Programa de Doctorado en Derecho, Sociedad y Turismo

Tesis Doctoral

Puntos de interés turístico

Marco conceptual, relevancia analítica, propuesta metodológica y casos de estudio

PhD Thesis

Points of interest in tourism

Conceptual framework, analytical relevance, methodological proposal, and case studies

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RESUMEN

La presente tesis doctoral está dedicada al estudio de los puntos de interés turístico, aspecto que ha sido escasamente abordado en la literatura científica sobre el turismo. En concreto, este trabajo se centra en analizar cuatro dimensiones relativas a dichos puntos de interés. De este modo, el objetivo de la investigación se centra en analizar el marco conceptual en el que se inserta el término de punto de interés, identificar cuáles son las implicaciones derivadas de su estudio, realizar una propuesta metodológica que permita identificarlos y, finalmente, aplicar la investigación a un caso de estudio que permita comprender la relevancia de la laguna en la investigación que pretende cubrirse. En lo referente al marco conceptual, esta tesis parte de las definiciones de otros conceptos relacionados y propone una definición de punto de interés que se inserte dentro del marco terminológico existente. Además, la relevancia del trabajo realizado es puesta en valor al establecerse las implicaciones que podrían derivar del análisis de los puntos de interés de cara a mejorar la gestión de los destinos turísticos (especialmente para prevenir problemas relacionados con la congestión de espacios turísticos) y a abrir un nuevo campo de trabajo en la investigación turística. La tesis también se centra en identificar técnicas de rastreo para identificar puntos de interés de los destinos, desarrollar una taxonomía que permite clasificarlos y en estudiar un modo de analizarlos de cara a mejorar la comprensión del comportamiento de los turistas durante sus viajes. Por último, para abordar la dimensión práctica de esta investigación, se ha aplicado el análisis de puntos de interés al caso de Lanzarote. La investigación realizada tiene implicaciones para la mejora de la gestión de destinos turísticos, en concreto relativas a la búsqueda de soluciones a problemas relacionados con la congestión de los espacios turísticos. Esta tesis se ha elaborado bajo la modalidad de compendio de artículos, que exige que se hayan publicado un mínimo de tres artículos en revistas científicas indexadas en índices de prestigio. Por ello, la tesis cuenta con un total de ocho estudios, cada uno de ellos representando un trabajo de investigación ya publicado. En concreto, cuatro de las ocho publicaciones que conforman esta tesis son las que permiten cumplir con el requisito exigido por la normativa de la universidad relativa a esta modalidad de tesis, dado que son artículos publicados en revistas indexadas en bases de datos de prestigio. Otros cuatro trabajos incluidos en este documento ofrecen resultados complementarios y permiten alcanzar una visión más completa de la investigación que hemos realizado a lo largo de los últimos años. En el anexo se incluye la primera página o carta de aceptación de los artículos y capítulos de libro incluidos en esta tesis doctoral.

ABSTRACT

This dissertation is based on the study of 'points of interest', which, until recently, have received little attention in tourism research. Specifically, this dissertation focuses on studying four different dimensions related to points of interest. The objectives are to study the conceptual framework in which the concept of points of interest is placed, to describe the implications derived from their study, to propose a methodological approach that identifies and analyses points of interest, and to apply the research to a case study that highlights their relevance and covers some existing gaps in tourism literature. Regarding the conceptual framework, this dissertation analyzes the definitions of other concepts and proposes a definition of points of interest that fits within the existing terminology framework. In addition, the analytical relevance of this research is addressed by indicating the implications that could derive from an analysis of points of interest in order to improve destination management (particularly to prevent problems related to congestion and overtourism) as well as to open a new field of study in tourism research. This dissertation also focuses on proposing tracking techniques as tools to identify points of interest within destinations, as well as a taxonomy for classifying and analyzing these techniques in order to improve understanding of tourists' behavior during their trips. Finally, to address the practical application of this research, the analysis of points of interest has been applied to the case of the island of Lanzarote, Canary Islands. The study has implications related to the improvement of destination management, particularly to solving problems linked to overtourism in tourist spaces. This dissertation has been prepared under the modality of paper compendium that requires a minimum of three papers to be published in scientific journals in prestige indexes. Therefore, the dissertation has a total of eight studies, each of them representing a publication. Four of these publications fulfill the university requirement regarding the minimum number of papers needed to defend a paper compendium dissertation. The other works offer complementary results to achieve a wider scope of the research carried out. The reader can find the first page or acceptance letter of the papers and book chapters used to complete this dissertation.

