) mastering of flavors and cooking, 3) personality of the cuisine, 4) value for the money, and 5) consistency (Johnson et al., 2005; Ottenbacher & Harrington, 2007). We can see that these standards are only for food, that is to say, the standard of the ‘chef-centric’. The *Michelin Guide* currently covers more than 30 countries and includes 2,670 MSRs (Michelin, 2020).

Recently, the notion of fine dining has changed in two ways: the appearance of the *Michelin Guide*, which makes fine-dining cuisine more international and diverse; and the influence of young people due to the tangible and intangible products and services that keep customers coming back and attract new customers (Harrington et al., 2011). In other words, ‘customer-centric’ has become the new core of restaurant management. In addition, as customer satisfaction, loyalty, and word-of-mouth communications are affected by the ‘dining experience’ (Bojanic & Rosen, 1994), it is an important factor in the sustainability of restaurants in a highly competitive market.

More than half of the world's population have special dietary needs (SDN) due to food allergies or other diseases or because they are vegetarians and/or follow religious/cultural restrictions (Sicherer & Sampson, 2018). Among these, SDN due to vegetarianism and religious restrictions are mainly related to lifestyle and beliefs, which are psychological aspects; those with food allergies that fail to meet their SDN can suffer skin rashes, serious harm, or even death, which is a physiological aspect. In 1995, there were 158 hospitalizations in the UK for anaphylactic shock caused by food allergies, and in 2000, there were more than 400 cases (Sheikh & Alves, 2000). In addition, according to the U.S. census bureau there are 34 million people suffering from chronic illnesses such as heart disease, stroke, arthritis, diabetes, epilepsy, sleep apnea, asthma, and allergies (Daraghmi & Yuan, 2013).

Owing to the increasing internationalization of tourism, travel review websites have grown rapidly, and all the information is open, clear, and timely; additionally, more and more people are becoming accustomed to checking relevant information online before traveling or going to a restaurant, and the most important considerations are aimed at physical and mental health. If something happens to endanger the physical and/or mental health of a customer in the food service industry, not only is the corporate image damaged, but the loyalty of the customer is also affected.

MSR offer certified high-end food, attracting a large number of people with the intention to consume. In addition to meeting the needs of these high-end customers, it is necessary to consider their SDN. Furthermore, in terms of the number of users or the number of inbound visitors per month, TripAdvisor (rank 1) is almost ten times more popular than VirtualTourist (rank 2) (Marine-Roig, 2014a); hence, content analysis of online travel reviews (OTRs) on TripAdvisor is selected. Taipei and Barcelona are investigated through their official website listing of MSR. Also included are customer reviews from TripAdvisor so as to understand the importance of SDN in MSR. We divide SDN into four parts: food allergies (FA), religious restrictions (RR), vegetarian (VG), and others (OT) (including culture, health

status, and personal preference). Other abbreviations appearing in the tables and the text are as follows: SDN mentioned (SDNM), Taipei (TPE), and Barcelona (BCN).

X.2. OBJECTIVES

The objectives of this study are 1) to build a framework from which to analyse and compare the online responses of restaurateurs to SDN of clients; 2) to build a framework to analyse and compare online opinions of restaurant customers with SDN; and 3) to apply both frameworks to a case study: MSR in Taipei (capital city of Taiwan) and Barcelona (capital city of Catalonia, Spain).

X.3. METHODOLOGY

In short, the method consists of collecting data from restaurant websites (Daries, Cristobal-Fransi, et al., 2018b), downloading customer reviews posted on TripAdvisor (Marine-Roig et al., 2019), and analyzing the information by counting and categorizing key terms related to SDN. Then, the restaurants are compared by star rating, categories, and cities using the chi-squared test of independence and Fisher's exact test. The method can be applied to any restaurant with official websites and OTRs on TripAdvisor.

X.3.1. Case study

Asian and European cuisines are distinguished by offering highly elaborate dishes compared to the prevailing fast-food restaurants in other regions. The *Michelin Guide* represents high-end restaurants internationally. The cities selected for applying the proposed methods are Taipei (Taiwan, Asia) and Barcelona (Spain, Europe) because they represent outstanding tourist destinations in the respective continents and have a similar number of MSR (Michelin, 2020). The research examines the homepages and all the tabs on the official websites of Taipei and Barcelona MSR, as well as the relevant information about SDN on TripAdvisor OTRs in English, in relation to the star ratings of MSR in Taipei and Barcelona (Table 1) and popularity on TripAdvisor. MSR OTRs on Taipei, written in English, represent 82.97% of the total; in the case of Barcelona, they represent 93.84% (Table 2).

<i>City</i>	<i>N. 3*</i>	<i>% 3*</i>	<i>N. 2*</i>	<i>% 2*</i>	<i>N. 1*</i>	<i>% 1*</i>	<i>Sum N.</i>
TPE	1	4.17	5	20.83	18	75	24
BCN	2	9.09	5	22.73	15	68.18	22

3.2. Table 1. MSR (* = star). Source: guide.michelin.com

<i>City</i>	<i>N. 5*</i>	<i>N. 4*</i>	<i>N. 3*</i>	<i>N. 2*</i>	<i>N. 1*</i>	<i>Score</i>	<i>Sum N.</i>
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TPE	589	242	80	3	41	8.29	989
BCN	4701	897	477	250	221	8.67	6546

3.2. Table 2. OTRs on MSR. Source: TripAdvisor.com

Note. 5*=Excellent; 4*=Very good; 3*=Average; 2*=Poor; 1*=Terrible
Score = $((N_5 * 10) + (N_4 * 7.5) + (N_3 * 5) + (N_2 * 2.5) + (N_1 * 0)) / N$

The relevant information about SDN on MSR websites and TripAdvisor is divided into ‘whether SDN is mentioned on the official websites’, ‘whether SDN are presented on the menu’, and ‘whether SDN are provided due to food allergies, religious restrictions, vegetarianism, and/or other reasons (for example, intolerance, diabetes, cardiovascular disease, etc.)’. By using statistical methods (for instance, the chi-squared test of independence and Fisher's exact test), this study intends to confirm 1) different star ratings of MSR, 2) different star ratings of MSR in Taipei, 3) different star ratings of MSR in Barcelona, 4) the same star ratings of MSR in Taipei and Barcelona, 5) different types of MSR, 6) different types of MSR in Taipei 7) different types of MSR in Barcelona, and 8) the analysis of differences in SDN services. Content analysis of OTRs regarding SDN was also performed. Through these analyses, the services offered between different star-rated restaurants in different cities, as well as the type of restaurants, can be determined.

X.4. DISCUSSION

This research aims to record, analyze, and understand the services required by contemporary customers concerning SDN, as well as the response measures taken by MSR to take the presentation of dishes into account and meet customer needs. Regarding the case study, with almost the same number of MSR, the number of OTRs regarding Barcelona on TripAdvisor is almost five times the number of those regarding Taipei, which reveals that Barcelona is a more popular gastronomic destination. The total number of 1-star MSR is three times the total number of 2-star and 3-star restaurants. In the highly competitive high-end catering service industry, it is natural to make up for a lack of star ratings with better service. Taiwan has always been known for its local gastronomy, and the high-end food consumer population is relatively sparse. For sustainable management, services in addition to the food itself must be provided to increase added value and meet the demands of customers.

Countries with a high Religious Diversity Index (RDI) are centralized in East Asia, among which Taiwan ranks second, and most of the religions have *special dietary* laws and practices (for example, Hinduism, Judaism, and Islam); therefore, SDN due to religious reasons are considered by restaurants, and the requirements of vegetarianism are especially advocated by various religions in Asia. A study in the United States estimated that food allergies will affect 5% of children under five years old and 4% of adolescents and adults, and the prevalence is increasing year by year (Branum & Lukacs, 2009). Another study shows the prevalence of food allergies in Asia is from 1.1% to 12% (B. W. Lee et al., 2008; Tham et al., 2018). A survey by EuroPrevall shows that in Europe, the prevalence of food allergies in adults

for any food is between 2% and 37%, and for 24 kinds of food it is from 1% to 19% (Lyons et al., 2019). Relatively speaking, in Europe more concern has been shown regarding intolerance or other health-related SDN.

X.5. RESULTS

X.5.1. Comparison of different star ratings of Michelin-starred restaurants regarding special dietary needs

Due to the large difference in frequency between ‘vegetarian’ and ‘vegan’ being mentioned on websites and TripAdvisor, this study combines vegetarian and vegan under the term ‘vegetarian’. When combining the data from the official websites of MSR in Taipei and Barcelona (Table 3) and analysing them using the chi-squared test of independence and Fisher's exact test, the results show that there is no statistically significant difference in ‘whether SDN are mentioned on the official websites’ and ‘whether SDN are presented on the menu’. Further analyses of each item of SDN (food allergies, religious restrictions, vegetarian, and others) show that there is no statistically significant difference in related services between different star ratings of MSR.

<i>Stars</i>	<i>City</i>	<i>No. MSR SDNM</i>	<i>No. MSR SDN menu</i>	<i>No. MSR with SDN</i>			
				<i>FA</i>	<i>RR</i>	<i>VG</i>	<i>OT</i>
★	TPE	√√	√	√√	√	√√	√
	BCN	√√√	√	√√	√	√	√√√
	TOTAL	√√√√	√√	√√√√	√√	√√	√√√
★★	TPE	√	√	√	√	√	√
	BCN	√	√	√	√	√	√
	TOTAL	√	√	√	√	√	√
★★★	TPE	√	√	√	√	√	√
	BCN	√	√	√	√	√	√
	TOTAL	√	√	√	√	√	√

3.2. Table 3. Information and SDN provided on websites of different star ratings of MSR. Source: Own elaboration.

Note : √ = 0-5, √√ = 6-10, √√√ = 11-15, √√√√ = 16+

Based on SDN messages on websites of MSR in Taipei, there is no difference between different star ratings after the chi-squared test. As for Barcelona, the analyses of different star ratings of MSR (Table 3) show that there is no statistically significant difference in ‘whether SDN are mentioned on the official websites’ and ‘whether SDN are presented on the menu’.

For further analyses of each of the items of SDN, see Table 4, which reveals that among the MSR in Barcelona, more one-star restaurants provide SDN and detailed information on their official websites.

One-star restaurants provide better service to their customers to strive for a win-win situation in standing out from all the other restaurants and making customers more satisfied.

<i>Barcelona</i>	<i>SDN mention</i>	<i>Food allergies</i>	<i>Other</i>
1* vs 2*	p=0.058*	p=0.098*	p=0.058*
1* vs 2* + 3*	p=0.064*		p=0.064*

3.2. Table 4. Statistically significant differences among MSR in Barcelona regarding SDN.

Source: Own elaboration.

Note. *: p < 0.1; **: p < 0.05

There is no difference in messages provided on the websites between the same star ratings of MSR in the two cities. Furthermore, analyses of each item of SDN show that ‘1-star vs. 1-star’ X ‘others’ in Barcelona offers significantly more than in Taipei; in contrast, ‘2-Star + 3-Star vs. 2-Star + 3-Star vs. 2 + 3 Stars’ X ‘Religious restrictions’ in Taipei offers significantly more (Table 5).

<i>Taipei vs Barcelona</i>	<i>Religious restrictions</i>	<i>Other</i>
1* vs 1*		p=0.003**
2* + 3* vs 2* + 3*	p=0.086*	

3.2. Table 5. Statistically significant differences between the same star ratings of MSR in Taipei and in Barcelona regarding SDN. Source: Own elaboration.

Note. *: p < 0.1; **: p < 0.05

X.5.2. Comparison of different types of Michelin-starred restaurants regarding special dietary needs

To understand the differences in SDN among different types of MSR, all the restaurants are categorized, according to TripAdvisor, into four types as follows: Asian cuisine, European cuisine, fusion cuisine, and others (Table 6); the chi-squared test of independence and Fisher’s exact test were used to analyse the data according to these categories.

<i>Type</i>	<i>City</i>	<i>No. MSR SDNM</i>	<i>No. MSR SDN menu</i>	<i>No. MSRs with SDN</i>			
				<i>FA</i>	<i>RG</i>	<i>VG</i>	<i>OT</i>
Asian Cuisine	TPE	√√	√	√√	√√	√	√
	BCN	√	√	√	√	√	√
	TOTAL	√√	√	√√	√√	√√	√√
European Cuisine	TPE	√	√	√	√	√	√
	BCN	√√	√	√√	√	√	√√
	TOTAL	√√√	√√	√√√	√√	√√	√√√
Fusion Cuisine	TPE	√	√	√	√	√	√
	BCN	√	√	√	√	√	√
	TOTAL	√	√	√	√	√	√
Others	TPE	√	√	√	√	√	√
	BCN	√	√	√	√	√	√

TOTAL	√	√	√	√	√	√
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3.2. Table 6. Information and SDN provided on websites of different types of MSR. Source: Own elaboration.

Note : √ = 0-5, √√ = 6-10, √√√ = 11-15

To compare different types of restaurants in Taipei, ‘Asian cuisine vs. European cuisine’ X ‘SDN mentioned’ and ‘Asian cuisine vs. European cuisine’ X ‘food allergies’, which means that Asian cuisine restaurants focus more on the categories ‘SDN mentioned’ and ‘food allergies’ than do European cuisine restaurants (see Table 7).

<i>Taipei</i>	<i>SDN mention</i>	<i>Food allergies</i>
Asian cuisine vs European cuisine	p=0.045**	p=0.029**

3.2. Table 7. Statistically significant differences between different types of MSR in Taipei regarding SDN. Source: Own elaboration.

Note. *: p < 0.1; **: p < 0.05

The results of comparing the same types of restaurants between two cities are shown below (Table 8). European cuisine restaurants in Barcelona attach more importance to the ‘SDN mentioned’ and ‘food allergies’ aspects, while restaurants in Taipei are more concerned about the ‘religious’ and ‘vegetarian’ aspects. Restaurants in Taipei pay more attention to religious restrictions and the vegetarian aspects of food culture in different religions than do restaurants in Barcelona because of the high diversity and vegetarianism of religion in Taiwan (Table 5, Table 8); on the other hand, in Barcelona, the restaurants attend to food allergies more seriously due to the higher prevalence of these allergies in Europe.

<i>TPE vs BCN</i>	<i>SDNM</i>	<i>FA</i>	<i>RR</i>	<i>VG</i>
European cuisine	p=0.098*	p=0.098*	p=0.046**	p=0.046**

3.2. Table 8. Statistically significant differences between MSR specializing in European cuisine in Taipei and Barcelona regarding SDN. Source: Own elaboration.

Note. *: p < 0.1; **: p < 0.05

X.5.3. Comparison of online travel review scores of Michelin-starred restaurants on TripAdvisor

To realize the evaluation of 1) different star ratings, 2) different star ratings in Taipei, 3) different star ratings in Barcelona, and 4) the same star ratings of MSR in Taipei and Barcelona on TripAdvisor, reviewers’ scores were collected using the formula $avgScore = ((N5 * 10) + (N4 * 7.5) + (N3 * 5) + (N2 * 2.5) + (N1 * 0)) / N$ (Marine-Roig, 2019) to calculate the average score of each MSR, applying the T-test. The results demonstrate the consistency of all the ratings, and 1-star MSR in Barcelona score higher than those in Taipei (Table 9); on the contrary, there is no difference in the scores between 2-star and 3-star restaurants, validating the distinction of ratings between MSR in Taipei and Barcelona.

<i>Michelin-starred restaurants</i>	<i>Taipei vs Barcelona</i>
1* vs 1*	T-test: $\alpha < .05$, F-test: $\alpha < .05$
1* + 2* + 3* vs 1* + 2* + 3*	T-test: $\alpha < .05$, F-test: $\alpha < .1$

3.2. Table 9. Statistically significant differences between the same star ratings of MSR in Taipei and Barcelona based on reviewers' scores on TripAdvisor. Source: Own elaboration.

Based on the reviewers' ratings of MSR on TripAdvisor calculated by the above formula, the top ten restaurants with the highest scores are obtained. All the top ten MSR scored higher than 9 (Table 10), and they all received good reviews from customers; nevertheless, there are some restaurants with scores less than 6, and a few restaurants have not been rated at all. Food quality, service, hygiene, dining environment, and prices are the key elements contributing to the scores.

<i>Stars</i>	<i>MSR</i>	<i>City</i>	<i>Count</i>	<i>5B</i>	<i>4B</i>	<i>3B</i>	<i>2B</i>	<i>1B</i>	<i>score</i>
★	Aürt	BCN	4	4	0	0	0	0	10.00
★★	RyuGin	TPE	26	22	3	1	0	0	9.52
★★	Disfrutar	BCN	518	451	44	16	3	4	9.51
★★★★	Lasarte	BCN	425	369	31	15	3	7	9.42
★	Impromptu by Paul Lee	TPE	3	2	1	0	0	0	9.17
★	Tainan Tan Tsu Mien Seafood	TPE	12	9	2	1	0	0	9.17
★★	Cocina Hermanos Torres	BCN	37	30	3	3	0	1	9.12
★	Oria	BCN	188	152	18	9	5	4	9.11
★	Cinc Sentits	BCN	661	516	79	39	22	5	9.08
★	Da-Wan	TPE	169	132	25	2	2	8	9.01

3.2. Table 10. Reviewers' scores for the top 10 MSR by number of TripAdvisor OTRs. Source: Own elaboration.

Note. Count = No. OTRs; B = bubbles

The problem of food allergies is being widely considered in MSR in Taipei; in terms of vegetarian compared to vegan, there are more restaurants offering vegetarian menus. Some restaurants accommodate comprehensive services for any SDN of customers; some emphasize that customers need to inform the restaurant of their dietary requirements when booking. On the other hand, in Barcelona, even though there are a few MSR that indicate on their official websites that they are willing to provide comprehensive services for any SDN of customers, only food allergies and intolerances are fully considered, and the restaurant must be informed of them in advance. The ingredients and the presentation of the dishes in some restaurants are more important than are customer needs or religious restrictions, and vegetarian aspects are rarely mentioned. Descriptions of SDN shown on the official websites of MSR are given below (Table 11).

<i>On online menu or reservation</i>
If you have any allergy or dietary requirements. Vegetarian menu (contains eggs & dairy) is available, Vegan menu & non-seafood menu are unavailable.
Please specify any food or beverage allergies (including alcohol), or foods that you cannot eat. Requests for changes to ingredients must be made in advance of the day of your visit.
Tell us your requests and we will try to meet them as much as possible and adapt to your needs. You must let us know in advance through the web or when we contact you.
It may be the case that the amounts of allergies and intolerances are impossible to manage by our team, preventing guarantee an experience faithful to our cuisine.

3.2. Table 11. Sample of SDN shown on official websites of MSR in Barcelona. Source: Own elaboration.

On the basis of the reviews on TripAdvisor of MSR in Taipei and Barcelona, the frequency of keywords is calculated (Table 12), and the results reveal that food allergies, vegetarianism, and gluten aspects are the most frequent dietary requirements; there are few SDN regarding religious restrictions. Relatively speaking, food allergies have received the most attention in Barcelona, and vegetarianism is the focus in Taipei.

<i>Keywords</i>	<i>BCN percentage (%)</i>	<i>TPE percentage (%)</i>
allergy & allergies	47.19	30.77
vegan	6.7	7.7
vegetarian	25.2	34.62
gluten	13.4	26.92
lactose	2.7	0
dairy	3.8	0
kosher	0.54	0
halal	0	0
religious	0.54	0

3.2. Table 12. Frequency of keywords regarding SDN. Source: Own elaboration.

X.6. CONCLUSIONS

As for the SDN provided by different types of restaurants between ‘Asian cuisine’ and ‘European cuisine’ in Taipei, this might be due to the differences in customer groups, ingredients, and business philosophy. Combining the reviewers’ ratings on TripAdvisor regarding Taipei and Barcelona, it is found that the highest and lowest scores all come from 1-star restaurants. After studying the online reviews of the restaurants, it is obvious that in the MSR with the highest scores, the food meets the customers’ expectations; this as well as good dining environments and service are the main reasons given for good reviews; quite the opposite, poor hygiene, slow service, bad dining environment, etc. are the main reasons for low scores. The rankings of the three 3-star MSR are 4, 28, and 29, validating that food is no longer the key to a high score. Comprehensive service and excellent dining environments are

keys to the different rankings; high prices and lack of respect for customers are reasons for low scores. Food quality has become the basic requirement in customers' minds when dining at a restaurant; when reasonable prices and quality comprehensive service are added, the restaurant environment is outstanding.

Ethnic and cultural differences between Europe and Asia, along with the influence of MSR standards (persistence in the use of ingredients or plating), result in the different services provided respecting SDN. The impact of providing a comprehensive and high-quality 'customer dining experience' aimed towards good travel reviews has surpassed the role of 'increasing the star rating of MSR'.

Because the data resource came from two cities only, applied results of this study are limited. In future research, in addition to data collected from official websites and TripAdvisor, more research methods (such as telephone interviews and questionnaire surveys) should be applied to gain a comprehensive understanding of the service.

3.3. Gastronomic experience (co)creation: Evidence from Taiwan and Catalonia (Lin et al., 2022a)

Special Issue: **Gastronomic Tourism Experiences and Experiential Marketing**

Abstract

The design of gastronomic experiences based on consumer opinion (co-creation) can contribute to improving the online gastronomic image and the overall image of destinations. By evaluating and sharing their experience on social media, the visitor expresses different levels of satisfaction and loyalty towards the destination. This user-generated content (UGC) represents useful information for analysing the perception of gastronomic experiences and the formation of online gastronomic images. The semiotic model used here considers three semantic aspects of the gastronomic image to analyse gastronomic experiences through big data analytics. The model was applied to two regions with different gastronomic cultures: Taiwan (Asia) and Catalonia (Europe) and four types of experiences. A total of 17,214 online travel reviews (OTRs) from 2008 to 2019 were selected from TripAdvisor's 'things to do' section, which includes various tours and gastronomic activities that are different from typical dining experiences in restaurants. The results highlight the growth of OTRs before the COVID-19 pandemic, the high satisfaction of the participants in the reviewed activities, and differences in popularity and attractiveness according to activity, category and region. The findings also showcase notable differences in destination branding and marketing strategies between the regions.

Keywords: Gastronomic experience; gastronomic image; semiotic aspect; big data analytics; Taiwan; Catalonia

Introduction

Scholars have published numerous studies on tourism destination image (TDI) (Arcos-Pumarola et al., 2020; Yilmaz & Yilmaz, 2020), and tourism destination marketing and management organisations (DMOs) have a great interest in improving and promoting TDI as numerous researchers have shown that perceived images has a great influence on prospective tourists selecting holiday destinations (Chon, 1990; Goodrich, 1978). Despite the fact that the application of signs and symbols is universal (Morris, 1946; Peirce, 1935) and that several authors demonstrated their influence in the field of branding and marketing in general, and in consumer behaviour in particular (Mick et al., 2004), very rare studies have addressed semiotics as an integral aspect of the TDI.

A pioneering study in the formation of the image of tourist destinations (Gunn, 1972) distinguished between sources influenced by DMOs, which the author called ‘induced sources’, and what he considered organic sources (reports in media, magazine articles, etc.). Gartner (1993) called Gunn’s organic sources ‘autonomous sources’ and considered organic sources to be only those emanating from individuals, that is, word-of-mouth (WoM) marketing for prospective tourists and prior experience for repeat visitors. Marine-Roig (2019) included among Gartner's unsolicited organic sources digital WoM (eWoM), that is, user-generated content (UGC) and, more specifically, content generated by travellers (TGC) and shared on social media.

According to Quan and Wang (2004), gastronomy is an important theme in images and experiences of tourists. These authors classified routine daily tourism experiences into peak experiences and supporting consumer experiences, and they argued that food consumption belongs to both. Scholars have studied gastronomy in different areas and disciplines, highlighting the fields of tourism, leisure, and hospitality (DeJong et al., 2018). In most studies, the researchers obtained the data through surveys (questionnaires and interviews) (Lyu et al., 2020; Okumus et al., 2018), and they focused on food consumption in restaurants (Rodríguez-López et al., 2020). In recent years, some researchers have employed UGC as a data source with which to analyse tourism and hospitality issues (Abaalzat et al., 2021; M. S.Lin et al., 2021), but the majority of the studies focused on accommodation. In terms of gastronomy, studies addressing restaurants through online travel reviews (OTRs) accounted for around 13% (Hlee et al., 2018; Kwok et al., 2017). For instance, Marine-Roig et al. (2019) quantitatively analysed a sample of 500,000 TripAdvisor OTRs from restaurant customers to deduce the online gastronomic image of the Canary Islands, and Ramírez-Gutiérrez et al. (2020) qualitatively analysed comments shared by diners on TripAdvisor to understand various aspects of the local cuisine at a destination in the Canary Islands.

With advances in information and communications technology (ICT) and travel review platforms, the number of OTRs has increased dramatically. Following this trend, TDI is not transmitted unilaterally by industry to tourists; rather, it has become a (co)creation of stakeholders and tourists. In the field of restaurants, Rodríguez-López et al. (2020) detected a change of direction in the interest of scholars, from a supply-side orientation to a demand-side perspective. Several authors have used big data analytics (X.Li &Law, 2020) in the design of tourist experiences, although the theoretical foundation is not yet consolidated (Mazanec, 2020).

The gastronomic experience is not limited to the consumption of food. UNWTO (2019) defines gastronomic tourism as visitors’ experiences linked with food and related products and

activities while travelling (p. 44). While there are numerous studies on dining experiences in restaurants (Rodríguez-López et al., 2020) and on food-related products such as those devoted to wine tourism (Montella, 2017; Sánchez et al., 2017), the literature on food-related activities is scarce (Rachão et al., 2020). In addition, most researchers analysed the co-creation and co-design of gastronomic experiences through surveys and interviews. For instance, participation in cooking classes (Prayag et al., 2020; Taheri et al., 2021), and tea tourism (Chen, 2018).

In summary, the models of co-creation or co-design of tourist experiences based on the TDI perceived by visitors are scarce; conceptual models of TDI from a semiotic perspective are rare; studies on the contribution to the global TDI of gastronomic experiences other than the consumption of food and drink in restaurants are also rare; finally, there is long way to go in using the UGC big data as an information source to reach the conceptual levels achieved through surveys. To address this gap in the literature, the aim of this research is to adapt the theoretical and methodological framework proposed by Marine-Roig (2019, 2021) in order to analyse the contribution of gastronomic activities to overall online TDI from a semiotic perspective. To this end, the study presents four categories of gastronomic experiences (learning, drinking, shopping, and other food-related tours) and some metrics to measure the popularity of activities as well as the satisfaction and loyalty of visitors. Based on the findings of this visitor-centred approach, DMOs can design new gastronomic experiences or redesign existing ones (Lalicic et al., 2021). To test the framework in a case study (Çakar & Aykol, 2021), the authors selected two coastal regions of similar size and orography but different gastronomic cultures –namely, Taiwan in Asia and Catalonia in Europe– and downloaded all the English-language OTRs regarding both regions posted on TripAdvisor from 2008 to 2019 and included in the ‘food & drink’ and ‘food, wine & nightlife’ categories. Comparing gastronomic experiences grouped by categories, both between categories and between regions with different cultures, can reveal differences in perceived gastronomic images. The findings can be used by DMOs to improve the marketing policies and branding of destinations, especially in the Anglophone countries where the tourists originate.