INTRODUCCIÓN

Según la Organización Mundial del Turismo (UNWTO), el turismo comprende las actividades de las personas que viajan a lugares ubicados fuera de su entorno habitual y que permanecen en ellos durante un máximo de un año consecutivo por motivos de ocio, negocios u otros (UNWTO, 2010). Ello implica que se trata de una actividad basada en el desplazamiento de personas, normalmente a lugares considerados como destinos turísticos con el objetivo de disfrutar de algunos de los recursos de los que dispone el mismo. Dichos recursos se ubican en ciertos lugares del destino turístico visitado (Smallwood, Beckley, & Moore, 2012). A su vez, esto supone que los visitantes, además de desplazarse desde su lugar de origen hasta el destino elegido, también se mueven dentro de dicho destino (McKercher & Zoltan, 2014a; Smallwood, Beckley, Moore, & Kobryn, 2011). El conocimiento de los lugares visitados por los visitantes es de especial importancia para las autoridades locales, pues permite conocer cómo se comportan los turistas en el destino (Smallwood et al., 2012).

El poder conocer cómo se desplazan los visitantes, ha sido de interés para los investigadores durante muchos años (Shaw, Agarwal, & Bull, 2000). A pesar de ello y de las numerosas implicaciones que podrían resultar de este tipo de análisis (Asero, Gozzo, & Tomaselli, 2016; Kádár, 2014), no se han elaborado numerosos estudios sobre cómo consumen los turistas en los destinos turísticos (McKercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011). Según McKercher y Lau (2008), ello se debe a que la recolección y el análisis de datos relativos al movimiento de los visitantes son tareas enormemente complicadas. Sin embargo, este problema está siendo actualmente abordado en mayor profundidad gracias a la posibilidad de acceder a nuevas fuentes de información (Raun, Ahas, & Tiru, 2016). Ello ha supuesto que se hayan comenzado a publicar un creciente número de investigaciones analizando los patrones de desplazamiento de los turistas en los destinos turísticos (Smallwood et al., 2011).

Tradicionalmente, la estadística turística se ha limitado a la recopilación de información a escala nacional relativa a cifras de entradas y salidas de viajeros, número de pernoctaciones, gasto realizado por los turistas extranjeros y otros datos básicos (INRouTe & UNWTO, 2013). De hecho, organismos internacionales como la Organización Mundial del Turismo (UNWTO) o la Oficina Estadística de la Comisión de las Comunidades Europeas (Eurostat) han publicado documentos con recomendaciones y manuales relativos a cómo debe recopilarse estadística turística a escala nacional (UNWTO, 2010). Sin embargo, el turismo es una actividad que se desarrolla de manera significativa solo en ciertas regiones o lugares concretos de algunos países (INRouTe & UNWTO, 2013). Es por ello que, en los últimos años, se ha puesto de manifiesto la necesidad de conocer cómo impacta la actividad turística a escala regional y local (INRouTe & UNWTO, 2013).

La Red Internacional en Economía, Movilidad y Turismo Regional (INRouTe) colabora con la UNWTO en el desarrollo de marcos metodológicos que permitan desarrollar Sistemas de Información Turística Regional (R-TIS) (INRouTe & UNWTO, 2013). Desde INRouTe, se argumenta que la recopilación de este tipo de información estaría sujeta a dos requisitos: la importancia del turismo en la zona y la existencia previa de un conjunto básico de fuentes estadísticas nacionales (INRouTe & UNWTO, 2013). Así, proponen que la información sea empleada para ayudar a la gestión turística inteligente de destinos maduros o consolidados por parte de las organizaciones gestoras de los destinos turísticos. Además, Kádár (2014) señala que la existencia de datos comparables y métodos cuantitativos pueden son útiles en la investigación científica del turismo para lograr definir geográficamente la actividad.

Kádár (2014) afirma que los instrumentos estadísticos sólo pueden medir agentes controlables, pero en el turismo pocos de estos agentes existen. Es posible medir la afluencia de visitantes a lugares de interés turístico que cuentan con algún tipo de sistema de control de las visitas, mediante técnicas como el análisis del número de entradas vendidas en determinadas atracciones turísticas (Zoltan & Masiero, 2012; Zoltan & McKercher, 2015). Sin embargo, los fenómenos más interesantes para ser estudiados y los conflictos relacionados con la actividad turística, suelen tener lugar en los espacios públicos (Kádár, 2014; Shoval & Isaacson, 2007). Además, ciertos estudios indican que el empleo de técnicas de rastreo permite contabilizar los mismos y comparar los flujos de visitantes en dichos espacios (Kádár, 2014; Shoval & Isaacson, 2007).