Theoretical background

Based on an extensive literature review, Campos et al. (2018) built a conceptual framework for the tourist in situ co-creation experience, in which the active participation and interaction between subjects and the environment produced psychological states and processes in the tourist, such as sensations, perceptions, thoughts, images, feelings, and involvement. Most of these states of mind that make up memorable tourist experiences are included in the TDI definitions (Lai & Li, 2016). Furthermore, the gastronomic image contributes significantly to the TDI formation (Dixit, 2020; Marine-Roig et al., 2019).

According to Richards (2012), co-creation involves using the consumer's knowledge of the product to improve it and provide a closer fit with consumer needs. In the context of creative cultural tourism, this author used the tasting experiences as an example. The semiotic conceptual model proposed below, derived from Marine-Roig (2021), addresses the design of gastronomic experiences by DMOs based on the gastronomic image perceived and shared on social media by visitors (Lalicic et al., 2021).

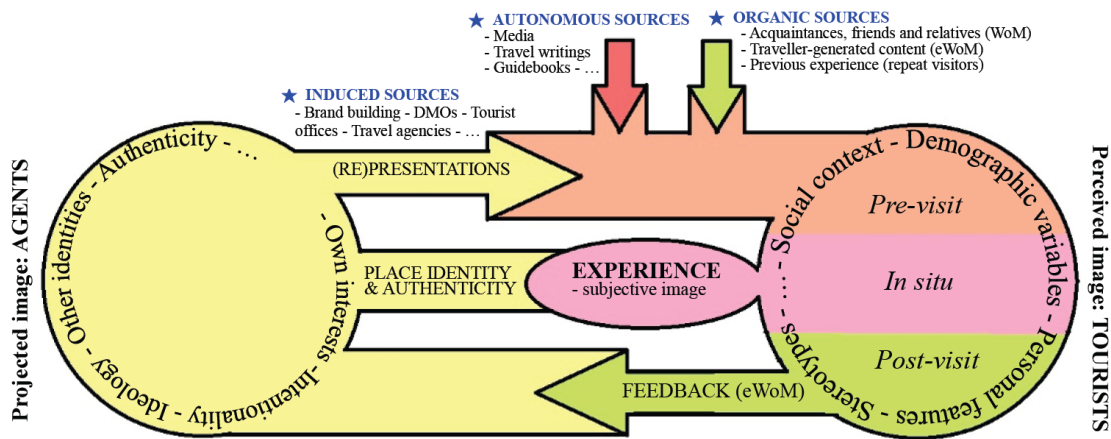
Role of branding and marketing in creating gastronomic experiences

Using a hermeneutical circle, Cai (2002) graphically represented a model of destination branding with the relationships between brand, management, marketing, and image of tourist destinations. In the centre of the circle, he included the activation and diffusion of brand identity. Brand building of a tourist destination helps identify the goods and services offered and differentiates them from those offered by competitors (Aaker, 1991). According to the Destination Marketing Association International (DMAI, 2008), destination marketing and management can be defined as a proactive, visitor-centred approach to the economic and cultural development of a destination that balances and integrates the interests of visitors, service providers, and the community (p. 77). TDI may be defined as the sum of beliefs, ideas, and impressions that a person has of a destination (Crompton, 1979). In other words, the key elements of branding involve identifying and differentiating the attributes, goods, and services of the tourist destination. On one hand, destination marketing helps spread and market these positive attributes to prospective tourists and visitors. On the other hand, perceived TDI basically depends on tourists' awareness through their experiences at the destination. However, multiple agents influence the process of TDI formation (Gartner, 1993; Gunn, 1972).

To improve the gastronomic image, it is crucial that DMOs design and promote attractive gastronomic experiences. For this, since gastronomy provides hedonic experiences (Sundbo & Dixit, 2020), it is essential to know the opinions of tourists and to analyse the popularity of existing experiences as well as the satisfaction and loyalty of visitors at the destination and at other destinations. The model presented in the following section allows measuring variables of the attractiveness of gastronomic experiences, as well as customer satisfaction and loyalty, by way of the construct of gastronomic image. The results of the analysis can guide tourism firms in developing innovations focused on demand.

Perceived gastronomic image analytics for experiences design

While tourists have previously formed an image that generates expectations, on-site experience is the key element of the image perceived by visitors. Perceived TDI is a subjective interpretation of reality, but, being a complex construct, there are many factors that can affect its formation (Figure 1).

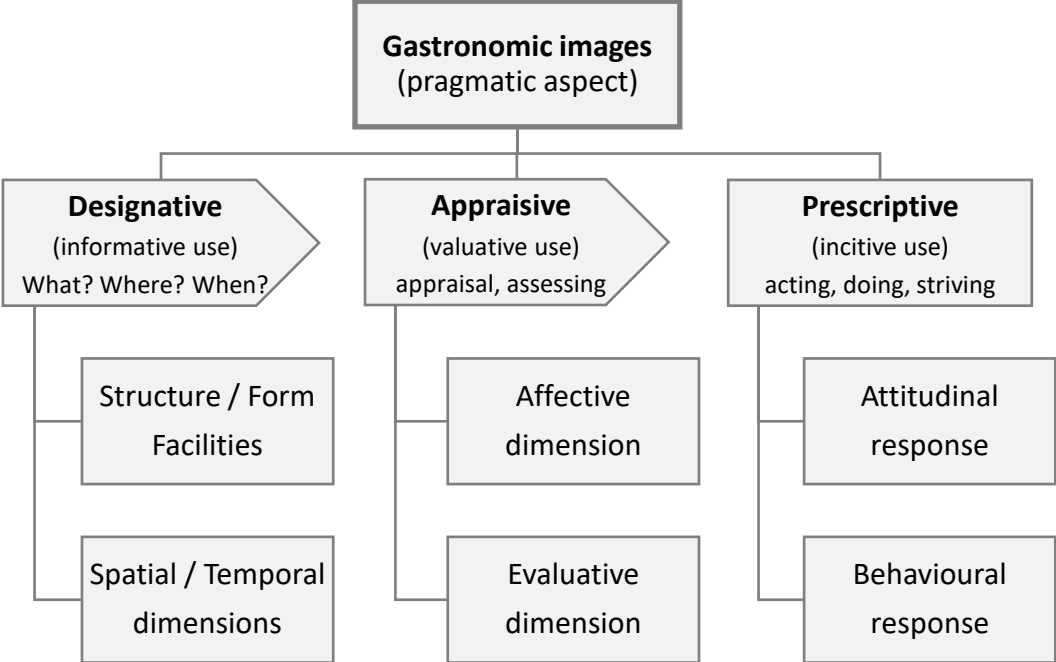


3.3. Figure 1. Destination image formation derived from Marine-Roig (2021)

According to Gartner’s classification (extreme left of the graph in Figure 1), there are some agents (induced sources) that project the TDI; that is, they present or represent an image of what they consider to be attractive factors of the tourist destination. Organic sources of information, which come from individuals, and autonomous sources, which do not depend on the above, add to the image projected by stakeholders. At the other extreme, tourists perceive the image in three phases: pre-trip according to the information they receive, in situ through experiences, and post-visit. In this third phase, many travellers communicate their experiences to people around them (WoM) or share them on social media (eWoM). This transmitted image becomes a projected image source (Marine-Roig, 2014b).

Undoubtedly, the creation of gastronomic experiences should be based on the consumer experience (co-creation). Actors on the supply side (i.e., DMOs) design products for gastronomic experiences based on their purposes (e.g., interest, intentionality and ideology) and transmit them to the demand side (i.e., users and consumers) in different ways, including via travel agencies and social media. The experiences can thus reach consumers at three stages: before, during and after the journey (Sundbo & Dixit, 2020). A variety of vacationers receive the image projected from the demand side, have expectations for the tourist products, and perceive a subjective image after the experience. By giving feedback to the supply side and sharing their experiences on social media, consumers express different levels of satisfaction with the product and loyalty towards the brand. Some authors (Schimperna et al., 2020) consider TGC to be very useful data for analysing tourists’ perceptions of gastronomic

experiences and the formation of online gastronomic images, for example, in a sentiment analysis of customers’ feelings towards local gastronomy and dining experiences through UGC (Yu & Zhang, 2020).



3.3. Figure 2. Semiotic aspects of gastronomic image derived from Marine-Roig (2021)

Scholars have analysed the constructs of destination image, satisfaction and loyalty by conducting surveys (Chi & Qu, 2008; Prayag, 2008). Most authors have used conceptual models that divide TDI into three components –cognitive, affective and conative– and have demonstrated the relationships between them in survey results (Yilmaz & Yilmaz, 2020). Marine-Roig (2019, 2021) designed a semiotic model to measure the TDI perceived by visitors and deduced their satisfaction and loyalty from TGC. Following Morris's (1938, 1946) trichotomies, that model divides the image into three hierarchically interrelated semantic aspects (i.e., designative, appraisive and prescriptive) and three pragmatic dimensions of use (i.e., informative, valuative and incitive). The designative aspect (i.e., informational use) of the original model is broad because it includes destination-related attributes and tourism-related services located in certain times and places. The appraisive aspect (i.e., valuative use of the attributes and services) has two dimensions: evaluative, represented by a standard scale ranging from ‘goodness’ to ‘badness’, and affective, which reflects feelings derived from the experience. In response to those stimuli, the prescriptive aspect (i.e., incitive use) has two dimensions: attitudinal (e.g., recommend) and behavioural (e.g., visit and revisit). The valuative use of the appraisive aspect allows measuring the visitor's satisfaction, whereas the incitive use of the prescriptive aspect allows deducing their loyalty to tourist destinations. The model thus captures

one way in which semiotics and consumer behaviour are deeply rooted in the fields of branding and marketing (Mick, 1986; Mick et al., 2004).

Marine-Roig's model evolved as captured by three articles (Marine-Roig, 2017a, 2019, 2021). The primary application of the 2017 model was to analyse the online gastronomic image of an island region according to 500,000 OTRs for restaurants posted on TripAdvisor (Marine-Roig et al., 2019). So far, the most prominent applications of the 2019 model, by contrast, have been to analyse the image of Barcelona, the capital of Catalonia, according to induced, autonomous and organic sources from China (Lojo et al., 2020) and analyse the image of several cities in relation to the design of tourism experiences as captured in 811,235 English OTRs posted on Airbnb (Lalicic et al., 2021). The 2021 version of the model incorporated semiotics as an element of discussion. Although not consolidated, the proposed conceptual model makes it possible to exploit meaningful information included in OTRs. As an expression of TGC, OTRs on gastronomic experiences enter the online hospitality ecosystem via eWoM (Gligorijevic, 2016).

Because gastronomic image contributes to the formation of TDI (Dixit, 2020; Quan & Wang, 2004), adapting of the model to the case study focused on gastronomic images (Figure 2) requires a restrictive interpretation of the designative dimensions. Thus, those dimensions now refer to the structure and form of the organisation of food-related activities and the gastronomic facilities available at the tourist destination. For that reason, gastronomic experiences are divided into four categories located in time and place, as detailed in the next section.

Materials and methods

In order to measure an aspect of the gastronomic image within the TDI, food-related activities that are part of the gastronomic experience were analysed, and Taiwan (Asia) and Catalonia (Europe) were selected as gastronomic destinations. The applied methodological framework includes the selection of the OTR hosting website, data collection, pre-processing, and analysis.

Case Study: Taiwan (Asia) and Catalonia (Europe)

Among all the emerging tourism markets in the Asia-Pacific region, Taiwan is gradually gaining attention in the global tourism market with its rich and diverse natural and cultural resources. Taiwan's tourism industry GDP accounts for more than 4.4% of the national GDP. Natural resources and diverse cultures have generated various tourism products (nature sites, museums and galleries, heritage sites, animals, religious sites, leisure, shopping, nightlife, etc.) that meet the demands of numerous tourists and have helped Taiwan's tourism industry grow

rapidly (Tourism Bureau, 2020b). According to a survey conducted by Taiwan's Tourism Bureau (Tourism Bureau, 2018), among gastronomic experience-related items, gourmet food, delicious snacks (69%), and fruit (14%) are the main factors attracting international tourists to Taiwan; gourmet food (55%) and night markets (35%) were the most impressive aspects of Taiwan for inbound visitors. According to Taiwan's official statistics concerning foreign visitors, the 7,518,268 international tourists in 2019 mostly came from Japan (2,166,211), followed by South Korea (1,238,870) and the United States (600,726).

After the Canary Islands, Catalonia is the main international tourist destination in Spain and has always been considered the main driver of the Spanish economy. The tourism sector is the main local service industry (Garay & Cànoves, 2011). Being one of the prime tourist destinations in Europe, through culture, relaxation, nature, family-friendly facilities, sports, business, etc., Catalonia meets the demands of a variety of tourists from all over the world. As an indicator of the gastronomy-related sector's importance in the hospitality industry in Catalonia, in 2018 the catering sector had both an operating income and a production value of more than € 9000 million, which was double the number in the accommodation sector (Idescat, 2019). According to Catalonia's official statistics on foreign visitors, its 19,388,100 international visitors in 2019 mostly came from France (4,082,700), followed by the United Kingdom (2,014,200) and the United States (1,510,500).

Data Collection

The first step was selecting the most suitable website for collecting OTRs on gastronomic experiences in Taiwan and Catalonia other than eating in restaurants. According to the results of a weighted formula based on website visibility and popularity metrics, as well as based on the number of OTRs related to the case study (Marine-Roig, 2014b), TripAdvisor was the most appropriate travel-related website. Although the decision coincides with what most researchers who have used OTRs as a source of data have done (Hlee et al., 2018; Kwok et al., 2017), Ganzaroli et al. (2017) have questioned TripAdvisor's restaurant rankings because they did not reflect their popularity or expected quality. This problem does not affect the present study because the rankings used are based on TripAdvisor's objective data (i.e., number of OTRs and scores for each gastronomic experience).

All TripAdvisor OTRs on tours and activities related to gastronomic experiences, within the categories (food & drink, and food, wine & nightlife) and subcategories (afternoon teas, bar, club & pub tours, beer & brewery tours, beer tastings & tours, breweries, coffee & tea tours, cooking classes, dining experiences, distilleries, farmers' markets, food tours, nightlife, other

food & drink, wine bars, wine tasting & winery tours, wine tours & tastings, and wineries & vineyards), in the ‘Things to do’ section for Taiwan and Catalonia, were downloaded.

Pre-processing

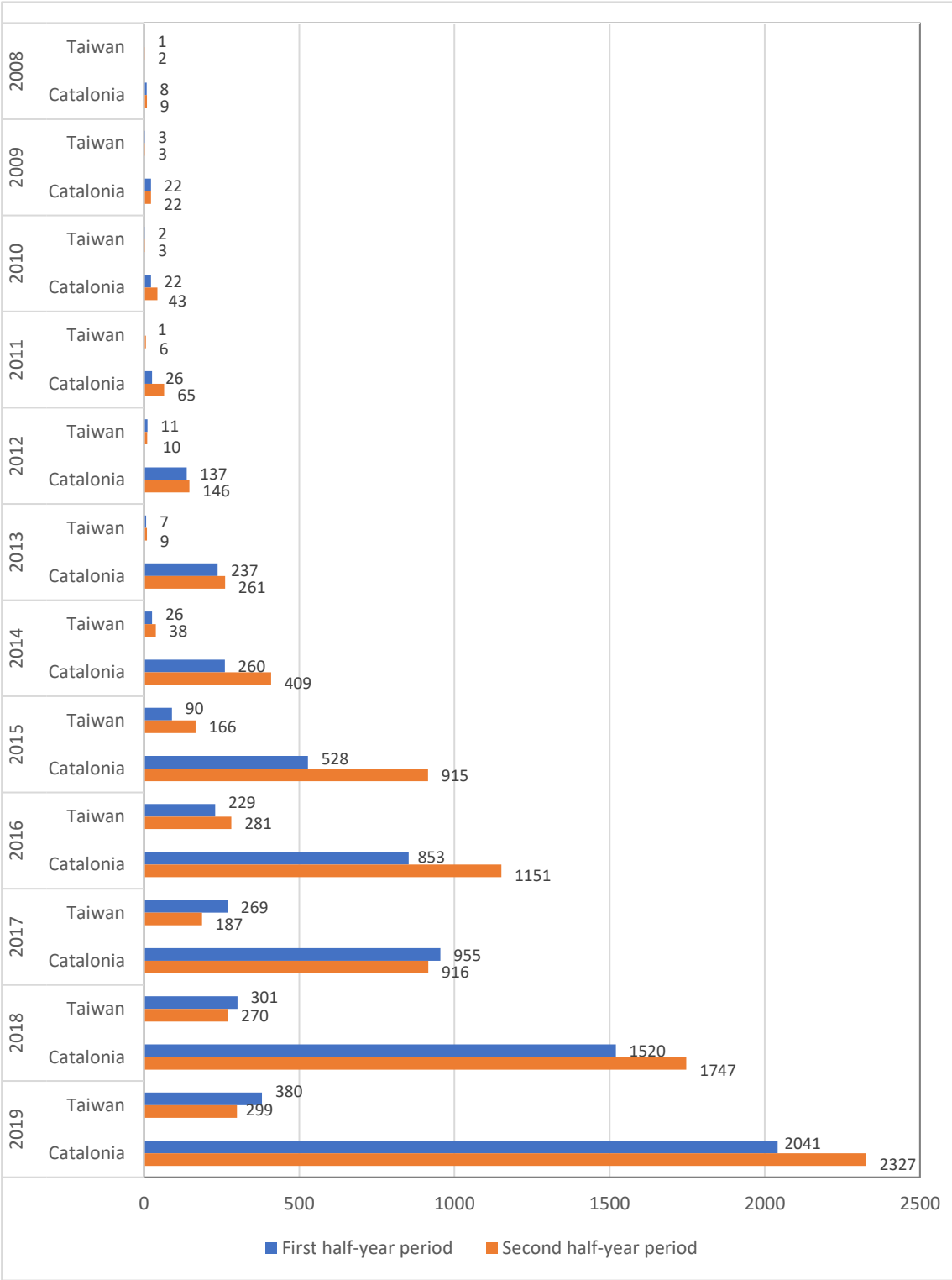
Through a website copier with appropriate filters, 2,782 OTRs regarding Taiwan and 15,552 OTRs about Catalonia were downloaded and arranged by dates and languages, including English, Chinese, Japanese, Spanish, and French. English TGCs represented the most extensive data source; therefore, 17,214 OTRs written in English from 2008 to 2019 were selected. After counting and categorising key terms and analysing reviewers’ opinions, we implemented the comparisons between gastronomic experiences and regions through the metrics derived from the three aspects of the TDI framework described above. Figure 3 in Appendix shows the temporal distribution of the sample.

Content Analysis

Berelson (1952) defines quantitative content analysis as ‘a research technique for the systematic, objective, and quantitative description of the manifest content of communication’ (p. 18). In this context of textual analysis, the process consists of three phases: counting, categorising, and ranking key terms. The key term is the minimum unit of analysis that is not in the stop-word list. A term can be a word (e.g., Taipei, Barcelona) or a group of consecutive words with their own meanings (e.g., value for money, not worth). According to the model in Figure 2, the quantitative content analysis is divided into the three semantic aspects of the gastronomic image (designative, appraisive, and prescriptive), but the calculation method based on categories, metrics, and rankings is similar in all the cases.

From the textual and paratextual (e.g., resource name, dates, and scores) elements of the OTRs (Marine-Roig, 2017b), the categories are based on cognitive and/or polarity criteria. Due to the variations in quantity and extension of the OTRs of each category and region analysed, the parser algorithm (Marine-Roig, 2019) was used to normalise the results into percentages by dividing the number of occurrences of the key terms by the total number of words. Finally, the count function (deBorda, 1781) returns the results sorted by aggregating the corresponding rankings. Starting from lists in descending order, the function assigns points to each candidate on each list. For example, in a key term percentage list with four candidates, if the key terms have positive polarity or have no polarity, the function assigns three points to the first and zero points to the last. Conversely, if the polarity is negative, the first candidate is assigned zero points and the last three points. In the event of a tie in the sum of points, the function assigns

the intermediate position. For example, if there is a tie in positions 2 and 3, the function assigns position 2.5 to both.



3.3. Figure 3. Temporal distribution of TripAdvisor OTRs in English. Source: TripAdvisor OTRs in English from 2008 to 2019 (Taiwan: 2,594; Catalonia: 14,620)

Designative aspect

The gastronomic experience includes local characteristics and cultural identity. The food-related activities and establishments sponsored by TripAdvisor allow multiple classifications such as region (e.g., American, Asian, European), country (e.g., Chinese, Spanish, Indian, Italian, Japanese, Mexican), and type of gastronomic experience (i.e., 'food & drink', 'food, wine & nightlife'). In order to facilitate the analysis and comparison of experiences, this study ranked the gastronomic experiences into four categories: (1) Learning, (2) Drinking, (3) Shopping, and (4) Other food-related tours, based on the TripAdvisor categories and subcategories. Within each category, TripAdvisor can classify an activity into more than one subcategory. Since the categories must be mutually exclusive (Krippendorf, 2004) and the data must be comparable, the classification algorithm follows the same criteria in all cases, giving priority according to the order described above.

Based on the above principles and process, all types of food experience are classified into categories as follows: (1) Learning: cooking classes, classes & workshops, and lessons & workshops; (2) Drinking: afternoon teas; bar, club & pub tours, beer & brewery tours, beer tastings & tours, breweries, coffee & tea tours, distilleries, wine bars, wine tasting & winery tours, wine tours & tastings, and wineries & vineyards; (3) Shopping: farmers' markets, gift & specialty shops, and flea & street markets; and (4) Other: food tours, other food & drink, and cultural tours.

Appraisive aspect

Customers rate their gastronomic experiences on TripAdvisor. To facilitate analysis in the evaluative dimension of the research, a weighted average score (0 to 100) was calculated for the ratings of one-to-five bubbles on TripAdvisor and categorised as follows: positive score (Score+), 5* = Excellent (100) and 4* = Very good (75); neutral score, 3* = Average (50); and negative score (Score-), 2* = Poor (25) and 1* = Terrible (0). In terms of the affective dimension (which is about assessing the moods, sentiments, and feelings that customers express), 'delicious', 'never disappoints', and 'wow' reflect positive feelings and moods (Feel+); conversely, 'not worth', 'disappointed', and 'yuck' reflect negative feelings and moods (Feel-) in the textual elements of the reviews (Marine-Roig, 2017b).

Prescriptive aspect

The prescriptive aspect includes visitors' attitudinal and behavioural responses. Both types of response are measured by polarity categories. In relation to attitudinal response, the category 'Recom+' (e.g., recommend, must not miss) includes positive attitudes, and, at the opposite pole, 'Recom-' (e.g., avoid, not recommend) includes negative attitudes. With regard to behavioural attitude, 'Behav +' (e.g., love to be back, return next time) includes positive behaviours, and 'Behav-' (e.g., not be back, would not return) includes negative behaviours.

Results

The parsing algorithm returns the key terms appearing in the OTRs ordered by number of occurrences together with the percentage of the total number of words they contain, including stop words. In the Appendix, Table 1 (Taiwan) and Table 2 (Catalonia) describe these results in relation to the 50 most frequent key terms, and Table 3 shows the 20 most frequent terms segmented by region (Taiwan and Catalonia) and categories (learning, drinking, shopping, and other food experiences). The most frequent key terms in Table 3 demonstrate that the categorisation of OTRs is consistent with their content. Because these tables show significant data related to the three semantic aspects of the image, the designative, appraisive, and prescriptive aspect subsections of the discussion include comments on the most common key terms.

3.3. Table 1. Most frequent key terms. Count and percent of total words (Taiwan)

Rank	Key term	Count	%	Rank	Key term	Count	%
1.	tour	4360	1.55202	26.	trip	494	0.17585
2.	taipei	2103	0.74860	27.	lot	488	0.17371
3.	great	1902	0.67705	28.	ivy	477	0.16980
4.	food	1603	0.57061	29.	old	466	0.16588
5.	time	1003	0.35703	30.	friendly	460	0.16374
6.	taiwan	911	0.32429	31.	best	459	0.16339
7.	guide	886	0.31539	32.	interesting	456	0.16232
8.	experience	809	0.28798	33.	amazing	437	0.15556
9.	really	774	0.27552	34.	just	431	0.15342
10.	recommend	741	0.26377	35.	like	421	0.14986
11.	good	731	0.26021	36.	took	419	0.14915
12.	fun	724	0.25772	37.	nice	410	0.14595
13.	class	693	0.24669	38.	places	387	0.13776
14.	guides	685	0.24384	39.	knowledgeable	382	0.13598
15.	history	671	0.23885	40.	culture	377	0.13420
16.	way	665	0.23672	41.	try	376	0.13384
17.	cooking	664	0.23636	42.	tea	374	0.13313
18.	walking	628	0.22355	43.	people	373	0.13278
19.	day	627	0.22319	44.	excellent	368	0.13100
20.	taiwanese	604	0.21500	45.	definitely	361	0.12850
21.	tours	579	0.20610	46.	different	361	0.12850
22.	highly	574	0.20432	47.	place	361	0.12850
23.	local	569	0.20255	48.	enjoyed	349	0.12423
24.	market	563	0.20041	49.	informative	341	0.12138
25.	city	520	0.18510	50.	make	337	0.11996

Note: Total words (including stop words): 280,925; unique words: 8,292

3.3. Table 2. Most frequent key terms. Count and percent of total words (Catalonia)

Rank	Key term	Count	%	Rank	Key term	Count	%
1.	tour	11838	0.85937	26.	lunch	2279	0.16544
2.	market	8503	0.61727	27.	nice	2159	0.15673
3.	great	8354	0.60645	28.	wonderful	2104	0.15274
4.	wine	7263	0.52725	29.	wines	2070	0.15027
5.	food	7184	0.52151	30.	worth	1970	0.14301
6.	barcelona	6149	0.44638	31.	history	1961	0.14236
7.	place	4661	0.33836	32.	like	1928	0.13996
8.	day	4595	0.33357	33.	fruit	1917	0.13916
9.	guide	4478	0.32508	34.	eat	1915	0.13902
10.	experience	4348	0.31564	35.	beautiful	1896	0.13764
11.	time	4203	0.30511	36.	seafood	1846	0.13401
12.	visit	3964	0.28776	37.	excellent	1817	0.13190
13.	amazing	3819	0.27724	38.	highly	1811	0.13147
14.	good	3374	0.24493	39.	people	1807	0.13118
15.	just	3031	0.22003	40.	delicious	1797	0.13045
16.	tapas	2992	0.21720	41.	stalls	1773	0.12871
17.	montserrat	2952	0.21430	42.	group	1768	0.12835
18.	tasting	2912	0.21139	43.	way	1754	0.12733
19.	winery	2799	0.20319	44.	fish	1639	0.11898
20.	recommend	2778	0.20167	45.	fantastic	1597	0.11593
21.	fun	2622	0.19034	46.	local	1597	0.11593
22.	best	2599	0.18867	47.	different	1507	0.10940
23.	trip	2594	0.18831	48.	went	1507	0.10940
24.	really	2472	0.17945	49.	interesting	1502	0.10904
25.	fresh	2425	0.17604	50.	knowledgeable	1485	0.10780

Note: Total words (including stop words): 1,377,527; unique words: 18,872

3.3. Table 3. Ranking of the twenty most frequent key terms

Rank	TW Learning	TW Drinking	TW Shopping	TW Other	CAT Learning	CAT Drinking	CAT Shopping	CAT Other
1	class	whisky/ey	market	tour	experience	tour	market	tour
2	cooking	place	tea	taipei	paella	wine	food	guide
3	ivy	tasting	farm	great	cooking	great	place	great
4	experience	beer	food	food	class	guide	great	barcelona
5	great	tour	local	guide	great	day	barcelona	food
6	food	distillery	beitou	time	fun	montserrat	fresh	tapas
7	taiwanese	good	place	guides	barcelona	winery	visit	fun
8	time	great	buy	taiwan	food	tasting	just	experience
9	taipei	visit	mango	history	time	barcelona	fruit	wine
10	jodie	tea	nice	walking	amazing	time	stalls	group
11	taiwan	kavalan	good	really	recommend	experience	eat	recommend
12	fun	free	great	recommend	group	trip	seafood	time
13	dishes	nice	tour	way	people	wines	amazing	amazing
14	market	beers	vegetables	tours	chef	recommend	fish	good
15	make	taipei	way	good	best	history	good	highly
16	home	like	fresh	fun	sangria	amazing	fruits	excellent
17	recommend	really	friendly	day	make	visit	meat	way
18	delicious	shop	fruit	city	market	good	buy	history
19	tea	coffee	like	experience	highly	tapas	worth	local
20	highly	taiwan	locals	local	delicious	food	a must	different

Designative aspect

Far fewer companies have organised gastronomic experiences in Taiwan (i.e., 8 Learning, 5 Drinking, 6 Shopping and 15 Other) than in Catalonia (i.e., 57 Learning, 143 Drinking, 20 Shopping and 9 Other). Figure 3 in the Appendix shows the regional and temporal distribution, by half-year periods, of the OTRs shared in English, from 2008 to 2019, by visitors to both regions. In all periods, there were more OTRs from Catalonia than from Taiwan. Catalonia had a higher concentration of OTRs in the second half of the year, which shows that it is a seasonal destination like other Mediterranean countries. There was an exception in the second half of 2017 as serious events (Marine-Roig & Huertas, 2020) occurred in that period (terrorist attack and independence movement).

Table 4 shows the descriptive statistics of the set of establishments that offer gastronomic tours or activities and the number of OTRs regarding each. Based on the skewness and kurtosis statistics, the variable number of reviews from 2008 to 2019 does not show a normal distribution. That is, there is a tendency for travellers in these two areas to intensively participate in gastronomic activities in specific establishments. In this study, ‘Mercat de la Boqueria’ in Barcelona (7631/14,620 OTRs) and ‘TourMeAway’ in Taipei (1006/2594 OTRs) are two good examples. By region, this effect has been far more intense in Catalonia than in Taiwan. This abnormal distribution of the variables does not affect subsequent analyses because the metrics used are based on standardised data (percentages).

3.3. Table 4. Number of establishments and OTRs in Taiwan and Catalonia from 2008 to 2019

Region	N	OTRs	Min.	Max.	Mean	Median	Std. Dev	Skew.	Kurt.
TW	34	2584	1	1006	76.29	13	185.50	4.24	20.04
CAT	255	14,620	1	7631	66.15	6	556.05	12.35	161.55

Note. N: number of establishments; Min.: minimum number of OTRs per establishment; Max.: maximum; Std. Dev: standard deviation; Skew.: skewness; and Kurt.: kurtosis

As for the general designative key terms, in the Appendix, Table 1 (Taiwan) and Table 2 (Catalonia) show that the keywords ‘tour’, ‘food’, ‘guide’, and ‘experience’ are among the 10 most frequent keywords in both regions’ reviews. In the case of Catalonia, the first 10 terms also include ‘market’ and ‘wine’, which is consistent with the majority ‘Shopping’ and ‘Drinking’ categories in this region’s reviews (Table 5). In relation to the spatial dimension of the image, the capitals Taipei and Barcelona appear in the first positions. But there is a great contrast in terms regarding the regions’ names and cultural identities due to the position of the keywords Taiwan (6), Catalonia (460), Taiwanese (20), and Catalan (223). In relation to the temporal dimension, OTRs show a growing trend in general, with few exceptions, in relation to all categories of gastronomic experience in both regions (Table 5).

3.3. Table 5. Online travel reviews per categories and year

Region	Category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
TW	Learning	3	6	5	6	14	16	35	39	46	13	68	166
	Drinking	0	0	0	0	6	0	6	21	51	44	40	39
	Shopping	0	0	0	0	0	0	0	2	3	6	7	7
	Other	0	0	0	1	1	0	23	194	410	393	456	467
	Total	3	6	5	7	21	16	64	256	510	456	571	679
CAT	Learning	1	0	0	2	3	18	18	22	34	36	144	722
	Drinking	0	1	1	14	40	146	212	507	485	677	1252	2059
	Shopping	16	43	61	75	240	332	434	906	1474	1151	1805	1248
	Other	0	0	3	0	0	2	5	8	11	7	66	342
	Total	17	44	65	91	283	498	669	1443	2004	1871	3267	4365

Source: TripAdvisor OTRs in English (Taiwan: 2,594; Catalonia: 14,620)

The most popular gastronomic activities by number of OTRs are different in Taiwan versus Catalonia (Table 6). A company in Taiwan stands out as offering food tours in the capital (Taipei), and food tours (category 4) occupied the top three gastronomic experiences, accounting for 65.81% of the total OTRs. Catalonia offers a famous market (category 3), also in the capital (Barcelona), representing 52.20% of all OTRs. In both cases, the first has more than twice as many reviews as the second.

3.3. Table 6. Top five popular gastronomic experiences by number of OTRs

Region	Activity	OTRs	Score	TripAdvisor type (Study category)
TW	TourMeAway in Taipei	1006	9.42	Food Tours (4)
	Taipei Eats	391	9.71	Food Tours, Night Tours (4)
	WithLocals	310	9.71	Food Tours, Cultural Tours (4)
	Ivy's Kitchen Cooking Class	163	9.94	Cooking Classes (1)
	King Car Kavalan Distillery	135	7.19	Distilleries (2)
CAT	Mercat de la Boqueria	7631	8.80	Farmers Markets (3)
	Castlexperience - Wine Tours	3178	9.68	Cultural Tours, Wine Tours & Tastings (2)
	Devour Barcelona Food Tours	531	9.82	Wine Tours & Tastings, Food Tours (2)
	Barcelona Local Experiences	366	9.30	Other Food & Drink (4)
	Paella Cooking Experience	319	8.55	Cooking Classes (1)

Note. (1): Learning, (2): Drinking, (3): Shopping, (4): Other food-related tours

Appraisive aspect

Focusing on the evaluative dimensions derived from the establishment OTRs, Table 7 shows that, overall, most of the reviewers' ratings are 'excellent' (5*) or 'very good' (4*). This is of great significance to DMOs because it seems that tourists in Taiwan are satisfied or very satisfied with destinations where a gastronomic experience is offered, and the same applies in Catalonia.

Regarding the affective dimension, in the Appendix, Tables 1, 2, and 3 show positive qualifying adjectives such as 'great' and 'good' to be among the most frequent keywords. Using the data in these tables, Table 8 describes the appraisal metrics that indicate customer satisfaction. For

Taiwan, ‘Learning’ (over 99%) and ‘Other’ food tours (over 95%) show the greatest satisfaction. Tables 6 and 7 illustrate that the category of ‘Other’ food tour experiences is the most popular. However, the ‘Drinking’ and ‘Shopping’ categories are less popular (Table 7) and less valued (Table 8). In any case, the average score is above 70%, which shows that these four types of gastronomic experience make tourists feel satisfied or very satisfied. Looking at Catalonia, the ‘Shopping’ and ‘Drinking’ categories are the most popular (Table 7), and the ‘Drinking’ category (Table 8) is the most valued by the reviewers. Taken together (Table 8), the four categories are rated above 85%, indicating that tour customers are very satisfied.

3.3. Table 7. Reviewers’ scores in all four gastronomic experience categories

Region	Category	5 *	4 *	3 *	2 *	1 *	Count
TW	Learning	404	12	1	0	0	417
	Drinking	66	90	36	9	6	207
	Shopping	10	8	6	0	1	25
	Other	1668	215	40	10	12	1945
CAT	Learning	893	51	24	15	17	1000
	Drinking	4827	430	89	20	28	5394
	Shopping	5049	1979	558	121	75	7782
	Other	388	27	12	4	13	444

Note. * = TripAdvisor bubble; AvgScore = weighted average score (0 to 100)

Comparing the appraisive rankings in the two regions (Table 8), there are practically no coincidences. There is only one coincidence in the ranking of positive terms related to feelings: the category ‘Other food experiences’ is the best valued through the ‘Feel+’ metric in both regions. Conversely, the metrics ‘Score+’, ‘AvgScore’, and ‘Feel+’ are more positive globally and more homogeneous between categories in Catalonia than in Taiwan.

3.3. Table 8. Average scores and percentage of terms in appraisive metrics

Region	Category	Score-	Score+	AvgScore	Feel-	Feel+	Rank
TW	Learning	0.00000	99.76019	99.16067	0.07510	4.35595	1
	Drinking	7.24638	75.36232	74.27536	0.52356	3.29336	4
	Shopping	4.00000	72.00000	76.00000	0.26624	3.08839	3
	Other	1.13111	96.81234	95.20566	0.30483	4.64823	2
CAT	Learning	3.20000	94.40000	94.70000	0.22449	5.10976	2
	Drinking	0.88988	97.46014	96.38487	0.16993	5.37804	1
	Shopping	2.51863	90.31097	87.92727	0.93226	4.02564	4
	Other	3.82883	93.46847	93.52477	0.27848	5.41426	3

Note: - = negative; + = positive. Source: TripAdvisor OTRs in English

Prescriptive aspect

Using data from Tables 1, 2, and 3, Table 9 describes the prescriptive metrics that indicate customer loyalty for gastronomic experiences. The two highest ranked categories in Taiwan, both in attitudinal response and behavioural response, are ‘Learning’ and ‘Other food experiences’. This result coincides both with the designative metrics as they are the most popular categories (Tables 5 and 6) and with the appraisive metrics as they are the most valued categories (Table 8). Regarding Catalonia, the ‘Learning’ category is the most positive in both dimensions, indicating customer loyalty, but the popularity and satisfaction rankings do not exactly match. Comparing Taiwan and Catalonia, attitudinal and behavioural responses are overall positive in both regions.

3.3. Table 9. Average scores and percentage of terms in prescriptive categories

Region	Category	Behav-	Behav+	Rank A	Recom-	Recom+	Rank B
TW	Learning	0.00000	0.00873	1	0.02445	0.52572	1
	Drinking	0.00422	0.00844	3	0.03378	0.20267	3.5
	Shopping	0.00000	0.00000	4	0.05325	0.15974	3.5
	Other	0.00000	0.00606	2	0.03381	0.52841	2
CAT	Learning	0.00000	0.01597	1.5	0.04790	0.61993	1
	Drinking	0.00000	0.00924	3	0.03026	0.50946	2
	Shopping	0.00017	0.00911	4	0.12809	0.55975	4
	Other	0.00000	0.00739	1.5	0.03697	0.59638	3

Note: - = negative; + = positive; A = attitudinal; B = behavioural

Discussion

In terms of quantity, establishments organising gastronomic experiences in Taiwan were less than a sixth of those in Catalonia but received only slightly less than half of Catalonia’s annual number of foreign tourists. Moreover, before the COVID-19 pandemic, Catalonia faced the challenge of having many participants in specific activities and thus experienced relatively tough domestic competition in the gastronomic tourism sector. For example, the most popular gastronomic experience in Catalonia, ‘Mercat de la Boqueria’ (farmer market), was included in the shopping category, but the large influx of tourists is also due to the fact that this historic market is a landmark in the city of Barcelona.

As international tourists travel from region to region, they consistently hope to have experiences that are unique to the place (Andrades & Dimanche, 2014). In the case study, the results of the content analysis of the OTRs by categories and regions confirm the most outstanding drink in both continents: the most popular beverage in Asia is tea, but in Europe it is wine. Mainly, the unique environment (i.e., mountain climate, cool moist air, and fertile soil) for tea cultivation and modern tea processing techniques for quality control in Taiwan, makes Taiwanese tea recognized as one of the most valuable teas in the global market (Fu et al., 2020), and

winemaking in Catalonia has a long tradition, with 6% of the total revenues in agriculture coming from the sales of wine (Meneses et al., 2016). However, the results confirm that the most popular beverage among Taiwan visitors by far is malt whiskey. Taiwan is a producer of award-winning whiskeys praised by connoisseurs around the world (Liu, 2017; Wang, 2015).

In countries such as Taiwan, Spain, and Mexico, hosts enjoy offering accommodations with environments for learning about local cuisine (Kocaman & Kocaman, 2014). In addition, a place's traditional food highlights the local culture of the destination (Trichopoulou et al., 2007). In Taiwan, cooking classes are the most satisfying gastronomic experiences and have hardly any negative reviews. Instead, in Catalonia, although cooking classes sometimes offer preliminary trips to buy ingredients in Mercat de la Boqueria located in the centre of Barcelona, most of the dishes taught are typical Spanish fare (e.g., 'paella' and potato omelettes). Thus, it remains difficult to find a typical Catalan cooking course, even if the courses are held in the capital of Catalonia (Richards, 2013). The issue of gastronomic cultural identity also appears in similar studies carried out in other regions. For example, in the Spanish Canary Islands, Asian restaurants were rated higher than European ones (Marine-Roig et al., 2019); something similar happened in the Spanish Valencian country, where the local cuisine and the typical dish ('paella') were badly positioned in the ranking of popularity (Marine-Roig et al., 2021); in contrast, in Greek Attica, most restaurants specialized in local cuisine, but it was paradoxical that fast-food restaurants were more popular than restaurants classified as healthy by TripAdvisor (Marine-Roig, 2019).

Conclusion

The proposed conceptual model and methodological framework have been useful to achieve the objectives. The content generated by travellers and shared on social media is a valid data source to deduce the gastronomic image perceived by users through experiences. DMOs, knowing the spontaneous opinion of tourists, can design new experiences or redesign existing ones to adjust them to their preferences or needs.

The TGC seems unlimited. For example, TripAdvisor currently hosts 887 million traveller reviews and opinions. Big data technology, widely used in various fields, remains somewhat underdeveloped but nevertheless offers numerous advantages that traditional research methods lack and has thus become an emerging technology worthy of investment for improving all walks of life. Although big data has its shortcomings in applications, its greatest advantage is that, owing to the large number of samples involved, it can dilute the sampling and system-related errors that may occur in general research methods. In addition, compared with common

research methods (e.g., questionnaire surveys), the process of data collection is relatively simple and suffers from the least human interference.

In the tourism industry, OTRs are not only numerous but also ‘unbiased’, so to speak, and have thus become the best material for applying big data technology. By using the mentioned technology and data analysis, researchers can generate valuable, in-depth results as a reference for academia, industry and government. Because activities in gastronomic experiences are diverse, conducting comprehensive research first requires an accurate, comprehensive understanding to facilitate classification and yield unbiased results.

Gastronomic experience may become a new indicator of tourism development. Taiwan and Catalonia are located on different continents, Asia and Europe, with different tourist attractions but both are popular tourist destinations. The findings have demonstrated the rise in the number of reviews from both regions prior to the COVID-19 pandemic and the attractiveness of gastronomic experiences reflected in the overall satisfaction shown by the reviewers. The most notable exception is the decrease in OTRs during the second half of 2017 in Catalonia due to certain serious events at the time (Marine-Roig & Huertas, 2020). The government and the private sector should work together to make better use of national and local resources to develop the gastronomic experience into something that can gain new advantages in the saturated and competitive tourism market.

Theoretical implications

For more than five decades, scholars have analysed TDIs. First, images focused on urban environments (Lynch, 1960; Rapoport, 1977). Lynch stressed that people, both residents and visitors, and their activities were as important as tangible heritage and inherent parts of the city’s images. Later, Rapoport divided the image of the urban environment into three components: cognitive, affective and conative. Other authors (Gunn, 1972; Mayo, 1973) meanwhile studied TDIs at the regional level, and most used the mentioned tripartite model coming from psychology (Rapoport, 1952) in the process (Yilmaz & Yilmaz, 2020). This research aims to contribute to the study of online gastronomic images, from a semiotic perspective, namely by adapting a new model designed to measure TDIs (Marine-Roig, 2021). Reflecting Morris (1946) trichotomies, the TDI model is based on the hierarchical relationship between three semiotic semantic aspects –designative, appraisive and prescriptive– and three pragmatic uses –informative, valuative and incitive.

Then, the conceptual model adapted to gastronomic experiences allows to analyse the gastronomic image online and to deduce two crucial aspects in the field of tourist destination

marketing: the satisfaction and loyalty of visitors. That is, within this model, the informative use of the designative aspect serves to show the popularity of the activities or groups – categories– of gastronomic activities located in time and place. The valuative use of the appraisive aspect, through the evaluative and affective dimensions, allows to measure the satisfaction of the customers of the gastronomic experiences. Finally, the incitive use of the prescriptive aspect, through the behavioural and attitudinal dimensions, allows to deduce the loyalty of the customers consuming gastronomic experiences.

Despite the abundance of research on restaurants' reputation, scholars have paid little attention to other aspects of gastronomic experiences. Although the proposed model derived from Marine-Roig (2021) is not yet consolidated, in principle, it allows deducing the contribution of all kinds of gastronomic experiences to overall TDI, as well as the satisfaction and loyalty of customers, by way of TGC and big data analytics. TGC and the travel-related web platforms that support it become part of the online tourism and hospitality ecosystem via eWoM (Gligorijevic, 2016). In this way, the model contributes to integrating gastronomic experiences into the design of tourism products based on the perceptions and needs of customers (Lalicic et al., 2021).

Practical implications

This study proposes categories, metrics, and rankings to measure experiences. These tools allow comparing different experiences with each other, as well as between different categories and destinations, through TGC big data shared by visitors that is relatively easy to collect. For example, stakeholders can also compare the design of gastronomic activities of the same type and understand the success factors of similar actions as a reference for improving others. The findings thus afford DMOs insights into enhancing their marketing strategies. In addition, the proposed methodological framework allows vacationers to be segmented by language, country of residence, and tour dates and places, which facilitates the design of branding and marketing policies aimed at specific markets and seasons.

Although the two coastal regions in the case study have similar areas, Taiwan is an emerging destination and Catalonia a consolidated one. The results show notable differences in the variables of popularity, satisfaction and loyalty between activities, as well as between the four categories of experiences across the two regions. For instance, both the destinations' popularity metrics and visitor satisfaction and loyalty metrics have yielded more positive results globally for Catalonia than for Taiwan. Given that English-speaking reviewers have no reason to be more demanding in Taiwan than in Catalonia, these results may indicate differences in the marketing and management of gastronomic experiences. Regarding the regions' brands

(Taiwan, Catalonia) and cultural identities (Taiwanese, Catalan), the occurrence of both key concepts in OTRs is much higher in Taiwan than in Catalonia, which may indicate differences in branding strategies at the level of international recognition of both destinations. Regarding the cultural identity derived from the gastronomy of both regions, among the most frequent keywords for the learning category (cooking classes), in Catalonia were ‘paella’ (typical dish of the Spanish Valencian country) and ‘sangria’ (typical drink in several Spanish regions). In Taiwan the frequent keywords were ‘Ivy’ and ‘Jodie’, two famous cooks in Taipei. It is also worth noting that Taiwan has been very successful in promoting Taiwanese malt whiskey. This shows that Catalonia does not adequately promote local cuisine despite having internationally renowned chefs such as the Roca brothers, Ferran Adrià and Carme Ruscalleda.

Therefore, the tourism industry’s business strategy should focus on promoting local gastronomic products and diversifying the offer according to the needs of tourists to contribute to the sustainable development of the destination. Added to that, when designing such activities, businesses offering gastronomic tourism should try their best to combine local customs and famous attractions (e.g., cooking classes combined with farmers’ markets in Barcelona) and make market distinctions for products in the same category in order to avoid homogenisation. Attention should also be paid to identity and brand building. As for the government, in addition to remaining wary of market monopolies, the development of a good second category of activities should be promoted (e.g., cooking classes in Taiwan). Finally, DMOs must favour the sustainable development of successful gastronomic experiences to avoid overcrowding and TDI deteriorating.

As an international tourist destination with a long history of tourism-related development, Catalonia has focused on developing of wine tourism according to characteristics of the local climate and cultural heritage as a means to attract international tourists and generate considerable economic benefits. Taiwan, by comparison, as an emerging tourist destination in Asia, needs time to develop gastronomic experiences with distinct features.

Limitations and future research

The main difficulty presented by big data involves the classification of key terms and the construction of categories. While algorithms allow us to verify that the categories are mutually exclusive, it is almost impossible to achieve exhaustive categories. In this study, there are two types: polarity categories based on previous studies (Lalicic et al., 2021; Marine-Roig, 2021) and cognitive categories based on subcategories within TripAdvisor’s ‘food and drink’ category. Of importance is that these categories have the problem in that the same establishment can market different experiences. Consequently, the authors established priorities for classifying

the establishments by categories applicable to all cases; in the content analysis of the OTRs, the most frequent key terms by regions and categories have been consistent with the categorisation of gastronomic activities.

Another limitation of the case study is the variety in the origin of the English-speaking reviewers. In 2019, most of the foreign visitors in Taiwan came from North America –600,726 from the United States and 136,252 from Canada– while in Catalonia, most came from the United Kingdom (2,014,200) and the United States (1,510,500). Those circumstances recommend applying the model to a cross-cultural study based on the country of residence of the reviewers listed in their TripAdvisor profiles.

Future research can deepen the understanding about gastronomic experiences from the perspectives of both supply and demand sides (Daries et al., 2018b; Daries et al., 2019). For example, for the demand side, is the purpose of travelling to the destination the destination itself or the culinary experience? And what are positive practices for the supply side in creating relationships with users, including interacting, and fostering engagement? Furthermore, the relationships between hosts and guests could be examined (Choudhury & Dixit, 2020). Likewise, it should be verified whether such experiences not focused on restaurants can act as pull factors to the destination (Daries et al., 2021). Future research should involve using more advanced tools for statistical analysis and make more differentiated classifications to study the marketing of different types of gastronomic experiences (Dixit, 2020). For example, the fourth category of gastronomic experiences, ‘Other food-related activities’, should be further subdivided and analysed in order to gain a broader and deeper understanding of gastronomic experiences that can help DMOs to incorporate innovative ideas in the development of tourism products. In this study, the most popular item in Catalonia is farmers’ markets, and they are classified into the shopping category. In fact, whether most of the international tourists go to the farmers’ markets for food shopping or just for sightseeing should be further studied for more accurate results and to offer greater relevance for stakeholders. Thus, the rules for classification need to be more exhaustive and more closely represent the needs of the case study in order for the results to be more useful.

Funding: This work was supported by the Spanish Ministry of Science, Innovation and Universities under [Grant id.: ECO2017-88984-R] within the TURCOLAB project.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

3.4. Gastronomy tourism and well-being: Evidence from Taiwan and Catalonia Michelin-starred restaurants (Lin et al., 2022c)

Min-Pei Lin ¹, Estela Marine-Roig ^{2,*} and Nayra Llonch-Molina

¹ Department of Specific Didactics, University of Lleida, 25003 Lleida, Catalonia, Spain; lm16@alumnes.udl.cat (M.-P.L.); nayra.llonch@udl.cat (N.L.-M.)

² Department of Business Administration, University of Lleida, 25003 Lleida, Catalonia, Spain

* Correspondence: estela.marine@udl.cat

Abstract: In the Tourism and Hospitality industry, ensuring the well-being of visitors is essential to achieving a competitive tourist destination. This objective is even more pressing in the gastronomy sector. Surprisingly, the scientific literature on this topic is scarce and relies on questionnaire surveys and interviews as a data source. After scrutinising the 13 articles on gastronomy tourism and well-being indexed in the Web of Science or in Scopus, this study proposes two new lines of research interrelated by the concept of gastronomic image. These exploit the content shared online by consumers in order to assess subjective well-being derived from quality gastronomic experiences. The first is a framework for the customer-perceived image based on Grönroos's service quality model, and the second is a conceptual model based on Morris's semiotics to measure gastronomic image. Through mixed methodologies, i.e. qualitative in the first research line and quantitative in the second, the study applies the theoretical framework to Michelin-starred restaurants in two tourist regions with similar features but with different gastronomic cultures –Taiwan (Asia) and Catalonia (Europe)– using as a data source all the online travel reviews (OTRs) written in English about these restaurants shared on the TripAdvisor portal. Comparing the three categories of restaurants in both regions, the results show branding and marketing problems and significant differences in the popularity of restaurants and the satisfaction and well-being of diners. There is a positive relationship between the category of restaurants according to the number of Michelin stars and their popularity according to the number of OTRs, as well as with the satisfaction and well-being of diners, except for a 3-star restaurant that is the worst-rated. These outcomes from the demand side can be useful to stakeholders to design or improve gastronomic products and services.

Keywords: gastronomy tourism; gastronomic image; customer expectations; subjective well-being; service quality model; user-generated content; online travel review; TripAdvisor; Taiwan; Catalonia



Citation: Lin, M.-P.; Marine-Roig, E.; Llonch-Molina, N. Gastronomy Tourism and Well-being: Evidence from Taiwan and Catalonia Michelin-starred Restaurants. *Int. J. Environ. Res. Public Health* **2022**, *19*, x. <https://doi.org/10.3390/xxxxx>

Academic Editor: Firstname Lastname

Received: date

Accepted: date

Published: date

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1. Introduction

Gastronomy tourism is a type of activity characterized by the visitor's experience linked with food-related products and activities, such as authentic, traditional, and/or innovative culinary experiences (UNWTO, 2019). Increasingly more destinations are emphasising that type of cultural tourism (Bertan, 2020), largely given food's impact beyond mere health to overall individual well-being (Block et al., 2011). Faced with this growing interest in gastronomic tourism, many famous

chefs from high-end restaurants focus their creative cuisine on the combination of cuisine, territory, landscape, and culture (Meneguel et al., 2019), thus recognising the value of the local gastronomic heritage (Lin et al., 2021).

For many scholars, well-being seems to be synonymous with quality of life (Uysal et al., 2016) –or they are at least two closely related concepts (Suzuki et al., 2020). Felce (Felce, 1997) understands quality of life as a person's overall well-being, which is determined by the combination of three factors: objective life conditions, subjective well-being (i.e., personal satisfaction with life conditions), and personal values and aspirations (i.e., the importance given both to objective life conditions and personal satisfactions). The author also establishes a correlation between personal satisfactions and subjective well-being. Although well-being is intangible, difficult to define, and even harder to measure, it is a goal pursued by various countries, regions, and even individuals. In addition, well-being is strongly subjective; each person seeks it differently; that is, in the face of the same situation, people have different levels of well-being.

People face all kinds of pressures in a modern society characterized by a rapid pace of life. Added to this is the economic recession caused by the COVID-19 pandemic and the resulting demands for social distancing, which have altered the daily lives of the global population (Harba et al., 2021). Such a large and sudden disturbance to daily life is likely to have a major negative impact on human well-being, especially for those living in densely populated cities. A recent study (Chen et al., 2022) of 823 full-time workers in Taiwan revealed that a simple hotel stay provides a respite from work and reduces work-related rumination, thereby contributing to guest satisfaction and both hedonic and eudaimonic well-being. These invisible life pressures make people want to capture a little happiness in their lives, and eating delicious food in a restaurant is one expedient way of meeting this need. For consumers, revisiting the happiness of a gastronomic experience is usually one of the main factors that makes them repeat customers (Lin, 2014).

Nowadays, because of the increasing socialisation and diversification expectations of customers, the restaurant has become a place where customers can receive not only food but also a complete gastronomic experience (Walker, 2007). Fine dining is a highly creative and innovative industry, always full of challenges and self-requirements, providing guests with a unique gastronomic experience (Batat & DeKerviler, 2020). A Michelin-starred restaurant can be synonymous with fine dining. Indeed, the reputation of fine dining or haute cuisine has increased, in part, due to the appearance and expansion of the *Michelin Guide*, which makes fine-dining cuisine more international and diverse and encourages the pursuit and enthusiasm of unique and unforgettable gastronomic experiences that provide tangible and intangible products and services (Harrington et al., 2011). The Michelin company published the first *Michelin Guide* in France in 1900, and it has been updated every year since. Restaurants around the world aspire to achieve the professional and rigorous standards of Michelin-starred restaurants in order to gain recognition and enhance their competitiveness (Daries, Cristobal-Fransi, et al., 2018b). Michelin-starred restaurants are an important base from which people can pursue quality gastronomic experiences.

Traditionally, most researchers obtain data through questionnaire surveys and interviews in order to obtain information on the satisfaction of restaurant customers (Lin et al., 2021; Bendegul Okumus et al., 2018).

These methods can not only highlight important themes and enable the testing of specific hypotheses but also provide richer insight data. New information and communication technologies (ICT) currently make it possible to obtain massive amounts of data on customer or consumer satisfaction through user-generated content (UGC). Both data sources, survey and UGC, are complementary (Lin et al., 2021). An increasing number of researchers use UGC as a data source, which gives much more information with less investment of resources and is based on the already investigated premise of the potential of word-of-mouth (WoM) marketing –meaning that most consumers believe more in UGC than in producer-generated content–, for both positive and negative information (Cheong & Morrison, 2008). Due to the great progress of ICT and the popularity of travel review platforms with diversity and user-friendly presentation, sources of WoM or digital WoM (eWoM) on review platforms have gradually become popular for tourists and academic researchers, and the number of users has increased exponentially. One of these travel-related platforms based on UGC is TripAdvisor, which was founded in the early 21st century and became the world's most popular travel destination and accommodation website in a short period of time. TripAdvisor currently hosts more than 988 million reviews and comments shared online by travellers. Such a huge amount of information has naturally become a source of research data for gastronomy-related studies (Cassar et al., 2020; Harba et al., 2021; Lin et al., 2022a; Marine-Roig et al., 2019).

Studies linking gastronomic tourism and well-being are scarce and, among them, the use of UGC as a source of research data is rare. To fill the research gap, this study proposes a new theoretical and methodological framework to understand the gastronomic image perceived by customers and measure their satisfaction, loyalty, and well-being through content generated by consumers and shared on social media. The chief purpose of the research is to confirm, using tourist UGC as data, that consuming quality food contributes to diners' satisfaction and subjective well-being. The theoretical framework includes two interrelated conceptual models to support a mixed analysis methodology. The qualitative method is based on the Grönroos (Gronroos, 1984) service quality model through technical quality, functional quality, and service environment, integrated into the hermeneutical circle of image formation (Marine-Roig, 2021), which results in an image perceived as the quality of the product, service, and atmospherics (Jang & Namkung, 2009). The quantitative method is based on a semiotic model that adapts Morris (Morris, 1946) trichotomies to the study of gastronomic images. This theoretical approach aims to contribute to future research on gastronomy tourism and well-being because the new integrated framework has a solid foundation and enables the exploitation of UGC as a data source. The study applies the theoretical and methodological frameworks to a case study to test the proposal (Çakar & Aykol, 2021): Michelin-starred restaurants in two regions with similar settings, but with different food cultures –Taiwan in Asia and Catalonia in Europe– using all online travel reviews written in English and shared on the TripAdvisor portal as a data source. The outcomes of comparing customer opinions on the three categories of restaurants in both regions can be useful to stakeholders in designing or improving their products and services from a demand-side perspective.

2. Theoretical Background

Although gastronomy can bring happiness and become one of the purposes of travelling, gastronomy cannot provide a complete or lasting food experience (Cavusoglu &Demirbag-Kaplan, 2017). What is needed to complete a pleasant gastronomic experience comes from the perfect match between the food and the surrounding material and immaterial aspects; food is only a part of those elements. In order to develop the various aspects of gastronomic experiences and well-being, this section is divided into five parts: gastronomy and well-being relationships; a review of the literature relating to gastronomic tourism and well-being; consumer satisfaction and well-being through quality experiences; perceived gastronomic image; and fine dining restaurants.

2.1. Relationships between Gastronomy and Well-being

Perceived service quality is an antecedent of customers' subjective well-being (Su et al., 2016). In other words, a high level of positive evaluation of the specific quality of goods and services represents a higher level of consumer well-being (Sirgy, 2021). Although the epicurean consumption of food contributes to improving the consumer's well-being (Batat, 2019), the literature on gastronomy and well-being remains limited. Even so, through surveys, several researchers have demonstrated various relationships between food-consumption experiences and the subjective well-being of consumers, as shown by the following conclusions: the culinary experience affects psychological well-being (524 usable surveys) (C. H.Lin, 2014); the effects of foods on well-being are strongly related to physical health, pleasure and emotional aspects (755 participants from five countries) (Ares et al., 2015); on-site meals –dinner and breakfast– contribute to holiday well-being (243 respondents) (Björk &Kauppinen-Räsänen, 2017); there is a significant positive correlation between food-consumption motivations and the well-being of 'foodies' (480 valid responses) (J.Chang et al., 2020); and finally, tourists with food neophobia experience positive effects on their well-being when consuming comfort food (381 valid formal surveys) (J.Chang et al., 2022).

2.2. Gastronomy Tourism and Well-being Literature Review

In the last few decades, researchers in the field of tourism have shown a growing interest in the study of psychological well-being, focused mainly on the subjective well-being of tourists (Tien et al., 2021; Uysal et al., 2016; Vada et al., 2020), to the point of considering well-being as a tourist resource (Pyke et al., 2016). In order to analyse the research published so far on gastronomy tourism and well-being, a systematic literature review was carried out using the PRISMA guidelines (Page et al., 2021): 25 records were identified (12 Web of Science and 13 Scopus) through bibliographic database searching (Box 1); 14 records remained after duplicates were removed; 13 studies were included in review (one study was excluded as it was not related to tourism).

The 13 articles described in Appendix A (Table A1) and indexed in the Web of Science (WoS) or Scopus bibliographic databases, which study the relationships between gastronomy and well-being in the field of tourism and hospitality, are scarce and based on the analysis of questionnaires and interviews, except for one that scrutinises available literature. Almost all of the articles are recent (as of 2020), showing that the topic was previously not of significant interest to researchers. Instead, this study proposes a new line of research, through new theoretical and methodological frameworks, that exploit the content shared online by customers or consumers.

Box 1. Boolean search formulas for gastronomy tourism and well-being terminology.

Scopus:

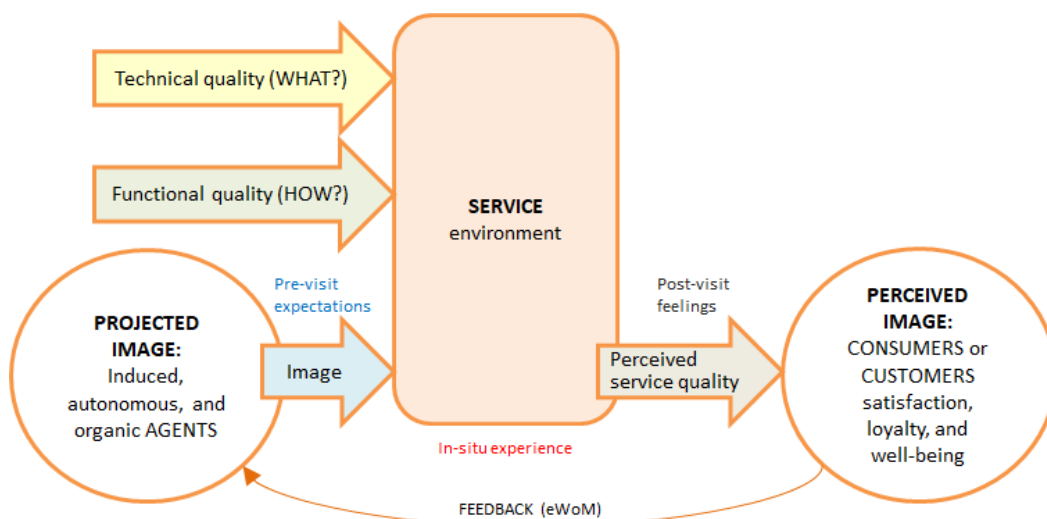
DOCTYPE(*ar* OR *re*) AND TITLE(*(well-being* OR *wellbeing)* AND (*gastronom** OR *food** OR *wine** OR *restaurant** OR *cuisine* OR *culinary* OR *breakfast* OR *lunch** OR *dinner* OR *dining* OR *dine**)) AND TITLE-ABS-KEY(*touris** OR *hospitality* OR *destination**)

Web of Science (WoS Core Collection SCI-E, SSCI, and A&HCI):

DT=(*article* OR *review*) AND TI(*(well-being* OR *wellbeing)* AND (*gastronom** OR *food** OR *wine** OR *restaurant** OR *cuisine* OR *culinary* OR *breakfast* OR *lunch** OR *dinner* OR *dining* OR *dine**)) AND TS=(*touris** OR *hospitality* OR *destination**)

2.3. Consumer Satisfaction and Well-being through Quality Experiences

In the field of hospitality and tourism, numerous authors have identified the relationship between the destination image and visitors' satisfaction and loyalty (Marine-Roig, 2021). However, whether any experience in particular contributes to the well-being of tourists has not been shown. Instead, several authors demonstrated these relationships in the context of the consumption of quality goods and services (Sirgy, 2021; Su et al., 2016). For that reason, the new conceptual model (Figure 1) is based on Marine-Roig's hermeneutic circle of destination image formation (Marine-Roig, 2021) and Grönroos's service quality model (Gronroos, 1984). In short, the proposed model addresses quality experiences in the context of hospitality and tourism, and this study uses it to analyse consumers' subjective well-being resulting from dining experiences in luxury restaurants.



3.4. Figure 1. Subjective well-being formation underpinned by previous works (Gronroos, 1984; Marine-Roig, 2015).

2.3.1. Circle of Destination Image Formation

Marine-Roig considers the destination image as a gestalt, a whole that differs from the parts that comprise it and represents image formation through a hermeneutic circle (Marine-Roig, 2015, 2021). At one extreme are the agents who project the image. Simplifying Gartner's model (Gartner, 1993), the agents or sources of information can be induced, autonomous and organic (Marine-Roig & Ferrer-Rosell, 2018). Induced

sources depend on destination promoters (e.g. destination marketing or management organisations, and tour operators) including tourism service firms or their brands (e.g. Ritz, Starbucks). Organic sources come from individuals and are spread through word-of-mouth marketing (WoM) or UGC (eWoM). Finally, autonomous sources are independent of the previous two (e.g. travel writings, and guidebooks). At the core of the framework is the visitor experience. At the other end of the diagram is the image perceived by visitors, which is conditioned by the expectations generated by the projected image.

2.3.2. Service Quality Model

Grönroos (Gronroos, 1984) indicates that customer experience contains three crucial elements: technical quality, functional quality, and image as a quality (Figure 1). Technical quality refers to material aspects, while functional quality and image are related to immaterial aspects. For customers, immaterial experiences have become an important factor to consider, for example, when eating in a restaurant because tasty meal is already a basic requirement for a quality dining experience. In summary, the Grönroos model has three inputs –technical quality (what?), functional quality (how?) and image– and one output –perceived service quality. This outcome depends on the comparison of two variables, namely the expected service and the perceived service. That is, the image or brand of services generates consumers’ pre-visit expectations, and in the on-site experience they subjectively perceive the service received. The customer’s post-visit feelings correspond to the perceived service quality.

Technical quality has to do with the material aspects the customer perceives, mainly in the form of the product that he or she acquires or consumes, and is the technical result of the process that has created it (Gronroos, 1984). In the case of a restaurant’s service, the outcome of the process that the customer receives is a meal. This cuisine product is the material aspect that most directly link to technical quality, while there are also other intangible aspects, such as taste, aroma, and appearance, which directly affect the emotion of customers (Choi et al., 2011).

Together with technical quality, which has to do with ‘what’ the customer gets, customers also perceive what is called functional quality, which has to do with ‘how’ they get the technical outcome; that is, “functional quality corresponds to the expressive performance of a service” (p. 39) (Gronroos, 1984).

In the case of gastronomic experiences, in order to make it perfect, the service generated in response to the food experience must be in keeping with the following three conditions: the customers’ perception being satisfied (aesthetic experience); the meanings we attach to the products (experience of meanings); and the feelings and emotions evoked by customers (emotional experience) (Desmet & Hekkert, 2007). To accomplish these goals, the servicescapes of the service industry are divided into three dimensions: environmental conditions; space/function; and signs, symbols and artefacts (Bitner, 1992). Other authors (Ryu & Jang, 2008) proposed dinescape, a six-factor scale that separates the physical environment and service of the dining environment to measure facility aesthetics, ambience, lighting, service product, layout, and social factors. However, these two categories –servicescapes and dinescape– are not complete for all service industries (Beltagui et al., 2016); in addition to food, service, and atmosphere, it is also considered a ‘user imagery’ formed by other restaurant customers (Chen et al., 2015).

According to the stimulus-organism-response (SOR) theory (Mehrabian & Russell, 1974), after customers enter a restaurant they develop corresponding reactions and behaviours based on their perception of the restaurant environment to express their internal emotions. The source of emotions includes all the contents of servicescapes (Bitner, 1992), which means the sum of customer experience is related to the customer's expectations of the restaurant theme and the quality of the presentation. Servicescapes include a variety of details that affect customers' experience. For example, pleasant music can help increase customer's consumption time compared to less pleasing music (Caldwell & Hibbert, 2002).

2.3.3. Restaurants Image as a Quality

As lifestyles change, dining out becomes more and more common, and customers desire new flavours, comfortable atmospheres, and pleasant memories. More importantly, they prefer an excellent overall dining experience, which is composed of tangible and intangible elements (Marković et al., 2010). Previous studies have found that the perceived quality of the physical environment (Nguyen & Leblanc, 2002) or the quality of service (Lai et al., 2009) can significantly affect the business image. Those business images are gradually accumulated by consumers based on their personal consumption experiences and word of mouth and thus form part of brand equity (Keller, 1993). Brand equity endows value on products via branding, can be perceived from the perspective of the industry, trade or consumer before being introduced to customers, and is often used to protect the business (Farquhar, 1989). By contrast, a company's brand equity is the basis for customers' consumption-related expectations. Therefore, the restaurant industry presents restaurants based on an image of theme aesthetics, which, together with the brand, name and symbol, form a brand equity that is distinguishable in the industry (Aaker, 1991) and that becomes the basis for the design of servicescapes. This image will have a subsequent impact on customers' perceived value and satisfaction, which in turn affects their loyalty (Ryu et al., 2008). From the viewpoint of customers, brand equity is based upon the value of the associations in the mind of the consumer, which may be recalled upon presentation of the brand, name or symbol. Brand associations are what hold the value rather than the name and/or symbol itself.

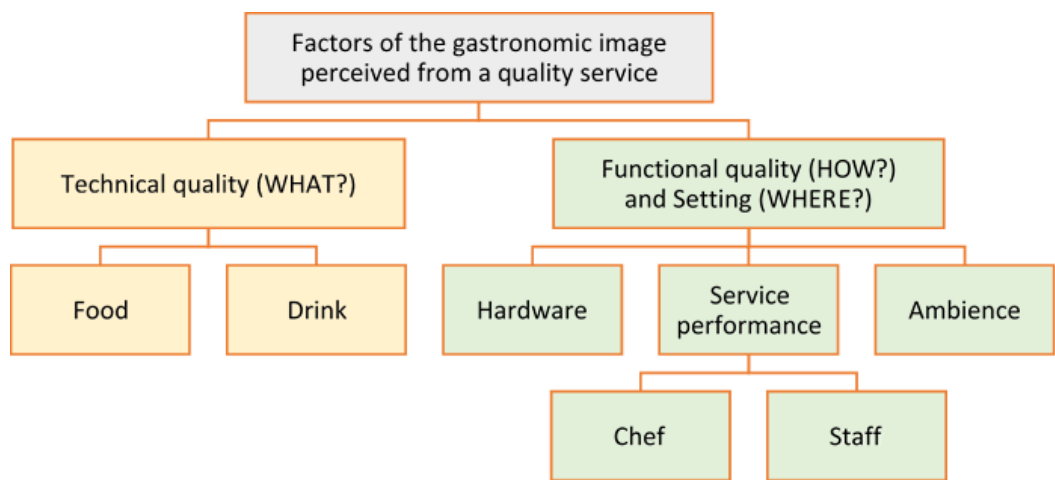
The servicescapes provided by the restaurant industry include items that are easy to manage (such as lighting, table setting, physical environment for the layout of the meal), as well as items that are not easy to manage (such as the consistency of food quality, the service attitude of the staff, the correct delivery of meals in the right time, and the environment formed by other customers). Different customer approaches (such as prices and discounts) will shape the perception of the services provided by the industry.

2.3.4. Dimensions of the Perceived Quality of Restaurant Services

Homogenization continues to increase in the global competitive tourism market, and it is not easy to reach the market segmentation target; therefore, those products or services that are able to satisfy the needs of the clients and industries will obtain important competitive advantages. In this service-oriented era, consumer participation is necessary in the process of understanding consumer needs, and only consumer participation can make their real needs understood (Vargo & Lusch, 2004).

That is to say, the product or service improvement before and after consumption is no longer a one-sided job of the service industry, but requires the joint creation of consumers.

Figure 2 shows detail of the elements and sub-items of Figure 1 that make up the gastronomic experience of restaurant customers. The food (e.g., main course, side dish, and desert); drink (e.g., wine/sake/tea pairing); hardware (e.g., furniture, decoration, crockery, and cutlery); ambience (e.g., atmosphere, layout, light, and music); service performance: attitudinal aspects (e.g., smiling and friendliness of staff, professional and talented chef); social aspects (e.g., interaction with customers when staff express their knowledge of the food and culture, and when the chef shows gratitude for and welcome of customers' visit). In a nutshell, the items in Figure 2 correspond to a quality on-site dining experience, that is, the 'Service environment' from Figure 1, including 'Technical quality' and 'Functional quality'.



3.4. Figure 2. Gastronomic image perceived by diners in quality restaurants (own elaboration).

2.4. Perceived Gastronomic Image Online

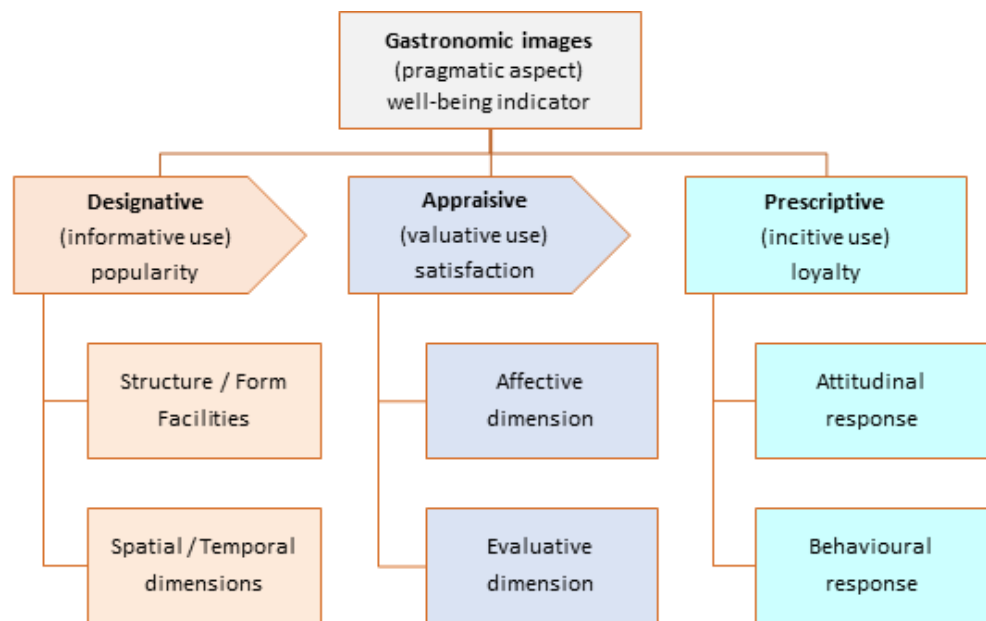
According to Chang and Mak (R. C. Y.Chang & Mak, 2018), the gastronomic image from the perspective of tourists can be defined as "tourists' holistic impression about a destination's gastronomic products and food culture" (p. 91). Despite the abundance of literature on destination image (Arcos-Pumarola et al., 2020; Huang et al., 2021) and the growing interest of destination marketing organisations (DMOs) in promoting local gastronomic heritage (Bolborici et al., 2022; Lin et al., 2021), there is a paucity of research regarding the importance and implications of gastronomy tourism on destination image formation (Sio et al., 2021).

Tourism destination image (TDI) definitions (Chon, 1990; Lai & Li, 2016) have a strong semiotic component (Culler, 1981). The image is made up of subjective perceptions of those unusual or even unique attributes, attractions, or services of destinations. When a visitor shares on social media a photo of the Longshan Temple in Taiwan or the Basilica of the Sagrada Familia in Catalonia, he or she not only spreads a religious building but a symbol of the tourist destination. The same happens with a gastronomic image. Diners post photos of typical local dishes or creative dishes from upscale restaurants contributing to form the online image of

the tourist destination (Lojo et al., 2020), along with other variables such as the atmosphere of the place and the quality of service that shape their satisfaction and well-being. A meal, in addition to being a consumer support experience, is a peak experience (Quan & Wang, 2004). The semiotics of consumption are related to emotions and can provide hedonic and aesthetic benefits (Dixit, 2020; Holbrook & Hirschman, 1993).

Thus, the deep semiotic constituent of the perceived image underpins its analysis through semiotic conceptual models fully contrasted in other scientific fields (Mick et al., 2004). Figure 3 shows an adaptation of the philosopher and semiotician Charles William Morris's trichotomies (Morris, 1938, 1946) to the semantic–designative, appraisive, and prescriptive– and pragmatic –informative, valuative and incitive– aspects of the gastronomic images (Lin et al., 2022a). As Figure 3 shows, the three semantic aspects are distinctly different but hierarchically interrelated (Holbrook & Hirschman, 1993).

Scholars agree on the positive relationship between consumer satisfaction and well-being perception (I. Kim et al., 2012). That is, when the level of satisfaction increases, the level of consumer well-being also increases. Therefore, consumer well-being can be described as consumer satisfaction from the consumption of a high-quality good or service (Sirgy et al., 2007), which implies optimal experience and functioning (Ryan & Deci, 2001). In addition, quality relationships influence customer satisfaction and loyalty formation (Hyun, 2010). Thus, experiences, positive feelings, and satisfaction are key elements of consumer well-being (Medina-Hernandez et al., 2021). Customer satisfaction is significantly determined by customer expectations and offer performance, which become the powerful drivers of customer loyalty (Szymanski & Henard, 2001). In summary, overall consumer satisfaction fully mediates the relationship between perceived service quality and the loyalty and subjective well-being of tourists (Su et al., 2016). Figure 3 also depicts the variable popularity of experiences, which quantitatively impacts the other two variables of consumer satisfaction and loyalty.



3.4. Figure 3. Semiotic aspects of gastronomic images derived from a previous work (Marine-Roig, 2021).

The informative use of the designative aspect answers the questions what, where, and when. In other words, it facilitates the classification of tourist experiences, locating them in time and place, and deduces their popularity from the number of comments received. In this case study, the designative semantic aspect corresponds to the 'Service environment' (Figure 1), that is, the description of a quality gastronomic experience and its surroundings. The appraisive aspect has two dimensions: affective and evaluative. The affective dimension measures consumers' feelings and moods, considering the positive and negative polarities of these sentiments. The evaluative dimension consists of scoring the experience on a scale that ranges from the worst to the best. The valuative use of the appraisive dimension determines consumers' satisfaction. The prescriptive dimension has two dimensions that determine the attitudinal and behavioural loyalty of consumers. In summary, the model provides three metrics: the popularity of experiences and the satisfaction and loyalty of consumers, which are indicators of their well-being in the experience environment.

Regarding the model proposed in Figure 3, UGC is the ideal data source to elucidate the gastronomic image; specifically, travel blogs and online travel reviews (OTRs) shared in social media by visitors, customers, or consumers. Travel blogs and OTRs are narratives, opinions, images, and ratings freely shared on travel-related portals by visitors, based on their in-situ experiences related to tourism activities, goods, and services (Marine-Roig, 2022). For example, experiences in farmers markets, wine cellars, cooking courses, and dining in restaurants. This data source was used in the hospitality industry, especially to study lodging-related topics (Hlee et al., 2018; Lalicic et al., 2021), but its use in gastronomic heritage research was rare (Lin et al., 2021). It is worth highlighting its use in previous works to measure the gastronomic image online (Marine-Roig et al., 2019), analyse dietary needs (Lin et al., 2022b), analyse diners' sentiments (Harba et al., 2021), and compare gastronomic activities other than dining in restaurants (Lin et al., 2022a). Nonetheless, using UGC as the only data source has limitations in regards to highlighting important themes, verifying specific hypotheses, and providing insight into the richness of the data, which needs to be supported by other research methods (Lin et al., 2021).

2.5 Fine Dining Restaurants

Dining in luxury restaurants is not done only to solve basic physiological needs, but also to experience differentiation and hedonism (Batat et al., 2019). Diners at these restaurants fall into the category of 'experiencers', who regard food as an essential factor in selecting a holiday destination (Daries et al., 2018b). Previous studies have shown that the consumption and services of luxury goods are a symbol of consumers' personal identity and social status (Daries, Ferrer-Rosell, et al., 2018), which can improve personal self-assessment and define personal social class and cultural boundaries (Arnould &Thompson, 2005). Even more, people usually show wealth through leisure activities and luxury services, which makes them equate price with product quality and even consider it as a status symbol (Wiedmann et al., 2009).

The paradigm of fine dining restaurant is the Michelin star, and people able to spend in Michelin-starred restaurants are naturally considered to have wealth, social status, or prestige (Daries et al., 2019). In any case, in addition to the aforementioned reasons, both regular and

sporadic restaurant customers seek a complete and global experience that can be defined in terms of maximum quality with respect to the concepts seen in Figures 1 and 2 when going to a Michelin-starred restaurant. If everything goes well and customers perceive the highest quality that Michelin-starred restaurants are supposed to give, the satisfaction obtained will be high and their well-being will increase. Conversely, if the experience is not entirely satisfactory, the feeling of well-being diminishes because the expectation of a Michelin-starred restaurant is high.

3. Materials and Methods

The case study is based on opinions shared online by customers of Michelin-starred restaurants, because the consumption of quality goods or services is a determinant of the well-being of users or consumers, as shown in section 2. The methodology for collecting and analysing the OTRs is an extension of previous studies (Lin et al., 2022a; Marine-Roig, 2021). The quantitative analysis is based on the semiotic conceptual model of Figure 3 and uses the metrics defined in a previous work (Marine-Roig, 2022). The qualitative analysis consists of applying the conceptual model of Figure 2 to a random sample of OTRs segmented by content (model items) and opinion polarity (positive or negative). To perform a comprehensive qualitative data analysis (QDA) in a timely manner, software tools such as MaxQDA, ATLAS.ti or NVivo are necessary.

3.1. Case Study: Taiwan and Catalonia Michelin-starred Restaurants

One located in Asia and the other in Europe, Taiwan and Catalonia are two territories of similar size with two distinctive cultural traditions that serve as attractions for visitors; therefore, they share features that facilitate their study and comparison. Whereas Taiwan has become an emerging tourism market in the Asia-Pacific region, in part thanks to the country's richness and variety of natural and cultural resources, Catalonia has long been one of the main tourist destinations in Europe thanks to assets such as culture, nature, sports, and business. Tourism in both regions was one of the economic sectors most affected by the pandemic. Taiwan received 7.5 million foreign tourists in 2019 and 1.1 million in 2020 (MOTC, 2021). Catalonia received 19.4 million foreign tourists in 2019 and 3.9 million in 2020 (Idescat, 2021). As an indicator of the importance of gastronomy tourism in Catalonia, the catering sector had both an operating income and a production value of more than €10,000 million in 2019, which was double the number in the accommodation sector (Idescat, 2020).

The *Michelin Guide* has designed food evaluation into a set of standards that can be quantified and evaluated, becoming a goal pursued by high-end restaurants all over the world. The five criteria of Michelin stars awarded to restaurants are 1) quality of products, 2) mastering of flavours and cooking, 3) personality of the cuisine, 4) value for money, and 5) consistency (Johnson et al., 2005; Ottenbacher & Harrington, 2007). These standards are only for food; that is to say, the standard of techniques and gastronomy is the art of the chef (Daries et al., 2021). The chefs of high-end restaurants, especially Michelin-starred restaurants, must have intuition, aesthetic sensitivity, and professional knowledge (Abbate et al., 2021). The chef plays the role of artisan and artist and must ingeniously process and combine ingredients that cannot be easily copied by others (Vargas-Sánchez & Lopez-Guzman, 2015).

3.2. Data Collection

TripAdvisor, a well-known and popular travel-related website, offers both tourists and academics information on tourist destinations that can be important research data (Marine-Roig, 2022). As discussed in previous sections, the UGC in the form of OTR is of special interest to researchers, since OTRs provide a quantity of information that is difficult to obtain by other means; in turn, this information is mediated by external agents but emanates directly from the user experience (Marine-Roig, 2022). To carry out the research, the UGC was compiled in the form of the OTRs collected on TripAdvisor about gastronomic experiences in Taiwan and Catalonia. More specifically, all TripAdvisor OTRs in English from the 'Restaurants' section related to Michelin-starred restaurants in Taiwan and Catalonia were downloaded.

According to the *Michelin Guide*, there are 34-star restaurants in Taiwan and 49 in Catalonia; three of the Taiwanese restaurants were not registered on the TripAdvisor website and for another two there were no English reviews as of the date of data compilation for this research. Therefore, the total OTRs for 29 Taiwanese restaurants and 49 Catalonian restaurants were collected. In both regions there were opinions about the three categories of Michelin-starred (1-star, 2-star, and 3-star) restaurants. Only English reviews were downloaded through a website copier with appropriate filters, so that 1038 OTRs from Taiwan and 7138 OTRs from Catalonia were obtained.

3.3. Data Arrangement

Through techniques developed in previous works (Marine-Roig, 2017a, 2019), a text editor suitable for implementing regular expressions (search and replacement patterns) extracted all significant information from TripAdvisor OTRs and stored it in a CSV file (comma separate values). The file contained a record for each OTR with the following fields: geographic code of the resource and location of the restaurant, code of the resource and name of the restaurant, category of the restaurant, code of the OTR, score from reviewers, date and language of the OTR, and title and textual content of the OTR.

3.4. Content Analysis

Content analysis includes techniques for converting symbolic data to a format suitable for statistical analysis. Based on natural language processing (NLP) techniques (Marine-Roig & Huertas, 2020), quantitative analysis uses frequency of key terms grouped by categories. The most frequent key terms arouse the most interest (Stemler, 2001), and, according to words with close meaning and connotation, they could be categorised exclusively. To analyse the gastronomic image of a dining experience as perceived by customers, three semantic aspects (designative, appraisive, and prescriptive) of quantitative content analysis (based on categories, metrics, and rankings) were considered. The aggregations of rankings are based on the method proposed in a previous work (Marine-Roig, 2021). Considering several ordered lists of N metrics, the method awards points according to the position occupied. For example (Table 1), in the case of 5 metrics with positive polarity (+), the first candidate gets 4 points, the second 3 points, and the last 0 points; if the metrics have negative polarity (-), the first candidate gets 0 points, the second 1 point, and the last 4 points; the sum of points determines the final ranking. In the event of a tie in the sum of points, the method assigns an intermediate position. For example, if the tie is between the second and third positions, the method assigns position 2.5 to both.

3.4. Table 1. Ranking aggregation example.

Candidate	X (+)	X rank	X points	Y (-)	Y rank	Y points	Sum	Rank
C1	18	2	3	25	1	0	3	4
C2	20	1	4	11	5	4	8	1
C3	10	5	0	22	2	1	1	5
C4	12	4	1	13	4	3	4	2.5
C5	15	3	2	16	3	2	4	2.5

Considering the qualitative analysis, the categories include key terms related to the items of the model in Figure 2, considering that an OTR can include comments on different items (e.g., food, drink, chef, and staff). The pragmatic uses of the conceptual model in Figure 3 determine visitor satisfaction and loyalty, quantitatively enhanced by the popularity of the tourist resource. The set of the three variables is a determinant of consumer well-being.

3.4.1. Designative Aspect

The design aspect includes the structure or form and the facilities of the tourist resource. It also considers the spatial and temporal dimensions of resources. The OTRs contain enough information to identify the resource and place it in time and space. There may be inconsistency with the time dimension due to lag between the visit and publication dates of the OTR (Fazzolari & Petrocchi, 2018; Tilly et al., 2015); that is, between the perceived and projected images. This study only considers the publication date because the OTR can be consulted by any user at any time. The number of OTRs indicates the popularity of each tourist resource.

3.4.2. Appraisive aspect

Customers leave a rating score of one to five bubbles for their gastronomic experience on TripAdvisor with a comment. In the evaluative dimension, the study applies a weighted average score (0–100) calculated for the ratings of one-to-five bubbles on TripAdvisor and categorised as follows: positive score (Score+), 5* = Excellent (100) and 4* = Very good (75); neutral score, 3* = Average (50); and negative score (Score-), 2* = Poor (25) and 1* = Terrible (0). Regarding the affective dimension, positive feelings and moods (Feel+) are considered in the textual elements of the reviews, such as ‘amazing’ and ‘excellent’; and negative feelings and moods (Feel-), such as ‘bad’ and ‘disappointing’, are analysed. The pragmatic valuative aspect of this construct allows deducing user or consumer satisfaction.

3.4.3. Prescriptive Aspect

The prescriptive aspect, which represents tourists’ loyalty, includes attitudinal and behavioural responses to previous stimuli. With attitudinal responses, the categories of positive attitudes ‘Recom+’ (e.g., must not miss) and negative attitudes ‘Recom-’ (e.g., not recommend) show whether tourists recommend or discourage the experience. For behavioural intentions, positive intentions ‘Behav+’ (e.g., return next time) and negative intentions ‘Behav-’ (e.g., not be back) express users’ willingness or unwillingness to (re)visit the restaurant (H.Zhang et al., 2014).

3.4.4. Factors of the gastronomic image perceived from a quality service

Regarding the constructs of the conceptual model of Figures 1 and 2, although the analysis methodology is qualitative, the categories include

some key terms that facilitate a preliminary segmentation of the OTRs. The categorisation is neither exclusive nor exhaustive, because an OTR can contain unexpected comments and others related to various constructs. Regarding the positive or negative polarity of the opinions, the appraisal aspect metrics seen above allow a rough classification of the OTRs.

The presentation of quality comes from the content and number of positive and negative comments, with the following examples. (1) Technical quality: positive comments (e.g., 'outstanding food', 'beautiful presentation', 'fresh product'); and negative comments (e.g., 'portion so small', 'food mediocre and not hot', 'wine pairing also didn't match'). (2) Functional quality: positive comments (e.g., 'beautiful wooden locker', 'ample space between the tables', 'pleasant ambience'); and negative comments (e.g., 'bad décor', 'dirty floor', 'no tablecloths'). (3) Service performance: positive comments (e.g., 'talented chef', 'knowledgeable staff', and 'attentive service'); and negative comments (e.g., 'staff did not smile', 'service robotic', and 'chef didn't come and greet the table'). (4) Perceived service quality: positive comments (e.g., 'highly recommend', 'worth every penny', and 'definitely return'); and negative comments (e.g., 'far from expectation', 'over-priced', 'will never go back').

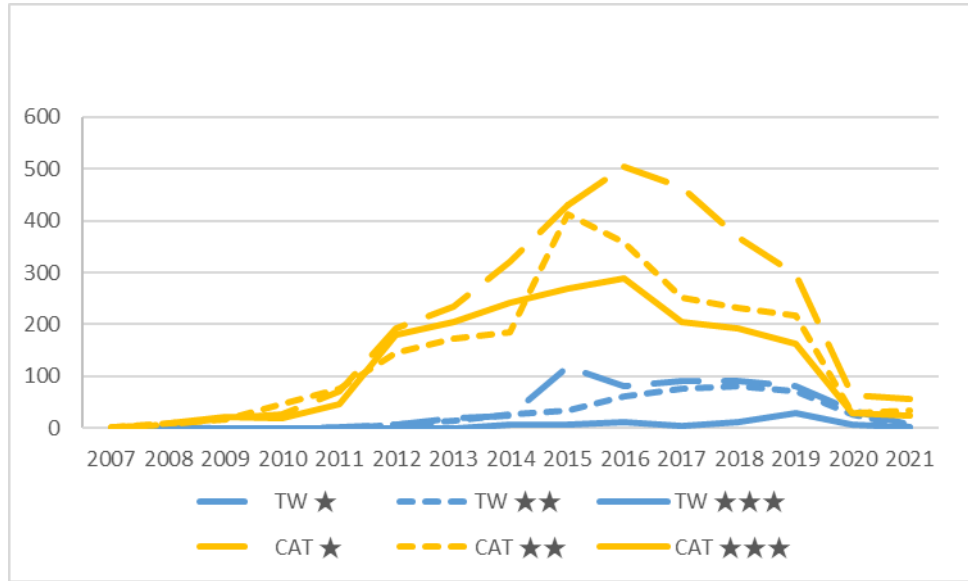
4. Results and Discussion

Table B1 in Appendix B shows the forty most frequent key terms per region sorted by percentage of the total number of words (including stop words) in restaurant OTRs. As expected, the most frequent keywords in both cases are 'food' and 'restaurant'. It should be noted that the keyword 'wine/s' is more frequent in Catalonia, with twice as many occurrences as a percentage than Taiwan. This result confirms that wine consumption is more common in European countries than in Asian ones (Lin et al., 2022a). The capital of Taiwan, Taipei, is in position 7 (0.29675%) of the ranking, while the capital of Catalonia, Barcelona, is in position 15 (0.19838%). Regarding the visitor's knowledge of the brand of the tourist destination and the identity of its inhabitants (Lin et al., 2011; Marine-Roig, 2011b, 2011a; Schubert & Damm, 2011), Taiwan is in position 33 (0.14123%) of the ranking and Catalonia in 702 (0.00929%), and Taiwanese is in position 36 (0.13114%) and Catalan in 135 (0.04125%). Although Catalonia has a higher influx of foreign tourism than Taiwan, there is a marketing problem regarding the promotion of Catalan brands, which confirms findings from previous studies (Lin et al., 2022a). Table B2 lists the twenty most frequent key terms per region and restaurant category (1, 2, 3 stars). As in Table B1, the keywords that generate the most comments in all categories and regions are food, restaurant, service, and experience. Table 2 also shows the high frequency of comments about wine with respect to the three categories of Catalan restaurants.

4.1. Designative Aspect

Figure 4 shows the distribution of TripAdvisor OTRs written in English by region and year. Both regions show a sharp drop in OTRs starting in 2020, which is understandable due to the SARS-CoV-2 pandemic lock down. The curves for Taiwan indicate a slight decline from 2018, despite the fact that the influx of foreign tourism from English-speaking countries continued to grow at that time (MOTC, 2021). The curves for Catalonia indicate a decrease in the number of OTRs from 2016; in contrast, English-speaking tourists continued to grow in those years (Idescat, 2021), with a slight setback in 2017 due to the serious events that

took place (terrorist attack and independence movement) (Marine-Roig, 2022; Marine-Roig & Huertas, 2020). These trends indicate a decline in restaurant popularity as measured by the number of OTRs.



3.4. Figure 4. Online travel reviews per categories and year. Source: TripAdvisor OTRs in English (Taiwan: 1038; Catalonia: 7138).

Table 2 shows the descriptive statistics of the temporal distribution of the OTRs by region and restaurant (see Figure 4). Taiwan has 37.18% of restaurants, but only 12.70% of OTRs. Compared with the official statistics of foreign tourists in 2019 and adding the visitors in both regions, Taiwan had 27.96% of the total. Although the kurtosis value is close to three, the skewness value is far from zero in both cases, which shows that the distribution of the data is abnormal. To avoid inconsistencies in the comparisons, the study considers the set of years as a single segment, and the metrics are based on percentages to bridge the differences regarding the number of restaurants and OTRs. Table 3 shows that there is a positive relationship between popularity by number of OTRs and the category of restaurants by Michelin stars.

3.4. Table 2. Number of restaurants and English reviews in Taiwan and Catalonia in November 2021.

Region	N	OTRs	Min.	Max.	Mean	Median	Std. Dev	Skew.	Kurt.
TW	29	1038	1	171	35.79	20	42.80	1.70	2.63
CAT	49	7038	5	834	145.67	57	194.59	1.93	3.30

Note. N: number of restaurants; Min.: minimum number of OTRs per restaurant; Max.: maximum; Std. Dev: standard deviation; Skew.: skewness; and Kurt.: kurtosis

4.2. Appraisive Aspect

Table 3 displays the number of OTRs and the percentage of scores given by customers by region and restaurant category. In all cases, most of the scores are very good or excellent.

3.4. Table 3. Number of customer reviews and scores per region and restaurant category.

Region	Category	N	Count	5* (%)	4* (%)	3* (%)	2* (%)	1* (%)
TW	1 star	21	559	60.11	23.97	8.05	3.40	4.47
	2 stars	7	400	62.00	23.00	7.25	3.75	4.00
	3 stars	1	79	59.49	24.05	6.33	5.06	5.06
CAT	1 star	37	3052	69.95	15.27	7.57	4.03	3.18
	2 stars	9	2189	74.60	12.33	6.30	3.52	3.24
	3 stars	3	1897	79.86	9.33	5.38	2.74	2.69

Note. (5-1)* = TripAdvisor score bubble (excellent, very good, average, poor, terrible)

Table 4 shows percentages of positive and negative scores, the weighted average of the scores (see section 3.4.2), and the percentage of terms with positive or negative polarity in relation to total words (including stop words). In all cases, the positive evaluations are much higher than the negative. The aggregation of the five rankings shows a positive relationship between customer satisfaction and restaurant category. In other words, higher-category restaurants provide more well-being to their customers, except in the case of a 3-star restaurant, which is the worst rated. Regarding the regions, in almost all cases the customers value Catalonia's restaurants better. Considering that English-speaking customers do not have to be more demanding in Taiwan than in Catalonia, nor is there reason to think that the food in Taiwan restaurants is of inferior quality, there may be marketing problems in relation to the creation of consumer expectations.

3.4. Table 4. Average scores and percentage of terms in evaluative and affective dimensions.

Region	Category	Score-	Score+	AvgScore	Feel-	Feel+	Rank
TW	1 star	7.87	84.08	82.96	0.57	4.38	2
	2 stars	7.75	85.00	83.81	0.54	4.21	1
	3 stars	10.13	83.54	81.96	0.59	4.22	3
CAT	1 star	7.21	85.22	86.20	0.59	4.56	3
	2 stars	6.76	86.93	87.88	0.53	4.16	2
	3 stars	5.43	89.19	90.23	0.45	3.73	1

Note. - = Negative polarity; + = Positive polarity

4.3. Prescriptive Aspect

Table 5 shows the attitudinal and behavioural responses to the previous stimuli by regions and restaurant categories as a percentage of key terms over the total number of words (including stop words). The figures obtained do not allow conclusions to be drawn related to the restaurant categories. However, in almost all cases the results are more positive in Taiwan, which means customers are more loyal in Taiwan than in Catalonia.

3.4. Table 5. Percentage of key terms in attitudinal (A) and behavioural (B) dimensions.

Region	Category	Behav-	Behav+	Rank B	Recom-	Recom+	Rank A
TW	1 star	0.0000	0.0381	2	0.0398	0.3528	1
	2 stars	0.0041	0.0345	3	0.0406	0.2437	2
	3 stars	0.0000	0.0856	1	0.0428	0.1818	3
CAT	1 star	0.0025	0.0343	2	0.0425	0.3156	1
	2 stars	0.0019	0.0232	2	0.0474	0.2851	2.5

3 stars	0.0015	0.0198	2	0.0448	0.2115	2.5
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Note. - = Negative polarity; + = Positive polarity

4.4. Perceived Quality of Restaurant Services

Within the 'Technical quality' category in Appendix C, Box C1 shows a sample of consumer comments regarding food. According to the reviews content, consumers who dine in Michelin-starred restaurants mainly focus on the customer experience centred on gastronomy. What they value is the quality of the set meal that includes an appetizer, main dish, side dish, and dessert. Box C2 shows a sample of consumer comments regarding drink. In addition to the main meal, the pairing beverages also play an important role in the customer's gastronomic experience. High-quality beverages often add value to the food, and they sometimes may also become the protagonist.

Within the category of 'Functional quality', Box C3 includes a sample of consumer comments regarding hardware. Customers who plan to dine in Michelin-starred restaurants have expectations directly proportional to the price; therefore, in terms of hardware provision, the menus, utensils, tables and chairs, and overall decorations must give customers a sense of dignity. In addition, facilities such as lockers and shoe cabinets allow customers to enjoy a more comfortable dining space, which also has a positive impact on customers' gastronomic experience. Box C4 includes a sample of consumer comments regarding ambience. Even with the same precious hardware facilities and different layouts, different dining atmospheres of space will be created. While paying attention to the quality of the food, customers of Michelin-starred restaurants also consider the dining atmospheres, especially the feeling of the space.

Within the category of 'Service performance', Box C5 shows a sample of consumer comments regarding the chef. In addition to being the soul of the Michelin-starred restaurant, the chef has a certain social status under the blessing of the *Michelin Guide*. Although not every customer care about interacting with the chef, for many it is important to be able to do so since they come to consider him as a kind of celebrity. Customers are deeply impressed if the chef can personally interact with the guests before, during, and after the meal. Box C6 shows a sample of consumer comments regarding the staff. On the one hand, customers require attentive and high-quality service; but on the other hand, they do not want to be disturbed because the service is too attentive; thus, proper and in-place service is the most suitable.

Within the category of 'Perceived service quality', Box C7 includes a sample of consumer comments regarding image as a quality (product, service, and atmospherics). The recognition of a Michelin-starred restaurant is a 'chef-centric' standard in terms of the *Michelin Guide*, but regarding the sustainable management of the restaurant, it must be 'Customer-centric'. Therefore, regardless of the food innovation, the creation of the dining environment, the appropriate service, and even the special dietary needs of customers should all be concerned, so that the customers will become repeat customers when leaving with a good gastronomic experience. These are the parts that Michelin-starred restaurant service industries need to pay attention to and achieve.

5. Conclusions

The study proposes some conceptual models to determine the subjective well-being of diners through content generated and shared online by the customers of the restaurants considered. The theoretical

framework is tested in the case study of Michelin-starred restaurants located in two regions with similar characteristics and different gastronomic cultures –Taiwan (Asia) and Catalonia (Europe). The results show that, overall, customers in both regions were satisfied, with the majority rating the restaurant experience as very good or excellent. The findings confirm the conclusions of a previous study on gastronomic activities in both regions other than restaurant food, in terms of branding and marketing, as well as popularity and valuation of the activities. For example, the preponderance of Catalan wines: since Catalonia's wine industry has had a long tradition, 6% of total agricultural revenues come from the wine sector (Meneses et al., 2016).

After COVID-19 began (2020), compared to their peak periods (Taiwan, 2015; Catalonia, 2016) the number of tourists dropped to only 40% and 10%, respectively, indicating that the pandemic has had a significant impact on international tourist destinations. In contrast, tourists still like to go to the capital (Taipei and Barcelona) to experience luxurious cuisine. The dishes (especially steaks) and services of the two places have received positive responses from customers.

Although big data technology is not yet mature, it has been widely used in many fields. Compared with traditional research methods, big data has the advantages of a large sample size, simple collection method, and having fewer human interferences. Big data can reduce sampling and system-related errors. However, in the context of practical application, shortcomings remain that cannot completely replace traditional research methods. As far as big data sources are concerned, UGC is a huge and available resource. Based on appropriate conceptual models and methodological frameworks, the data sources can be converted into useful information to achieve the predetermined goal through technology. Users autonomously generate electronic word-of-mouth after their own experiences on social media, and academia takes these data sources to generate valuable research results, through appropriate technologies, to provide industry or government as a reference. Furthermore, the industry or government can improve the original experience or design a new one according to tourists' preferences or needs to achieve a double-win situation.

A luxury gastronomic experience can increase the tourism flow and become a new indicator of tourist destinations. Catalonia is a popular tourist destination in Europe, and Taiwan is an emerging tourist destination in Asia, each with its own tourist characteristics and attractions. The results show that the number of reviews of Michelin-starred restaurants in the two regions began to decline under frequently appearing Black Swan Events, and continued falling after the appearance of COVID-19. In addition to providing corresponding relief programs, the government should help the industry develop other improvement programs to tide over the difficulties.

5.1. Theoretical implications

The study proposes two new integrated theoretical models to analyse subjective well-being in relation to gastronomy tourism. The theoretical framework is supported by content generated by users or consumers and shared on social media. The first model (Figure 1) is a combination of the hermeneutical circle of image formation (Marine-Roig, 2015) and the service quality model (Gronroos, 1984). In short, agents project a gastronomic image that generates pre-visit expectations in prospective

customers. The on-site experience is impacted by the technical quality, functional quality, and service environment. Then, the customer perceives the image as a quality of the product, service, and atmospherics. This perception of the customer, conditioned by his/her expectations, leads to post-visit feelings of satisfaction and subjective well-being. The study uses an extract (Figure 2) from the model in Figure 1 to qualitatively analyse the factors that influence the gastronomic image perceived by diners in a quality restaurant.

The second model is an adaptation of the semiotic aspects of the tourist destination images (Marine-Roig, 2021) to the gastronomic image and well-being of visitors. The model is divided into three distinctly different but hierarchically interrelated semantic aspects –designative, appraisive, and prescriptive– and three pragmatic uses –informative, valuative, and incitive. These triads enable the quantitative analysis of three variables –popularity of the tourist resource and the satisfaction and loyalty of visitors– which are indicators of their well-being in the in-situ experience phase.

The importance of the proposed framework lies in the strength of the two integrated conceptual models that enable the qualitative (Figures 1-2) and quantitative (Figure 3) methodologies to measure the satisfaction and well-being of tourists resulting from a quality gastronomic experience via UGC as a data source. According to most research, the empirical results have confirmed the positive relationship between perceived service quality and consumer satisfaction and, therefore, their subjective well-being, just as they have revealed a positive relationship between quality and popularity of the service. In addition, the model in Figure 1 is useful for analysing other quality services in the field of hospitality and tourism, such as luxury hotels.

5.2. Managerial implications

Findings in both regions reveal a positive relationship between the quality of restaurants by the number of Michelin stars and their popularity by number of OTRs. In addition, they confirm the well-known positive relationship between service quality and consumer satisfaction and well-being, except for a three-star restaurant in Taiwan, which was shown to be the least-valued by customers.

Comparison of the results in both regions detected branding deficiencies in Catalonia; the Catalonia and Catalan brands were much less mentioned by English-speaking tourists than the Taiwan and Taiwanese brands. There may also be a marketing flaw when nearly all of the metrics indicating consumer loyalty were more positive in Taiwan. However, Taiwan has to improve marketing strategies because the popularity of restaurants by number of OTRs was lower in proportion to that of Catalonia. Furthermore, almost all the metrics indicating consumer satisfaction were less positive in Taiwan.

The framework applied to Michelin-starred restaurants in Taiwan and Catalonia could also be useful in other tourist destinations at various territorial levels, including cities, countries and regions, as well as in other services of recognised quality, including restaurants classified in the 'Global Masters', 'Masters' and 'Very Fine' levels in the *White Guide* (whiteguide.com/nordic/en) or the 'Luxury', 'First-class' and 'Comfort' hotels according to the standard star rating system.

The proposed methods are relatively easy to implement because they do not require complex statistical tools. Data collection is cost effective,

which allows tourism destination management or marketing organisations and other stakeholders to obtain outcomes in near real time from a demand-side perspective and be able to compare them with results in other spots. The information obtained can be useful to design or improve quality products and services.

5.3. Limitations and future work

Given that the positive relationship between satisfaction and consumer loyalty has been demonstrated by numerous researchers through surveys, the main limitation of the study is that the results on attitudinal and behavioural responses to previous stimuli, namely designative and appraisal, are not conclusive and, therefore, do not quantitatively confirm that satisfaction is a determinant of consumer loyalty. This issue with TripAdvisor OTRs as a data source is consistent with previous research through Airbnb OTRs (Marine-Roig, 2021), which was also unable to demonstrate such a relationship. This setback does not directly affect current research because the doctrine agrees that consumer satisfaction is a determinant of subjective well-being. In future work it will be necessary to refine the categories of the prescriptive aspect of the semiotic model to better collect the key terms that indicate consumer loyalty.

Author Contributions: Investigation, M.-P.L.; writing—original draft preparation, M.-P.L.; supervision, E.M.-R. and N.L.-M. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by University of Lleida (Catalonia), grant ID: VRT_20211214.

Appendix A: Systematic Literature Review

3.4. Table A1. Thirteen articles indexed in the Web of Science or in Scopus on gastronomy tourism and well-being

Ref.	Context	Major observations	Method
(J.Chang et al., 2022)	(2022) food neophobic tourists and their well-being	Tourists with food neophobia experienced positive effects on well-being after comfort food consumption. The findings offer insights for guiding future research on food neophobia and comfort food in tourism.	Questionnaire, Harman's single factor test, ANOVA, Pearson's correlation analysis
(Tuzovic et al., 2021)	(2021) wellbeing perceptions among restaurant diners	Public health regulations and social distancing measures impact consumers' dining experiences and their comfort/discomfort. The domains of wellbeing seem to be very important for the individual, and they influence not only the restaurant choice but also the overall dining experience and the intention to revisit during the COVID-19 era.	Qualitative data obtained from in-depth interviews with consumers, Nvivo
(Liu-Lastres &Wen, 2021)	(2021) employee well-being	The multidimensional nature of employee well-being and the underscored significance of a personal approach to defining employee-wellbeing was confirmed. The most critical dimension of employee well-being identified was workplace experience. Workplace happiness acts as an affective dimension of employee well-being.	interviews and survey, 7-point Likert scale, exploratory factor analysis (EFA), confirmatory factor analysis (CFA)
(Taheri et al., 2021)	(2021) braggart WoM based on co-created aspects of cooking classes	Co-designing the experience contributed to better perceptions of culinary service consumption. Prior knowledge influences consumer perceptions of the experience and its co-creative aspects.	Sequential mixed-method approach, semi-structured interviews, post-experience survey, interactive co-design approaches, qualitative and quantitative approach

(Yousaf, 2021)	(2021) halal food anxiety	Halal food anxiety was positively associated with pandemic travel anxiety but negatively related to the psychological well-being of Muslim modelling. Various avenues are highlighted to exploit the vast commercial halal food market in non-Muslim majority destinations.	Questionnaire survey, structural equation modelling (SEM), confirmatory factor analysis (CFA)
(Pourfakhimi et al., 2021)	(2021) neophobia and well-being	The results show that having an authentic food experience is most strongly associated with the sense of meaningfulness of the trip and experiencing positive emotions during the trip. Enduring food involvement can explain both hedonic and eudaimonic aspects of the degree of the impact of food experiences on well-being.	Questionnaires, covariate-based structural equation modelling (CB-SEM), squares structural equation modelling (PLS-SEM), measurement model common method variance (CMV), Harman's one-factor test
(J.Chang et al., 2020)	(2020) well-being of foodies	Taiwan food possesses different values for mainland Chinese. A significant positive correlation was observed between food consumption motivations and food experiential values. Value for money, service excellence, aesthetics, and escapism are likely to influence foodies' well-being.	Questionnaire survey, structural equation modelling (SEM), confirmatory factor analysis (CFA)
(Finlay et al., 2020)	(2020) older adults and sources of wellbeing	Through social interaction and leisure activities, casual restaurant environments (unassuming third places) become possible wellbeing places, including local coffee shops and fast food restaurants; health and well-being can be supported through stimulation, support, protection, and care mechanisms.	Thematic analysis of interviews, qualitative interviews, and ethnographic fieldwork with quantitative survey data, multilevel linear regression model, Nvivo
(Yang et al., 2020)	(2020)	Customers will vent to the restaurant staff of their unsatisfactory daily life, which will	Survey, multilevel confirmatory factor analysis

	customer mistreatment and employee well-being	affect their well-being. Poor well-being is caused by stressors in the workplace through a lack of psychological detachment from work at home. Employees are more effectively able to cope with work stressors when they have sufficient personal resources.	(CFA), eight-factor model, two-level hierarchical linear modelling (HLM)
(Kwol et al., 2020)	(2020) food safety knowledge and hygienic-sanitary control	Keen attention must be paid to ensuring adequate and proper flow of knowledge among handlers to ensure that proper hygiene-related standards are adhered to with utmost rigidity, and ensure they are well-motivated to practice hygienic sanitary controls.	Questionnaire, 5-point Likert scale, confirmatory factor analysis (CFA), structural equation model (SEM), Herman's single factor test
(Björk & Kauppinen-Räsänen, 2017)	(2017) travellers' holiday well-being	A destination's gastronomy effect on well-being is founded on local eating habits, traditions, safety, and locally produced food and drinks (wine, beer, and juice) in line with the destinations' culture. Even though some travellers only consume food for survival, most food and eating activities contribute to holiday well-being.	Quantitative research approach, questionnaires, 4-point Likert-type scale, univariate analysis (t-test, ANOVA, and regression analysis)
(Mnguni & Giampiccoli, 2015)	(2015) community well-being	Establish a teaching and learning centre for indigenous and cultural tourism in a tertiary education institution to educate locals and tourists. The specific roles of chefs and other hospitality personnel were highlighted, including their relevance in the hospitality and tourism industries.	Scrutiny of available literature
(C. H.Lin, 2014)	(2014) psychological well-being	Cuisine experience and psychological well-being influence hot springs tourists' revisit intentions and only cuisine experience	Questionnaire, 5-point Likert-type scale, confirmatory factor analysis (CFA)

affects psychological well-being; however, the significance of these factors varied based on the self-health perception levels (high or low) of tourists in the sample.

Appendix B: Key Terms Frequency

3.4. Table B1. Forty most frequent key terms per region.

Taiwan		Catalonia		Taiwan		Catalonia	
Rank	Key term	%	Key term	%	Rank	Key term	%
1	food	0.68680	food	0.68774	21	nice	0.17906
2	restaurant	0.57668	restaurant	0.59574	22	dinner	0.17738
3	good	0.51952	menu	0.51503	23	dish	0.17653
4	service	0.50018	wine/s	0.51014	24	chef	0.17233
5	great	0.40519	service	0.45090	25	delicious	0.15468
6	experience	0.32197	experience	0.45070	26	steak	0.15468
7	taipei	0.29675	good	0.31275	27	table	0.15047
8	menu	0.26732	great	0.29927	28	quality	0.14795
9	dishes	0.26564	best	0.24553	29	really	0.14795
10	best	0.25640	meal	0.24423	30	price	0.14375
11	place	0.24715	dishes	0.24093	31	course	0.14291
12	staff	0.22949	tasting	0.22665	32	amazing	0.14123
13	wine/s	0.22529	amazing	0.20967	33	taiwan	0.14123
14	excellent	0.22025	course	0.20797	34	lunch	0.13534
15	time	0.21689	barcelona	0.19838	35	reservation	0.13198
16	just	0.19419	excellent	0.19708	36	taiwanese	0.13114
17	meal	0.18998	staff	0.19648	37	try	0.12862
18	dining	0.18662	just	0.19388	38	set	0.1261
19	beef	0.18326	like	0.17650	39	taste	0.12105
20	like	0.18326	place	0.17291	40	served	0.11853

Note. Total words (including stop words): TW = 118,957; CAT = 1,001,109. Unique words: TW = 6265; CAT = 18,895.

Table B2. Twenty most frequent key terms per region and restaurant category.

Rank	Taiwan		Taiwan		Taiwan		Catalonia		Catalonia		Catalonia	
	1-star	%	2-star	%	3-star	%	1-star	%	2-star	%	3-star	%
1	food	0.65	food	0.75	service	0.66	food	0.78	food	0.69	food	0.58
2	good	0.62	restaurant	0.57	food	0.63	restaurant	0.67	restaurant	0.57	restaurant	0.54
3	restaurant	0.58	service	0.50	restaurant	0.58	menu	0.57	menu	0.55	wine/s	0.54
4	service	0.47	great	0.43	hotel	0.56	service	0.50	wine/s	0.55	experience	0.50
5	great	0.40	good	0.42	duck	0.51	wine/s	0.45	experience	0.50	menu	0.42
6	place	0.33	experience	0.41	good	0.44	good	0.42	service	0.45	service	0.40
7	taipei	0.33	wine/s	0.35	experience	0.43	great	0.37	great	0.30	best	0.29
8	best	0.31	dishes	0.32	dishes	0.31	experience	0.36	meal	0.29	meal	0.25
9	beef	0.31	menu	0.32	great	0.31	excellent	0.27	tasting	0.29	great	0.22
10	steak	0.29	taipei	0.26	menu	0.31	dishes	0.26	good	0.28	good	0.22
11	staff	0.26	dining	0.25	excellent	0.30	best	0.24	course	0.26	just	0.22
12	experience	0.23	dish	0.24	pork	0.28	place	0.23	dishes	0.26	course	0.22
13	excellent	0.23	time	0.24	taipei	0.28	tasting	0.22	barcelona	0.24	dishes	0.21
14	menu	0.22	chef	0.23	palais	0.26	barcelona	0.21	staff	0.22	amazing	0.21
15	dishes	0.21	just	0.22	best	0.25	amazing	0.20	amazing	0.22	like	0.19
16	quality	0.20	course	0.20	nice	0.22	meal	0.20	best	0.21	world	0.18
17	time	0.20	staff	0.20	dining	0.21	michelin	0.19	just	0.19	staff	0.18
18	meat	0.20	excellent	0.20	just	0.21	staff	0.19	dish	0.18	tasting	0.18
19	nice	0.19	like	0.20	room	0.21	just	0.18	excellent	0.18	table	0.17
20	meal	0.19	lunch	0.20	time	0.21	dish	0.17	like	0.18	time	0.16

Note. % = Percentage of the total words in the category (including stop words).

Appendix C: Sample of Consumer Comments

Box C1. Sample of consumer comments regarding food.

Positive: *“One thing that particularly impressed me was all the variety in how the dishes are presented. They put a lot of effort in making how the food comes to you part of it, and in bringing it in a lot of different kind of plates. In terms of actual dishes, they are all small tasting portions, and they better be, as there are around 17 of them to try. We got a fatty tuna on top of a tuna bone that just melted in your mouth. The prawn head with a sort of prawn infused rice was also hard to forget. I enjoyed the fish dishes a bit more than the meat ones, but the duck was also awesome. The desserts were extremely fresh and interesting to close it out, although at that point it was hard to eat anything else after all that awesomeness.”*

Negative: *“Overall experience was poor, from the menu content and taste, to food presentation and environment We have been to many 1, 2 and 3 Michelin starred restaurants around Europe. This one does not deserve it's stars. We tried the white truffle menu. What a disappointment! Beyond the fact that white truffle was bearably visible on each dish (although we ordered the more expensive truffle menu), most dishes look uninviting and tasted the same. While mushrooms with truffle pairs well, a couple of the dishes had that combination and with the additional fact that little real truffle was served, most tasted mainly of mushrooms! Dessert was equally disappointing, a very strange combination of tastes. We left our plates quite untouched.”*

Box C2. Sample of consumer comments regarding drink.

Positive: *“We decided to have the wine pairing and my daughter had the tea pairing. Each dish we had was outstanding, absolutely superb. The wine pairing was excellent and the tea pairing very information.”*
Negative: *“My husband got a wine pairing with his food. It was the cheapest wine you could get ... and pairing? They can't even choose the correct wine to the type of food they are serving. He had to return a few glasses, there was either a cork in the glass (like lots of small pieces) or it didn't even match with the food! We were really disappointed.”*

Box C3. Sample of consumer comments regarding hardware.

Positive: *“From small touches such as a beautiful wooden locker with your own key to keep handbags and coats so they don't smell from the grilled meats.”*
Negative: *“Plain environment and decor plus uncomfortable chairs added to our disappointment.”*

Box C4. Sample of consumer comments regarding ambience.

Positive: *“The design is modern, clean lines, very pleasant and the ambience was upbeat and a very nice vibe complemented with the just right lighting.”*
Negative: *“Good and tasty food. But the place is tiny, no decoration whatsoever, not even a painting on the wall. The ambience was lousy as the restaurant was full and there was no music or windows so the noise was terrible. The waiters were not even polite as they were stressed running from one table to another. Poor experience for the price.”*

Box C5. Sample of consumer comments regarding chef.

Positive: *“The beef, chicken, pork grill is exceptionally good, and the chef is really funny that we had a very nice talk. It may not be a good idea to grill scallop and prawn (as the chef suggested), I would recommend to eat them raw if they are fresh to retain the original taste, grilling is not a good cooking method, I would suggest to order red meat in here.”*
Negative: *“The Chef came to greet only 2 tables (probably clients that he knew). I think it's a pity because for a Michelin star restaurant, it's the first time the Chef did not come to greet his clients, especially when the restaurant is small. I would have been pleased to exchange with him (I do speak Spanish fluently so the language was not a barrier).”*

Box C6. Sample of consumer comments regarding staff.

Positive: *"Food was superb and great quality. Service perfect - we booked by phone a few hours prior. Staff members spoke English and engaged well with us (they also knew when to stop engaging to give privacy). We discovered that they all take Japanese lessons, and make the effort to learn common languages of customers. Dishes cooked meticulously with specific technique for each, and the mesh is changed in between every dish. Price reasonable. Very impressed."*

Negative: *"I understand that service staff must have been busy and tired. Can't help but noticed the lack of enthusiasm from manager and staff right from the point of receiving menu. While taking orders, the monotonous, matter of fact, quickly order and get it over and done with attitude was a wet blanket. There was no smile. Neither was there an attempt to explain the different beef offerings and other main courses."*

Box C7. Sample of consumer comments regarding perceived service quality (product, service, and atmospherics)

Positive: *"I think it's still worth to pay a visit. I love the interior design, wood is the main frame with modern look. Food is undoubtly perfect on the plate and the taste. Staff there are very presentable that they would explain what you're eating. Recommend the cocktail. The one I ordered is very special and unforgettable. Although I forget the name, the curry powder on the glass was attractive. 2 options for the menu, smaller or full course. I must say I regret to pick the full course. It really made me too full and I had some left on the plate for the last 3 dishes."*

Negative: *"The food is presented beautifully. However, they forgot the most basic thing: it needs to be tasty! And it is just not. We took the 12 courses tasting menu with wine tasting. We were served with cold bread that although wasn't stale, was getting there. Unacceptable in a supposedly 2 Michelin stars restaurant. Some of the dishes were just ok but hardly interesting or special. Meh is the word I'd use for those. Others failed badly on flavours: a too salty demi glasse sauce or a combination that just don't work like cheese and creme dessert with white truffles which was awful. The wine pairing also didn't match most dishes. Who drinks Saki with a dish that has Thai like coconut curry? It appears that most if the waiters there have only basic English and partial knowledge of what they are serving. For a lot of our questions they had to call the head waiter to explain or answer. Service is extremely slow, even for a fancy gourmet restaurant. On some courses we got the paired wine but then waited over 30 minutes for the dish itself. At the end we payed almost 400 euros for a bad dinner. We felt deceived and robbed. This place can't even compete with small tapas bars that serve wonderful tasting food."*

3.5. The role of cooking classes in improving quality of life: a serious leisure perspective (accepted with modifications)

Gastronomy tourism is of great interest to scholars due to its valuable contribution to destination images. However, studies based on the analysis of user-generated content are scarce. Also, some gastronomic experiences fit the serious leisure consciousness. This study proposes two complementary theoretical models based on the destination image concept applied to the gastronomic image to demonstrate that cooking classes are a serious leisure activity and, therefore, contribute to the participants' subjective well-being and quality of life. Most studies use quantitative methodology, although mixed-method research provides more valuable insights. The proposed mixed models are applied to two regions –Taiwan and Catalonia– of similar area but different gastronomic cultures. The quantitative analysis shows that the cooking classes in both regions are highly appreciated. Qualitative findings indicate that participants reap social rewards through positive social interactions and personal rewards from three facets: activity settings, instructor attributes, and participant learning.

Keywords: gastronomic image perception; economy experience; serious leisure activity; quality of life; mixed methods research

Introduction

In such an era that information technology develops, the pace of modern life has accelerated, and work has become almost everything in life. In the absence of a balance between work and leisure, burnout affects nearly half of the working population, and 10% have extreme burnout; this vicious circle of day-to-day burnout and heavy work adds to the burden of modern people's lives (Karisalmi Seppo, 1999). Quality of life can be approximately divided into three aspects. The first is personal physical and mental health; the second is the individual's circumstances that have to do with the material environment (wealth, living conditions), and the last is the immaterial environment (including social relationships, functional activities and pursuits, and wider societal and economic influences). That is, quality of life is a broad range of living standards (Felce & Perry, 1995). Burnout affects not only physical and mental health (Cox et al., 2017) or personal circumstances (Geuens et al., 2019); it also negatively affects one's social relationships (Wang et al., 2012), which in turn reduces the quality of life and is reflected in life satisfaction (Min, 2014).

There are multiple dimensions of cooking as a method to improve the quality of life. From the perspective of the three aspects of personal quality of life, cooking is closely related to physical and mental health. Cooking at home allows one to better ensure the quality of the diet and healthy eating, while long-term intake of unhealthy food may cause obesity or other chronic disease (Alpaugh et al., 2020). In terms of the personal material environment, through cooking, a higher-quality culinary experience can be achieved through low-cost ingredients and help

improve living conditions (Oleschuk, 2020). Regarding the immaterial environment aspect, when people connect with others through cooking, they experience pleasure and enhanced social relationships through accompanying, chatting, socializing, and sharing food with family or friends. Food has become an essential factor in connecting people's feelings and enhancing each other's well-being (Oleschuk, 2020). Finally, in order to find a passion beyond meeting the needs of daily life, people take cooking classes in their free time, which also helps improve quality of life, thereby enhancing personal potential and self-esteem (J.Chang et al., 2021).

Participating in a cooking class can be considered a serious leisure activity (Stebbins, 2015) because it enables one to taste food (develop taste), acquire food-related knowledge and culture, and learn how to cook developing specific skills (Prayag et al., 2020). In research related to the 2011 Great East Japan Earthquake and Tsunami (Tashiro et al., 2020), people in the disaster-stricken areas established healthier eating patterns, expanded their social circle, participated in more activities, increased their social relationships, and found new life goals by taking cooking classes. In addition, cooking classes can also enhance parent-child relationships and promote harmony among family members (Tørslev et al., 2021).

Cooking classes are of great interest to researchers who mainly use survey data. With the proliferation of social networks and the consequent increase in user-generated content (UGC), the current trend is to analyse data from social media disseminated through electronic word-of-

mouth (eWoM) communication. However, to the best of our knowledge and belief, there are no studies that use mixed research methods, integrated into a conceptual model, to analyse UGC.

Therefore, this study aims to build a conceptual model and methodological framework based on a destination image concept (Marine-Roig, 2021) applied to the image of gastronomic activities, in order to elucidate the satisfaction of the participants in the cooking classes and their loyalty towards the experience and qualitatively determining which facets of the activity are commonly taken into account by the participants, through a categorization adapted from a version of the grounded theory (Charmaz, 2006), considering cooking classes as a serious leisure activity (Stebbins, 2015). This model is applied to two tourist regions –Taiwan (Asia) and Catalonia (Europe)– of similar areas but different cultures, which favors analysing the contrasts related to gastronomic heritage (M. P.Lin et al., 2021). The quantitative and qualitative analysis is done on all online travel reviews (OTR) written in English about cooking classes in both regions and shared on the travel-related portal TripAdvisor.

Background

It is necessary to substantiate that cooking classes are part of the four realms of the experience economy (Pine & Gilmore, 1998), constitute a serious leisure (Stebbins, 2015) activity, and, therefore, have a positive impact on the quality of life (WHOQOL, 1998) of the participants. In order to explore all aspects of cooking classes, serious leisure, and quality of life, this section is divided into the relationship between cooking classes and quality of life,

cooking classes as a serious leisure activity, and a critical literature review on cooking classes.

Finally, this section includes two theoretical models based on the concept of destination image applied to the gastronomic image. These conceptual frameworks support the measurement of the variables derived from the above relationships through UGC.

Relationship between cooking classes and quality of life

The conceptualization of quality of life depends on different philosophies, resulting in different concepts of quality of life (Diener & Suh, 1997), many of which are mixed with subjective and objective perception concepts. In order to solve such problems, the World Health Organization (THE WHOQOL GROUP, 1998) uses physical health, psychological state, social relationships and environment as the four domains to assess the quality of life, which has universal applicability. Among them, in a large number of academic studies, health is regarded as the most powerful and independent dimension for evaluating the quality of life.

Due to changes in family, social structure and lifestyle, people have many physical and mental problems (Pilgrim & Tomasini, 2012). First, in terms of health, the habit of eating out is one of the main causes of obesity (Naska et al., 2015), and obesity is also one of the sources of many chronic diseases. Second, in terms of psychology, many sources of stress (such as life pressure, social pressure and work pressure) continue to erode the psychology of people within the progress of society and then cause harm to health (such as insomnia, mental diseases and psychogenic diseases) (Monroe, 2008). Finally, regarding social relations, interpersonal

relationships are mutual psychological relationships established by individuals seeking various forms of satisfactions from each other in common activities that play a vital role in enhancing mental health (Radnitz et al., 2019). More and more people (especially the elderly) are living and eating alone, and loneliness due to lack of human interaction can lead to health deterioration (Sakurai et al., 2021).

The cooking class activities improved not only the participants' health status and social relations but also their mental health (Tashiro et al., 2020; Tørslev et al., 2021). Cooking class participants can improve their quality of life by improving physical and mental health and social relations.

Modern society focuses on participatory consumption, with the gastronomy experience a being clear example of this type of consumption. There is an increasing demand for diverse, innovative, meaningful and engaging gastronomic leisure experiences, and cooking classes can meet all the needs of such active gastronomic consumers (Taheri et al., 2021). These gastronomic experiences can enhance consumer well-being (Pourfakhimi et al., 2021). Although there is limited research on how cooking classes can improve quality of life, the following related conclusions can still be drawn: cooking classes have positive effects on participants' physical health and social relationships (Tashiro et al., 2020); cooking classes can effectively control cardiovascular risk factors through self-efficacy, a positive attitude, and a healthier diet (Hasan et al., 2019); nutrition education instruction combined with cooking

classes can improve diet quality, nutrient intake, and mental health in older adults (Jyväkorpi et al., 2014). Further, through social interaction, executive functioning, and culinary self-efficacy, cooking classes can improve the psychosocial state of the participants (Garcia et al., 2016). On the one hand, cooking classes can improve the eating habits of teenagers, and on the other hand, they can improve their mental health through participating in activities (Saxe-Custack et al., 2021).

Cooking classes as a serious leisure activity

The vast majority of tourism studies show that experiences or activities in this field significantly affect tourists' life satisfaction (Uysal et al., 2016). Quality gastronomic experiences are a determining factor in achieving tourist satisfaction, improving their quality of life, and fostering loyalty (Hernández-Mogollón et al., 2020). Satisfactory gastronomic experiences contribute to subjective well-being and quality of life (Yoo et al., 2022). Leisure contributes to the quality of life in a multicultural context (Iwasaki, 2007). Activities related to local cuisine form a significant part of the cultural heritage of tourist destinations (Fusté Forné, 2015b; Lin et al., 2021), and cultural tourism was considered serious leisure by the promoter of this concept (Stebbins, 1996). Serious and casual leisure activities help improve the quality of life and contribute to the overall well-being of the participants (Stebbins, 2015). One recent study on multisensory prosumption (Aksenova et al., 2022) includes a description of cooking classes from a casual leisure perspective:

... the cooking class allows participants to actively engage in the ‘doing’ of food production, preparation and consumption by enacting with the surrounding environment, interacting with facilitators and other participants, as well as using local ingredients and spices (p. 3421).

However, in addition to these cherished experiences, which represent personal and social rewards, cooking classes contribute to personal enrichment through the development of abilities, skills, and knowledge, which assimilates them into a serious leisure activity. On the contrary, regarding distance cooking classes (Cenni & Vásquez, 2021; Seyitoğlu & Atsız, 2022), due to COVID-19 confinement, it does not seem that virtual participants can acquire the skills or enjoy positive social relationships typical of serious leisure activities.

Critical literature review on cooking classes

Table 1 lists the constructs analysed and the source of data collection in a sample of studies on cooking classes. The first research (Luoh et al., 2020) is the most complete because it uses a qualitative methodology to define the constructs and implements a questionnaire survey to two groups of different origins. The second (Suntikul et al., 2020) bases the survey on the experience economy (Pine & Gilmore, 1998). The third (J.Chang et al., 2021) is interesting because it implements a Delphi survey in one of the two regions in the current study: Taiwan. The last two are also interesting for this study because they analyse OTR content from TripAdvisor. The penultimate study (Kokkranikal & Carabelli, 2021) applies a scale to measure

memorable experiences (J.-H.Kim et al., 2012) in a reduced sample of OTRs, and the last research (Yiğit, 2022) does not integrate the emerging categories into a conceptual model.

3.5. Table 1. Sample of recent studies on cooking classes.

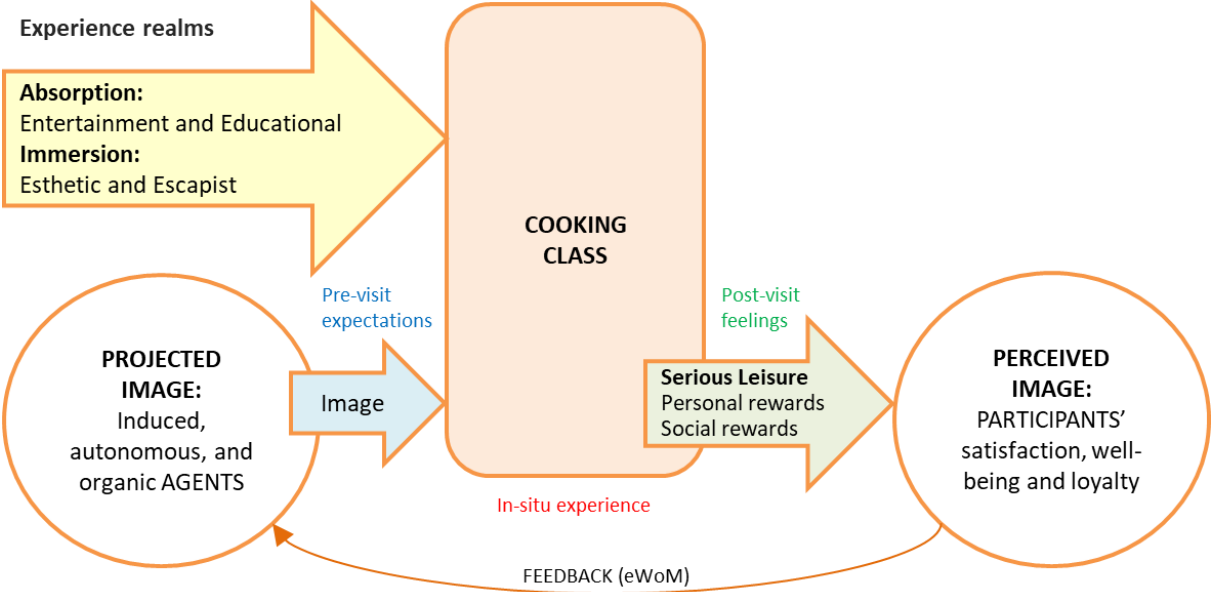
Category or Dimension	Source
Experiences: Market tour, Unique cooking learning, Exotic food; Fun learning atmosphere; Positive interpersonal interactions (Luoh et al., 2020)	27 in-depth and N=402
Entertainment-Escapist; Esthetic-Educational (Suntikul et al., 2020)	N=300
Local food; Food trail; Cooking experience; Environment and atmosphere (J.Chang et al., 2021)	13 in-depth
Involvement; Hedonism; Local culture; Knowledge; Meaningfulness; Novelty; Refreshment (Kokkranikal &Carabelli, 2021)	302 OTRs
Satisfaction, recommendation, and revisit intention; Memorable experience; Instructor attributes; Hospitality of locals; Culinary characteristics; Social interaction; Authentic experience; Value/Price (Yiğit, 2022)	1228 OTRs

Research design approach

The conceptual model of Figure 1 is based on the image formation circle developed in previous works (Marine-Roig, 2019, 2021). It allows for analysing the satisfaction of the participants in a tourist experience and the impact of tourist satisfaction on subjective well-being (Lin et al., 2022c; Saayman et al., 2018). Through social media, food tourism contributes to building the online destination image as perceived by visitors (Michael &Fusté-Forné, 2022). In the present case study, cooking classes occupy the central part of the diagram. Initially (pre-visit), prospective tourists receive information from various induced, autonomous, and organic sources. According to knowledge and socio-utilitarian needs (Daries et al., 2018b; Suntikul et al., 2020), this information consolidates motivations and generates expectations in relation to the experience. Pre-visit information covers aspects of the four realms of experiences: entertainment, educational, esthetic, and escapist (Pine &Gilmore, 1998), as other authors (Pratt

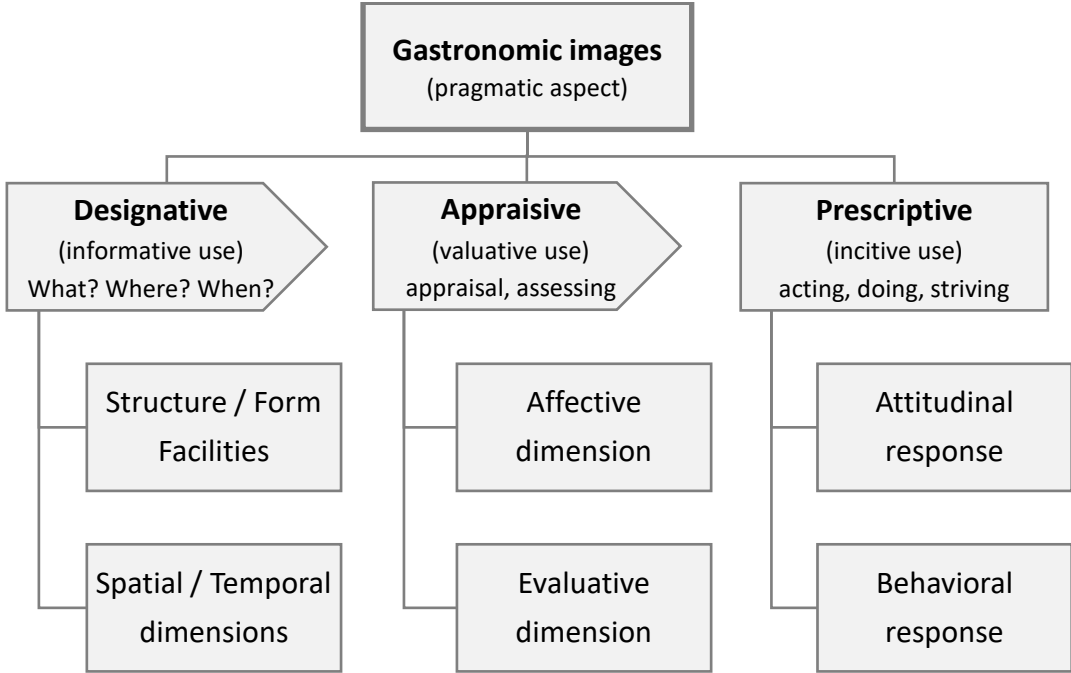
et al., 2020; Soonsan & Somkai, 2021) have shown that cooking classes fit into the so-called “sweet spot” (Pine & Gilmore, 1998) because the richest experiences include aspects of all the four realms.

Once the activity is done, the participants confront the on-site experience with their motivations and expectations. At this stage of the model’s evolution (post-visit), the image is complex because it incorporates experience (Fakeye & Crompton, 1991). As seen in the previous subsection, cooking classes are a serious leisure activity (Stebbins, 2015). Therefore, participants expect to reap personal and social rewards. Depending on their expectations, the perceived image of the experience will be more or less positive. (Dis)loyalty towards the activity will depend directly on the degree of (dis)satisfaction. Regarding UGC, the formation circle closes when the image perceived by tourists becomes a projected image, shared on social media (eWoM communication), and read by forthcoming tourists.



3.5. Figure 1. Circle of image formation derived from Marine-Roig (2019, 2021).

Figure 2 shows the semantic and pragmatic semiotic aspects of gastronomic images derived from previous research on the tourist destination image (Marine-Roig, 2021). The conceptual model is inspired by the prolific work of the philosopher and semiotician Charles William Morris, who considered signs to be universally applicable. In short, the designative aspect refers to information about a tourist resource (attraction, product, activity, or service) located in time and place. The appraisive aspect consists of the assessment of the previous signs and allows the measurement of personal (dis)satisfaction. The prescriptive aspect is the response to the appraisive aspect and allows measurement of the tourist’s (dis)loyalty towards the tourist resource. As Figure 2 indicates, there is a hierarchical interrelation between the three aspects because something unknown cannot be valued, nor can something that has not been valued be recommended or discouraged.



3.5. Figure 2. Semiotic aspects of gastronomic images derived from Marine-Roig (2021).

The conceptual models in Figure 1 and Figure 2 are based on the destination image construct, which has been extensively studied by scholars since the pioneering work on city image (Lynch, 1960). Both models are complementary and support the analysis of UGC through mixed methods research. The convenience of using mixed methodology approaches in food tourism was supported by previous studies (Okumus, 2021; Richards, 2021).

Materials and methods

As shown in the previous section, cooking class activities have the attributes of serious leisure, which helps improve tourists' quality of life. The collection and content analysis of shared OTRs of cooking classes in Taiwan and Catalonia is an extension of previous studies on destination image analytics (Diaz-Pacheco et al., 2022). The quantitative analysis is based on specific work on content analysis of OTRs (Marine-Roig, 2022), and the qualitative analysis is inspired by a development of the grounded theory method (Charmaz, 2006). Both methodologies conform to the conceptual models defined in the previous section.

Cooking classes in Taiwan and Catalonia

Taiwan (TW) and Catalonia (CAT) are tourist destinations in Asia and Europe, respectively, with a similar area but different climate, culture, and gastronomic heritage, which facilitates analysing contrasts in food-related activities. Previous studies analysed the image of

both regions separately, Taiwan (Chen et al., 2022) and Catalonia (Marine-Roig, 2011b), and together (Lin et al., 2022a), but with different objectives than the current ones. The drop in foreign tourism due to the SARS-CoV-2 pandemic was dramatic in both regions (Table 2), but Catalonia began to recover in tourist influx during 2021.

3.5. Table 2. Foreign visitors in Taiwan and Catalonia from 2019 to 2021.

Regions	2019	2020	2021
TW	7,518,268	1,096,321	112,410
CAT	15,532,602	2,752,801	5,120,984

Cooking classes include a variety of activities and experiences, providing participants with education, entertainment, esthetic and escapist realms (Pine & Gilmore, 1998). Participants can better their physical and mental health, increase opportunities for interpersonal communication, and then improve their quality of life (WHOQOL, 1998).

Data collection

As described above, UGC has different characteristics from traditional data. On the one hand, it is valued by tourists, and on the other hand, it has also attracted the interest of scholars in research. There are various travel review platforms (e.g., TripAdvisor and Airbnb) for different tourism industries. TripAdvisor is the most popular among tourists and scholars, and hosts more than a billion comments freely accessible to any user. All English-language OTRs of cooking classes in Taiwan and Catalonia on TripAdvisor were downloaded for further analysis. This study ruled out cooking classes without registration or reviews available on

TripAdvisor, and finally seven businesses in Taiwan (459 reviews) and 16 in Catalonia (4077 reviews) were considered as data source.

Data arrangement

Using techniques developed in previous studies (Marine-Roig, 2022), the study extracted significant information from the OTRs on TripAdvisor and stored it in a CSV file format. The file contains the geographic code, resource code, review code, user name, user country, user rating, visit date, post-date, review title, and review body. The title and body of the OTR contain unstructured textual information, unsuitable for statistical analysis. Accordingly, the first step is to extract all the text's key terms with their occurrence frequency. Key terms are words or groups of consecutive words that are not included in the stop word list. The second step is to determine the positive or negative polarity of the key terms that express feelings, moods, evaluations, etc. Finally, the key terms are grouped by categories, as explained in the next section.

Data categorization

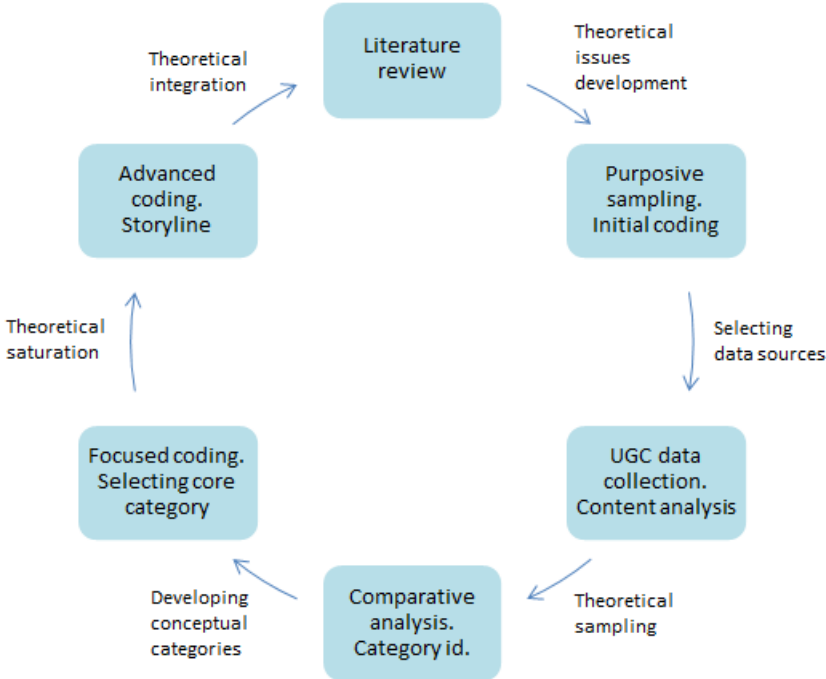
Categories are groupings of key terms with similar meanings or connotations (Stemler, 2001). The textual analysis provides tools for gathering rich data (Charmaz, 2006). The circle in Figure 3 represents the iterative process of categorizing the textual data obtained in the previous section, coming from UGC, and integrating the resulting categories into a grounded

theoretical model. The proposed qualitative method (Figure 3) is inspired by an interpretation of the grounded theory (Charmaz, 2006) and includes emergent coding from the data and a priori coding based on the theoretical model (Stemler, 2001). The process ends when it reaches a saturation point, ensuring that the categories are exhaustive and mutually exclusive. That is, it concludes when all the significant information in the data set, excluding the outlier data, is classified in one of the categories integrated into the theoretical model.

The structured paratextual elements of the OTRs, such as codes, dates, and scores, also form categories or dimensions, but the classification process is not iterative. For example, geographic codes allow tourist destinations to be directly classified by region. The number of OTRs demonstrates the popularity of each tourist resource. Dates make it easy to sort by months, quarters, years, etc. Non-decimal scores can be grouped into percentages through a weighted average formula. For example, the bubbles awarded by TripAdvisor users to each tourist resource can be converted into percentages by calculating the weighted average from the following values (Marine-Roig, 2022): 5* = 100 (Excellent); 4* = 75 (Very good); 3* = 50 (Average); 2* = 25 (Poor); and 1* = 0 (Terrible).

Regarding the feelings polarity, the review text contains key terms of positive and negative emotional dimensions. About the appraisal aspect that allows inferring the satisfaction of tourists, “fun” and “great” belong to positive affective key terms (Feel+); “disappointed” and “horrible” are negative affective key terms (Feel-). Concerning the prescriptive aspect that

allows deducing the loyalty of tourists, “not miss it” and “recommended” express positive attitudes (Recom+), while “save your money” and “can’t recommend” show negative attitudes (Recom-). For behavioral intentions, “will be back” represents positive intentions (Behav+), and “will not return” reveals negative intentions (Behav-).



3.5. Figure 3. Grounded theory categorization adapted from Charmaz (2006)

Results

According to the grounded theory process (Figure 3), content analysis of OTRs has reached a saturation point. Thus, all the significant information, both textual and paratextual, can be included in any of the aspects, categories, and dimensions listed in Table 3. The items listed are integrated into the conceptual models in Figure 1 and Figure 2.

3.5. Table 3. Summary of the categorization resulting from the grounded theory process.

Aspect	Category or Dimension	Method
Designative (Informative use)	- Organic sources (Marine-Roig & Ferrer-Rosell, 2018)	Qualitative
	Social media; Previous experience	Qualitative
	- Four realms (Pine & Gilmore, 1998)	Qualitative
	Entertainment; Educational; Esthetic; Escapist	Qualitative
	- Serious leisure. Personal rewards (Stebbins, 2015)	Qualitative
	Activity settings; Instructor attributes; Participant learning	Qualitative
	- Serious leisure. Social rewards (Stebbins, 2015)	Qualitative
	Relatives, Instructors, Farmers' market vendors; other Participants	Quantitative
Appraisive (Valuative use)	- Spatial / Temporal	Quantitative
	- (Dis)satisfaction	Quantitative
Prescriptive (Incitive use)	Affective; Evaluative	Quantitative
	- (Dis)loyalty	Quantitative
	Attitudinal; Behavioral	Quantitative

Quantitative content analysis

The two sets of descriptive statistics (Table 4) show that both the number of companies and the number of OTRs per company are higher in Catalonia than in Taiwan. Kurtosis less than three and skewness greater than zero indicate that the data do not present a standard normal distribution. To establish comparisons, both complete data sets are normalized through percentages.

3.5. Table 4. Number of establishments and OTRs in Taiwan and Catalonia from 2011 to 2022.

Region	N	OTRs	Min.	Max.	Mean	Median	Std. dev	Skew.	Kurt.
TW	7	459	10	169	64.71	56	65.57	0.87	-0.51
CAT	16	4077	1	1084	254.81	63	390.29	1.44	0.41

Note: Std. dev: standard deviation; Skew.: skewness; Kurt.: kurtosis

Table 5 shows the most frequent key terms in both regions representing at least 0.3% of all terms (including stop words). There are clear patterns in the use of key terms in both regions.

As expected, the cooking classes are in first position. There are several similarities, such as a

teacher's name (Ivy and Marta) and the region's capital (Taipei and Barcelona). The main differences are in the name of the region and the signs of identity (nationality and language) because Taiwan and Taiwanese are among the most frequent keywords, but Catalonia and Catalan are not; nor are the typical dishes included because only "paella," a popular dish in Catalonia, appears very well positioned. The first occurrence of the keyword "Catalan" is at position 72 (0.07999%) and the first occurrence of "Catalonia" is at position 621 (0.00930%). The first occurrence of a typical Taiwanese dish, "Xiao Long Bao" known as "dumplings," is in position 26 (0.17311%). Concerning beverages, Taiwan has "tea" located in position 18 (0.22637%), and Catalonia has "sangria," a popular drink of red wine with pieces of fruit, in position 25 (0.20473%).

Most quantitative analyses of this study are based on grouping key terms by categories (terms with similar meaning or connotation) through the sum of frequencies from Table 5 and successive data.

3.5. Table 5. Twelve most frequently used key terms in both regions.

Rank	Taiwan			Catalonia		
	Key term	Count	%	Key term	Count	%
1	class/es	778	1.15107	class/es	4764	1.02993
2	cooking	673	0.99572	cooking	4508	0.97459
3	ivy	495	0.73237	paella	3737	0.80791
4	experience	339	0.50156	great	3627	0.78412
5	great	316	0.46753	experience	3554	0.76834
6	food	314	0.46457	barcelona	2953	0.63841
7	taiwanese	271	0.40095	fun	2271	0.49097
8	time	231	0.34177	food	2086	0.45097
9	market	222	0.32846	marta	1887	0.40795
10	fun	215	0.31810	chef	1657	0.35823
11	taiwan	210	0.31070	time	1524	0.32948
12	taipei	204	0.30182	market	1438	0.31088

Note: Total words (including stop words): TW: 67,589; CAT: 462,554.

Designative aspect (informative use)

The information in the image projected by the induced, autonomous and organic agents reinforces the motivations and generates expectations in forthcoming participants. As seen in the examples below, the perceived image becomes a projected image when participants share their experiences on social media, which closes the circle of the gastronomic image formation (Figure 1). A sample of information obtained from organic sources is reproduced below.

Social media

TW- 81572896: After reading the reviews on Tripadvisor I was really looking forward to cooking with Jodie, and the session was even better than I hoped!

CAT- 586062323: I found this cooking class through TripAdvisor and wasn't sure what to expect. Sure enough, it ended up being the most enjoyable part of my stay in Barcelona.

Previous experience

TW- 244176842: I've done cooking classes everywhere from Europe to Asia, and this is hands down the best class I have ever done.

CAT-148826744: We have participated in other cooking schools and besides one in Italy we enjoyed this one the most!

The expectations or motivations of participants can also be categorized into one of four realms of the experience economy (Pine & Gilmore, 1998; Soonsan & Somkai, 2021).

Entertainment

TW-335172290: Fantastic experience. Super fun, interesting and entertaining cooking class.

CAT-143148004: It is fun interesting, entertaining, informative and you really get to cook and eat the 4course meal you make.

Educational

TW-328103514: Jodie's class was outstandingly clean, educational and delicious.

CAT-167723358: The friendly staff, delicious food and education on traditional Catalan food was a welcome break from more shallow tourist attractions.

Esthetic

TW-740633109: Also the beauty of a steel straw. A very yummy beverage!

CAT-564970278: They have a beautiful aesthetic that can be seen both in the space in which they hold the class and in the dishes they create during class.

Escapist

TW-152071229: Unique cooking experience. First of all, Jodie is fortunate to have amazing views the surrounding mountains, offering a serene escape from the scooters and taxis of Taipei

CAT-203217344: I highly recommend this experience for anyone interesting in cooking, food culture, or just looking for a way to escape the crowded Barcelona tourism scene.

In this case study, the personal rewards are derived from the learning of the participants in the cooking classes, which is greatly influenced by an ideal setting and capable and friendly teachers.

Activity setting

The pleasant surroundings and relaxed ambiance of the place contribute positively to the perception of personal rewards such as personal enrichment and self-gratification (Stebbins, 2015). Similarly, other authors (J.Chang et al., 2021; Luoh et al., 2020) consider the atmosphere

and environment as features of cooking classes, as well as good kitchen equipment and convenient location. There are numerous examples in both regions, such as the following:

TW-762371410: The classes themselves were very detailed but simple enough to follow, and the instructors create a fun, relaxed atmosphere.

CAT-134431362: The atmosphere/facility is lovely, tastefully decorated and very modern with a homey feel.

TW-435521632: Learnt some great skills in an environment that felt just like you were at your own home.

CAT-224191966: The kitchen is well organized, a lovely environment to work in and in a great location.

Instructor attributes

The teacher's attitudes and aptitudes in cooking classes are crucial for participants to feel rewarded. The description of the instructor's attributes (Yiğit, 2022) is a pattern repeated in the vast majority of OTRs in both regions.

TW-195504324: Ivy is so kind and warm, but also so knowledgeable and enthusiastic about cooking.

CAT-158519820: Our instructor, Chef Lluís, is very knowledgeable, patient, engaging and made the experience a great one. He provided so much information to us.

Participant learning

Learning by developing skills, abilities, and knowledge is a decisive personal reward in Stebbins' model of serious leisure. Participants in the cooking classes develop skills and abilities through preparing traditional dishes and acquiring knowledge about local food, culture, and history, as seen in the examples below.

TW-381833427: We prepared Stir-Fried Eggplant with Basil, Braised Beef Noodle Soup, and Poached Chicken, three traditional Taiwanese dishes, home made style. It was a master class

and there is no end for how much we learned, we increased our knowledge on techniques, ingredients, spices, history and culture.

CAT-127694016: Not only did we get to learn how to make some of the traditional Catalan dishes that we had been eating, we also got to learn more about the area, the food traditions, and the culture.

Social rewards (Stebbins, 2015) are derived from positive social interactions (J.Chang et al., 2021; Luoh et al., 2020) with attending relatives, instructors, farmers market vendors, and other participants. Below is an example of each group in both regions.

Relatives

TW-671273335: Great opportunity to meet people from different parts of the world... Great memories that can be brought back home... And lastly, a great family activity!!!

CAT-137581449: We shared a wonderful meal and an experience that the whole family will remember.

Instructors

TW-23611356: We had a great time learning from Jodie but also just talking to her and getting to know her a little bit.

CAT-151716689: And Alajandra...what a wonderful teacher she is ...full of life, a gladly travelled chef, great to talk to you, full of useful practical tips, makes the class lovely, demystifies everything.

Farmers market vendors

TW-762371410: The market tour had a couple of planned stops but also chatting and sampling things with random stall owners.

CAT-146315706: What an experience! To go with a local chef to purchase the best ingredients by families who have worked/owned the stalls for 3 generations. Purchasing from local farmers and educating me on the differences in Jamon was fantastic!

Participants

TW-639240991: And by the time the class ended, we were all talking to each other, cheering each other up (as each of us tried to flip an omelet in a pan), and having fun.

CAT-149457123: I went alone but soon found new European friends.

Spatial and temporal dimensions

Through the geographical code of the OTRs, it can be seen that almost all the cooking classes are located in the capitals of both regions: Taipei (Taiwan) and Barcelona (Catalonia). The OTRs contain the date of the post and the month of the visit. Table 6 shows the monthly distribution of the OTRs according to the visit date. Due to the weather, both destinations are seasonal. Taiwan has the highest tourist influx in winter and Catalonia in summer.

3.5. Table 6. Monthly distribution (percent) of reviews by visit date.

Region	1	2	3	4	5	6	7	8	9	10	11	12
TW	9.80	5.01	5.45	7.84	9.37	4.79	9.59	9.37	6.97	9.15	10.68	11.98
CAT	5.49	6.33	6.35	9.30	9.66	9.98	11.45	9.27	10.50	10.06	6.72	4.88

Appraisive aspect (valuative use)

As demonstrated in Table 7, most of the scores given by the participants are very high. The evaluative dimension resulting from the weighted average is greater than 95%. It should be noted that Taiwan did not receive negative scores. Regarding the affective dimension, more than 4% of all the terms have a positive polarity. Catalonia has more than 5% of positive key terms, but it also has a higher percentage of negative key terms than Taiwan.

3.5. Table 7. Appraisal aspect: evaluative and affective dimensions as percentages.

Region	N	5 *	4 *	3 *	2 *	1 *	AvgSc	Feel-	Feel+
TW	459	96.30	3.49	0.22	0.00	0.00	99.02	0.07	4.03
CAT	4077	90.34	5.37	1.94	1.03	1.32	95.59	0.21	5.11

Note. * = TripAdvisor bubble; AvgSc = weighted average score; +/- = polarity.

Prescriptive aspect (incitive use)

Table 8 shows the prescriptive metrics of attitudinal and behavioral responses, which implies the participants' loyalty towards the cooking classes. It is worth mentioning that there

is no negative behavioral response in either region. Overall, customers are loyal in both regions.

Personal satisfaction positively impacts loyalty towards the activity. The comparative results of the affective and attitudinal dimensions chiefly coincide in the two regions, because Catalonia has a higher percentage of positive terms than Taiwan, but it also has a higher percentage of negative terms.

3.5. Table 8. Prescriptive aspect: behavioral and attitudinal dimensions as percentages.

Region	nB-	Behav-	nB+	Behav+	nR-	Recom-	nR+	Recom+
TW	0	0.00000	7	0.01036	19	0.02811	322	0.47641
CAT	0	0.00000	54	0.01167	184	0.03978	2686	0.58069

Note: n = number of key terms per category; - = negative polarity; + = positive polarity.

Discussion

Although the cooking classes in the two regions have been underway for more than ten years, they are still in their infancy compared with other hospitality and tourism industries. Coupled with the restrictions imposed by the COVID-19 pandemic on some cooking class activities, the development of cooking classes has come to a standstill. The number and distribution of OTRs in the cooking classes in both regions show that the cooking classes are still in the stage of niche consumption and have much room for development.

The cooking class activities mainly involve two locations: the cooking class area and the market. Clean and distinctive (such as historical, beautiful, or scenic) buildings will catch participants' eyes. The instructor's personal characteristics and ability to control the field are the keys to the success of the cooking class activities. The interaction between the market vendors

and the participants will bring extra surprises to the students, which is a bonus for the cooking class. A knowledgeable teacher as a home chef and healthy eater in the cooking classes will affect the choice of ingredients and positively impact the participants' healthy eating.

Comparing results with previous research

Table 1 contains a representative sample of recent research on cooking classes (5 articles), and Table 2 lists the main aspects, categories, and dimensions processed in the present study, which leads to a comparative study between both tables.

Organic sources (Social media). The closing of the image circle is not addressed in the works of Table 1.

Four realms. One work (Suntikul et al., 2020) groups the four realms of the experience economy into two but does not follow the criteria of absorption and immersion or active and passive participation (Pine & Gilmore, 1998).

Activity settings. Two works (J.Chang et al., 2021; Luoh et al., 2020) take the activity's environment into account.

Instructor attributes. A study based on TripAdvisor OTRs (Yiğit, 2022) reflects the importance of instructor attributes.

Participant learning. All papers in Table 1 address issues related to the learning or education of the participants.

Social rewards. Two works (Luoh et al., 2020; Yiğit, 2022) contemplate personal interactions.

Spatial/temporal. The spatial and temporal dimensions of the activities are not directly addressed in the works in Table 1.

(Dis)satisfaction and (dis)loyalty. One paper (Yiğit, 2022) directly addresses these categories.

In general, there are other categories in Table 1 related to the polarity of feelings, which are included in the affective dimension of the current concept of (dis)satisfaction through the inclusion of the key terms in the lexicon of feelings. For example, “Value/Price” (Yiğit, 2022) is represented by key terms: “value for money” and “not worth the money” and keywords: “cheap” (positive), “expensive” (negative), etc.

Concluding remarks

This study proposes two complementary conceptual models to explore the role of cooking classes in improving the participants’ quality of life, using UGC as the data source. A case study using cooking classes in two regions with similar characteristics and different gastronomic cultures, Taiwan (Asia) and Catalonia (Europe), found that participants from both regions had high satisfaction levels. Beverages with regional characteristics (Asian tea and European wine) have achieved good branding and marketing effects through the experience of cooking classes.

Although Xiao Long Bao and beef noodle soup are the most popular delicacies in Taipei, they are not as attractive as tea to international tourists; “paella” is the most representative food

in Barcelona. The cooking class instructor is the soul of the activities. The distinctive cooking class, market buildings, and the interaction between vendors and participants are all features of the cooking class; these can become a story to be appreciated and retold by the participants. The knowledge and skills gained from cooking classes, markets, and gastronomic products are the main personal rewards; people who interact in cooking classes and traditional markets can encounter entertainment and escapism experience realms. Cooking classes can also improve the personal quality of life and contribute to cultural and economic development.

Both big data and traditional research methods have advantages and disadvantages in practical application, and they have complementary strengths. With the advancement of technology, big data has been applied in various research fields. UGC has its advantages in data attributes; these data generated and shared by users on the Internet, with appropriate theoretical framework and technology, can produce valuable research results, which can be used to improve products for stakeholders. That is to say, through the research results, stakeholders can know the customers' needs and enhance the satisfaction and loyalty of tourists through improvement. This process not only helps industries operate sustainably but also improves people's quality of life through their satisfaction and subjective well-being.

Cooking class activities can improve customers' quality of life of, assist in the development of other industries, and become a new indicator of the destination to increase the flow of tourists. Compared with other tourism products, the cooking classes in both regions are

still developing, and the pandemic's impact has caused a significant drop in the number of reviews.

Theoretical contribution

The study's main contribution is the proposal of two complementary conceptual models based on the gastronomic image derived from the destination image concept. The first model is based on the image formation circle (Marine-Roig, 2019, 2021), integrating the four realms of the experience economy and the expected rewards of a serious leisure activity. The second conceptual model (Marine-Roig, 2021) defines the gastronomic image from a semiotic perspective derived from the extensive work of Charles William Morris. The signs of the image are divided into three aspects (semantic and pragmatic), hierarchically interrelated: designative (informative use), appraisive (valuative use), and prescriptive (incitive use). Some dimensions allow the measurement of each aspect from UGC. Both models support the analysis of UGC through mixed research methodologies. The second contribution is the categorization of the content through a methodological framework adapted from a version of grounded theory (Charmaz, 2006), which allows the integration of the emerging categories in the theoretical model and the a priori categories (Table 2).

Both the theoretical model and the methodological framework can be useful in analysing other cultural tourism activities based on UGC shared on social media. In any case,

OTRs (Marine-Roig, 2022) represent the most complete UGC source because, in addition to always containing text and images, in some cases, they have structured paratextual information that facilitates classification by dates, places, scores, etc. Moreover, as seen in the Results section (social media), UGC closes the circle of the gastronomic image formation, because the perceived image becomes a projected image when visitors share their narratives, opinions, and photographs on social networks and are consulted by future tourists.

Managerial implications

Tourists are highly satisfied with the cooking classes experience in both regions, demonstrating loyalty to the activity through the recommendations and intentions to return to the place as expressed in the reviews. Cooking classes in both regions will be able to take advantage of local specialties and beverages to promote the tourist destination while also boosting the development of other local industries such as agriculture. Shopping in traditional farmers markets is an attractive experience for participants and is an indispensable activity in the cooking class experience.

Regarding the aspects participants most commonly commented on in the OTRs, the positive social interactions with vendors from the farmers market, instructors, family members and other participants stand out, as well as the personal rewards for the attained learning, influenced by the activity settings and the instructor attributes, all in combination with mostly

positive key terms. The key terms mentioned most often represent the topics that most concern visitors (Stemler, 2001). Therefore, stakeholders should consider these aspects to create or improve this type of cultural tourist activity.

Cooking class activities can assist in the development of other industries, and become a new indicator of the destination to increase the flow of tourists. Compared with other tourism products, the cooking classes in both regions are still developing, and the impact of the pandemic has caused a significant drop in the number of reviews. In addition to providing corresponding relief programs, the government should help industries to tide over the difficulties.

Indirectly, the quantitative analysis has highlighted branding issues in Catalonia because the Catalonia and Catalan brands are positioned far behind the Taiwan and Taiwanese brands and marketing inefficiencies in Taiwan, because in 2019, before the first outbreak of the pandemic, Catalonia received twice as many foreign tourists as Taiwan but four times the number of TripAdvisor reviews on cooking classes.

Limitations and future research

The contribution of cooking classes to quality of life has been demonstrated through survey-based secondary sources. In other words, this study quantitatively reflects the

participants' satisfaction and qualitatively their well-being, indicators of their quality of life, together with healthy food and the fact that cooking classes represent a serious leisure activity. Still, it is necessary to deepen the qualitative analysis of OTRs.

The customers in the cooking classes include local residents and international tourists. This study was only conducted using English OTRs for analysis, which is likely to cause inference limitations. In addition, customers who only experience and do not comment on the TripAdvisor platform affect the number of real participants. Future research should collect reviews in both English and local languages and focus on key terms for developing customer loyalty.

Sources that project the image can be induced, organic, and autonomous (Marine-Roig & Ferrer-Rosell, 2018). This study has analysed UGC –a primary organic source– because it is part of the projected and perceived images. A future line of research may be to analyse induced sources such as the websites of companies (Daries et al., 2019) that offer cooking classes, and autonomous sources, such as the presence of cooking classes in guidebooks (Marine-Roig, 2011b).

4. GLOBAL DISCUSSION OF RESULTS

Tangible cultural heritage and ICH are products of the patrimonialisation of human culture, a process that has gradually shifted attention from tangible to intangible elements that have evolved from having single to multiple meanings (Romagnoli, 2019). In turn, the transformation of the definition of *heritage* has evolved from a very restrictive vision considering only the assets of the nobility and the clergy as heritage (LeHégarat, 2015) to a far more inclusive orientation associated with the commons: from the exclusive niche perspective to the public perspective and from considering only precious and rare material heritage (Pomian, 1990) to bestowing that recognition to manifestations of people's daily lives in their respective cultures. Amid that broadening of the understanding of heritage, the concept of gastronomic heritage has emerged as an impulse to engage in those trends.

Gastronomic heritage is a microcosm of societies' past lives. In the evolution of civilisation and changes in people's lifestyles, gastronomic heritage is preserved in its original flavour, transformed to meet the needs of people in different eras, or sometimes completely forgotten. Therefore, the present generation significantly influences the continuation of gastronomic heritage. From another perspective, the sustainable management of gastronomic heritage represents human efforts to preserve culture and promote the local economy (Nilsson et al., 2011). In Europe, scholars have focused on the sustainable management of gastronomic heritage since before UNESCO's accreditation of that heritage in 2010 (e.g. Everett & Aitchison, 2008; Fox, 2007; Hodges, 2001). Now, with UNESCO's recognition of gastronomic heritage as ICH, that trend has spread worldwide (e.g. Alonso & O'Neill, 2012; Nilsson et al., 2011; Ron & Timothy, 2013), and scholars are placing greater emphasis on research related to gastronomic heritage in their own regions. The results of the research in this thesis confirm that shift and clarify that UNESCO's actions in relation to gastronomic heritage have indirectly generated interest in the study of gastronomic heritage in academia. Thus, with the development of that international perspective, the recognition of gastronomic heritage has expanded from its original Eurocentrism to other regions, and the amount of gastronomic heritage in Asia has gradually surpassed that of Europe, while the United States, Australia, and Spain have emerged as the leading countries.

Avieli (2013) and Ron and Timothy (2013) found that although gastronomic heritage can be a means of revitalising the local economy, whether its original flavour will be replaced by the commercialisation of the gastronomic industry and lost over time depends on the strength

of the connection between the gastronomic heritage and the local population. They also found that traditional local food is usually preserved for longer if it is a necessity in the daily life of the local population or at a particular time; conversely, it is prone to permanent and irreversible changes in order to adapt to the tastes of international visitors. The findings of this thesis are consistent with those of previous studies. For instance, Vietnamese cuisine includes local delicacies (e.g. *cao lau* noodles, white rose dumplings, fried *hoanh thanh*, and fish grilled in banana leaves) that are not only part of the daily diet of locals but also a symbol of their identity. Local restaurant operators cater to the tastes of international tourists and make adjustments to the ingredients, appearance, and taste of those delicacies. However, when residents in neighbouring areas make minor changes to those delicacies, they are no longer recognised by the locals as gastronomic heritage.

For people in contemporary societies, gastronomy can not only satisfy hunger but also serve the functions of identity recognition, cultural inheritance, and economic promotion and has thus gradually become a core part of tourism (Fusté Forné, 2015; Kivela & Crofts, 2006; Laroche et al., 2005). Along with meeting customers' need for three meals a day, the gastronomic experience also provides customers with different leisure, educational, aesthetic, and escapist experiences (Pine & Gilmore, 1998). In that vein, the service industry has long recognised the importance of the customer experience for customers' satisfaction and loyalty, which has prompted them to place the customer experience at the heart of their products and provide what they call "experience-centric services", meaning proactively creating customer experiences to accentuate distinctive products and services (Voss et al., 2008). Along those lines, Zomerdijk and Voss (2010) have argued that the customer value proposition is the sum of the value arising from the experience, the service attributes, and the price, as well as that the value arising from the experience is greater than the service attributes plus the price. That conceptualisation underscores the importance of all three factors but indicates the core value of customer experience. The findings of this thesis, by comparison, reveal that service quality, atmosphere, and price are the principal determinants of customer satisfaction, especially for high-end gastronomic experiences (e.g. dining experience in Michelin-starred restaurants). In addition, the analysis of OTRs revealed that the quality of the material experience is now a fundamental requirement for the gastronomic experience, whereas immaterial experiences, co-created by industries and customers, are becoming increasingly important in the customer value proposition, which aligns with past findings.

In terms of the gastronomic experience (e.g. gastronomy tourism, dining at Michelin-starred restaurants, and taking cooking classes), with the change in tourists' consumption habits, the role of the gastronomic experience while travelling has also changed from being a mere matter of vital supply (e.g. eating three meals a day) to becoming a chief, if not the chief, purpose of travelling. By extension, gastronomic tourism has become a type of experience that includes activities beyond those offered by the traditional gastronomic experience (i.e. eating in a specific place). It also presents geographical diversity, for it has different characteristics in different regions. The cases studied for this thesis—namely, Taiwan, representing Asia, and Catalonia, representing Europe—belong to different regions, and the gastronomy tourism that takes place, as well as tourists' evaluations of it, present differences as well. That trend has been made clear in this thesis by analysing, for example, activities with the highest ratings on TripAdvisor. The “Others” category is the most popular type of food tour in Taiwan, while shopping is the most popular type of food tour in Catalonia. Tourists express the greatest satisfaction with educational gastronomic tourism (i.e. “learning”) in Taiwan, while gastronomic tourism involving drinking is the most preferred in Catalonia. Similarities also emerged, however, including that gastronomic tourism for learning induces the greatest loyalty to establishments in both regions, for people become accustomed to choosing lively locales to experience gastronomic activities.

Regarding the gastronomic experience of dining in Michelin-starred restaurants, one-star Michelin restaurants are the most popular in both regions. Tourists have the highest satisfaction with two-star Michelin restaurants in Taiwan but three-star Michelin restaurants in Catalonia, while one-star Michelin restaurants have the highest loyalty in both regions. Good dining environment and service are the main reasons for good reviews, whereas poor sanitation, slow service, and poor dining environment are the main reasons for low scores. Those results suggest that Michelin-starred restaurants have changed from being chef-centric to being customer-centric, and enhancing customer satisfaction and loyalty has become more important than improving the restaurant's star rating.

Meanwhile, participating in cooking classes offers entertaining, educational, aesthetic, and escapist experiences, the quality of which, along with personal rewards and social rewards, are important factors that affect customers' satisfaction and loyalty. In terms of tangible aspects (i.e. operand resources), a kitchen classroom and the local market are the two major venues for the classes. The history, cleanliness, and aesthetics of those built spaces are key points that attract participants, along with the convenience and scenery of the locations. Regarding

intangible aspects (i.e. operant resources), a serious but patient and enthusiastic cooking class instructor is not only the soul of the activity but also an important factor for increasing the participants' satisfaction and loyalty. Social interaction and tasting samples from vendors, farmers, and other participants also add unexpected positive elements to the activity. In turn, the experience of gaining personal and social rewards (e.g. enhanced taste, special knowledge and skills, and the development of interpersonal relationships) contributes to improving tourists' quality of life.

As far as gastronomic experience is concerned, the theoretical framework of this thesis allows not only assessing but also understanding the processes behind customer satisfaction and well-being, loyalty, and improved quality of life. In the gastronomic tourism industry/industries, brand building is not the most important goal, for customer satisfaction and loyalty are guarantees for the sustainable operation of enterprises. Added to that, taking into account both tangible and intangible multilevel experiences can not only gain repeat customers but also attract new ones.

Last, the thesis corroborates and provides new data that reinforces the work of other researchers. For instance, in the bibliometric analysis of gastronomic heritage in the 21st century, the thesis found that research on the topic remains in its infancy, which is consistent with previous findings (deMiguel Molina et al., 2016). It has also been found that destinations can be branded with elements of ICH in order to maintain sustainability, which has been a focus of literature in the 21st century, as found by other scholars in studies with different samples (e.g. Kalenjuk Pivarski et al., 2023; Medić et al., 2010; Nilsson, Svärd, et al., 2011). Moreover, research on food experiences using UGC as a source of data has shown that branding a destination's gastronomy products not only helps in marketing but also increases the attractiveness of the destination, as found in previous studies (e.g. Jerez, 2023; Mogollón et al., 2015; Vrasida et al., 2020). On top of that, dietary needs in gastronomic experiences, reflecting the quality of food, the dining atmosphere, and service (e.g. Rita et al., 2023; Şahin et al., 2021), as well as the quality of food and service in Michelin-Starred restaurants culinary experiences, has a significant impact on customer satisfaction, which is also consistent with the findings of most previous studies (e.g. Pacheco, 2018; Vo, 2017).

5. CONCLUDING REMARKS

This thesis has applied four theoretical frameworks in two regions to illuminate the relationship between gastronomy tourism and cultural heritage and to analyse the satisfaction, subjective well-being, and improved quality of life of tourists who have engaged in gastronomic experiences there. In the case of the literature review paper, the methodological framework is based on bibliographic analysis and the frequency cloud of key terms. In the book chapter, the methodology is based on the frequency analysis of keywords. In the other three studies, the research frameworks are founded on two conceptual models adapted to the online gastronomic image: Marine-Roig's destination image construction circle and Morris's semiotic (semantic and pragmatic) aspects of the image. In one study, the aforementioned circle is combined with Grönroos' quality service model and in the other with Stebbins's serious leisure and Charmaz's grounded theory models.

Gastronomy has always been a core purpose of tourism. Along with representing the characteristics of a destination, gastronomic heritage is part of the cultural heritage of a destination. Despite making important contributions to local economies, it has not received much attention from academics. To direct attention to gastronomic heritage, UNESCO has worked to define *gastronomic heritage*, select eligible items of gastronomic heritage, internationalise the selection of those items, and encourage countries to promote gastronomic tourism activities. Thanks to UNESCO's efforts, and the influence of media represented in TV shows, food TV series, celebrity chefs (Kuang, 2017; Mirri et al., 2016), gastronomic heritage has gradually become valued by the tourism industry and academia, as reflected in the growing number of published scientific studies on the topic. Regarding Objective A, the results of the bibliometric research on literature addressing gastronomic heritage in the 21st century show that UNESCO's activities on gastronomic heritage have had a certain impact on the publication of related literature. In addition, the research revealed that the local sustainable management of gastronomic heritage is the main focus of scholars' research. In the end, the preservation of authentic gastronomic heritage by residents of the destination is more influential than that of tourists.

Michelin-starred restaurants have always been synonymous with quality gastronomy and a symbol of prestige. From the five criteria used to award Michelin stars to restaurants, it is evident to see that these standards are primarily focused on food, in other words, standards that are "chef-centric" (Johnson et al., 2005; Ottenbacher & Harrington, 2007). With the change

of consumption habits and younger customers, however, Michelin-starred restaurants seeking sustainable operations have prioritised attending to customers' consumption needs in an all-round way. On that count, to achieve Objective B, the research for this thesis involved a quantitative and content analysis of English-language OTRs on TripAdvisor about meeting SDNs in Taiwan and Catalonia. The results show not only that delicious food is a basic requirement but also that a good dining atmosphere and service are the top reasons for good ratings, whereas poor sanitation, slow service, and poor dining atmosphere are the main reasons for low ratings. The research also revealed that providing different services while respecting SDNs to provide a comprehensive, high-quality customer dining experience has surpassed the goal of improving the Michelin star rating.

Enterprises in the gastronomy tourism industry have always designed the environment for gastronomic experiences according to their business philosophies, and customers can only accept such arrangements one-sidedly. With the advancement of communications technology, however, the establishment of OTR platforms has come to provide consumers with a convenient, unrestricted space for sharing their gastronomic experiences. The enterprises can also obtain customers' suggestions after their experiences as inspiration to make improvements that meet customers' needs. To achieve Objectives C and F, the research conducted for this thesis involved analysing English-language OTRs of gastronomic experiences on TripAdvisor, and the results show that tourists also expressed high satisfaction with gastronomic tourism in the two regions, and different types of gastronomic tourism seem to have different degrees of popularity in the different regions. Beyond that, differences in branding and marketing strategies emerged between the case destinations.

The gastronomic experience of dining at high-end restaurants is a symbol of consumption capacity and status, and a highly satisfying gastronomic experience can increase customers' well-being and improve their quality of life. To accomplish Objective D, the research for the thesis also involved analysing Michelin-starred restaurants with different numbers of stars using English-language OTRs on TripAdvisor as a source of data. The results show that Michelin-starred restaurants with different numbers of stars have significant differences in their branding and marketing, popularity, and customer satisfaction and well-being. The one-star and two-star restaurants are positively correlated with customer satisfaction and loyalty, whereas restaurants with three Michelin stars have lower ratings.

Due to the accelerated pace of life today, the pressures of daily life have increased greatly, as has the need to dine out more often, which has resulted in a decline in health and

quality of life. Cooking at home has become one way for most people to mitigate those problems. Some people even take cooking courses to release the pressure of life and improve their cooking skills and quality of life. On that topic, to achieve Objective E, the research for the thesis additionally involved analysing English-language OTRs on TripAdvisor about cooking classes. The results showed that participants received social rewards through positive social interactions, as well as individual rewards from the activity setting, instructor's attributes, and other participants, which also made the cooking classes in those two regions highly appreciated by customers.

Viral marketing, electronic word-of-mouth marketing, online advertising games, and interactive advertising are currently the main focus of marketing and advertising scholars in the field of virtual communication online (Fong & Burton, 2006). Only recently have researchers begun to study UGC and its impact on marketers, and ever since, the topic has become all the rage (Goldsmith & Horowitz, 2006). For scholars in tourism and hospitality, UGC is a valuable source of big data; even so, it requires considerable computer and statistical skills to obtain and process those data (Martin-Fuentes et al., 2018). Websites that host OTRs have their own coding systems for OTRs, and those coding systems are usually hierarchical; the coding of each OTR is similar to the identification card of the OTR and has its own special meaning. For instance, concerning the OTR code on TripAdvisor, each OTR has three sets of hierarchical codes—the g-code (i.e. indicating the geographic area of the OTR), d-code (i.e. indicating the destination of the OTR), and r-code (i.e. indicating the OTR content)—whose rationality can increase the efficiency of users' searches on the website.

Data for every OTR include the title, posting time, written language, and content, the last of which is the most interesting to researchers because it contains a variety of messages (e.g. customers' satisfaction and loyalty). Content analysis for OTR is a very labour-intensive, time-consuming task, and only limited or superficial analyses can be performed without the assistance of software. Although various kinds of software on the market provide frequency analysis (e.g. KH Coder), natural language processing (e.g. CoreNLP, NLTK, and OpenNLP), qualitative data analysis (e.g. NVivo and QDA Miner; Mariné-Roig, 2022) and other analytical functions, the analysis of a large amount of text continues to require a great deal of human resources and time. In addition, the identification of related words such as feelings, emotions, suggestions, and warnings in OTRs may have different identifications or classifications due to different software or researchers, which may become a source of statistical bias. Last, keywords (e.g. "pickpockets", "theft", and "drug trafficking") for particular research purposes (e.g. travel

safety and crime at tourist destinations) may only account for a small proportion of reviews, and specific word searches need to be formulated into a table, which is convenient for researchers in conducting analysis. Those challenges in research require interdisciplinary (e.g. computer science and information engineering) technical assistance to fully unveil OTRs in all of their fascinating intricacy.

The long-term impact of the COVID-19 pandemic, coupled with the advent of the post-pandemic era of high inflation, on the one hand, and the increased cost of gastronomic experiences, on the other, has reduced the spending power of customers, thereby making price the primary consideration for customers before consumption. For gourmet experience businesses facing the triple pressure of rising costs, price competition, and the need to maintain quality, operating sustainably has become one of the greatest challenges. Without increasing operating costs or reducing price competition, improving service quality is a feasible way to improve the sustainability of operations, from improving the service attitude of personnel and the operation of the experience's environment. Added to the mentioned challenges, Michelin-starred restaurants also face hurdles in upgrading and maintaining stars. Developing new dishes has always been one of the major costs of operating a Michelin-starred restaurant, and it is also a major factor for maintaining or gaining stars and attracting relatively niche customers. Empirical research has also confirmed that restaurants whose prices match their star ratings but whose service quality has not improved accordingly receive relatively low evaluations. Those findings shows that service quality plays a relatively important role in the sustainable operation of the gastronomy industry and requires the most attention from operators seeking to improve their operations.

5.1. Theoretical implications

Applying the hierarchical relationship between three semiotic aspects (i.e. designative, appraisive, and prescriptive) and three pragmatic dimensions of use (i.e. informative, valuative, and incitive) of Morris's (1946) trichotomies, this thesis has analysed online TDI of gastronomic experiences and offers some important findings for destination marketing. Above all, tourist satisfaction and loyalty are indicators of tourists' well-being in the in situ experience. In the model, the popularity of an activity or group (i.e. category) of a gastronomic activity is informative for the designative aspect, whereas customer satisfaction with the gastronomic experience is achieved in evaluative and affective dimensions. Last, consumer loyalty to the gastronomic experience can be inferred through incitive use in the behavioural and attitudinal

dimensions of prescriptive aspects. The model of semiotic aspects facilitates the integration of gastronomic experiences into tourism product design based on customers' perceptions and needs (Lalicic et al., 2021).

The circle of destination image formation proposed by Marine-Roig (2019, 2021) provides a well topology for image formation and can be effectively integrated with other models related to gastronomic experiences , such as gastronomic tourism, Michelin-starred restaurants dining experience, and cooking classes. The combination of different theoretical models not only elucidates the process of forming image in gastronomic experiences but also presents the relative positions of different elements within the gastronomic experience. This visual representation of theoretical models can facilitate the reader's comprehension in theory. Finally, Marine-Roig's (2019, 2021) destination image formation can also be combined with models related to aspects like travel risk perception and travel fear, serving as a future research in this field.

5.2. Practical implications

The thesis has utilised four models to contribute to management, marketing, and decision-making in the food industry. The findings may help practitioners in both the food and tourism industries to improve their promotion and communication strategies, build brand image, attract new tourists, diversify products and activities, and operate sustainably. Attracting customers to gastronomic destinations can be challenging, especially when it comes to foodies. Once a customer arrives at a destination, if the technical and functional quality meets their expectations (e.g. customers' SDNs), then the result will be customer satisfaction (e.g. well-being) and loyalty. High-quality gastronomic activities that include a variety of experiences, whether they offer personal or social rewards, will help to improve the quality of life of the participants and increase visitors loyalty towards destination at the same time.

Destination managers should strive to integrate gastronomic products and activities into the core of destinations instead of positioning them as destinations' subsidiary products. Such actions will help to enable consumers to associate gastronomic products and activities with their destinations and generate a cycle of positive word of mouth after consumption.

5.3. Limitations and future work

The thesis's greatest limitations are that the literature review analysed only English-language literature from two databases, and likewise, only the English-language reviews of

gastronomic experiences published on a single OTR platform were used to conduct case studies in two regions. When analysing the data in future research, researchers should collect comments from more databases and/or travel platforms, including ones in the local language of the case study, which should facilitate comparisons between regions and countries. In addition, other research on gastronomy tourism and luxury gastronomic experiences can be performed using the four theoretical frameworks in various combinations.

6. REFERENCES

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