Tradicionalmente, los diarios de viaje y los mapas fueron utilizados como principal herramienta de recopilación de datos para obtener información sobre los movimientos turísticos de los visitantes (Thornton, Williams, & Shaw, 1997). Pero, según afirma Eurostat (2014), tres cambios recientes han afectado a la generación de estadística turística: el continuo cambio geopolítico; la aparición de un entorno tecnológico basado en nuevas herramientas y dispositivos que son empleados cotidianamente por las personas; y los cambios en el tipo de estadísticas demandadas por los agentes implicados en el sector. Ello ha causado que, en los últimos años, se utilicen métodos de recopilación de información basados en la grabación sistemática del desplazamiento espacial y temporal del visitante durante un período de tiempo determinado (Shoval & Isaacson, 2007).

McKercher y Lau (2008) sugieren que las implicaciones principales de los estudios basados en el rastreo de los turistas son las relativas a la mejora de la gestión de los destinos. Entre otras, inciden especialmente en la capacidad de estos estudios para fomentar la mejora de la planificación de las atracciones a desarrollar en el destino, el desarrollo de núcleos alojativos y el incremento de las conexiones de transporte (McKercher

& Lau, 2008). Este tipo de estudios tiene implicaciones directas e indirectas que ayudarían a reducir las desigualdades existentes en el desarrollo económico de la región, además de a controlar los patrones de migración de la población y a distribuir las rentas y la riqueza generadas por el turismo (Lau, Koo, & Dwyer, 2017). El seguimiento de los visitantes permite también conocer la estacionalidad no solo del destino, sino de las atracciones, puntos de interés e itinerarios del mismo (Raun et al., 2016). Incluso es posible identificar la ubicación de atracciones turísticas específicas que no eran conocidas por los gestores de los destinos turísticos (Alawwad et al., 2016). Comprender y medir los movimientos cotidianos de los visitantes también es una tarea importante en otras áreas de gestión como en el transporte, la fiscalidad, las administraciones públicas, etc. (Raun & Ahas, 2016).

El rastreo de los visitantes y la generación de estadística a escala local a partir de ello es de relevancia para el objeto de estudio de esta investigación: los puntos de interés turístico. A pesar de no haber sido previamente definidos antes de la realización de este estudio, podrían definirse en una primera aproximación como aquellos lugares visitados por los turistas durante sus viajes a un destino turístico. Las técnicas de rastreo de los visitantes permiten, por tanto, identificar los puntos de interés de un destino y esta investigación pretende profundizar en la relevancia que estos elementos tienen y en por qué deberían ser estudiados en mayor profundidad.

Presentación de los trabajos realizados

Para la presentación de esta tesis doctoral se ha optado por la modalidad de tesis por compendio de publicaciones. La presentación de una tesis bajo esta modalidad requiere de varios requisitos formales, recogidos en el Artículo 29 de la Normativa de presentación y Lectura de Tesis de la Universidad de La Laguna. Entre estos requisitos figuran el disponer de la aprobación del director de la tesis; la inclusión de una introducción en la que se presenten los trabajos realizados y se justifique la unidad temática de los mismos; incluir un resumen global de los objetivos, metodología, resultados, discusión y conclusiones al final de la tesis; e incluir el texto completo de los artículos publicados como parte de la tesis. Además, la normativa de la Universidad de La Laguna exige que los doctorandos “tengan publicados o aceptados para su publicación con fecha posterior a la de su matriculación en el programa de doctorado, un número mínimo de tres artículos con unidad temática en revistas científicas que figuren en la relación de revistas del Journal Citations Reports o estén indexadas en bases de reconocido prestigio, tales como Scopus, Latindex o similares, o sean de especial relevancia para su área o áreas afines, y que tengan relación con lo especificado en su plan de investigación”. Por ello, en esta sección se procede a explicar al lector cómo se ha desarrollado esta tesis, en qué consisten los trabajos publicados y cómo se relacionan entre sí.

Esta tesis por compendio está compuesta por ocho publicaciones. Cinco de estas publicaciones son artículos científicos, mientras que tres de ellas son capítulos de libros. De estas ocho publicaciones, cuatro cumplen con los requisitos de calidad necesarios establecidos por la Universidad de La Laguna para presentar una tesis por compendio de artículos (deben ser artículos científicos publicados en revistas indexadas en bases de reconocido prestigio). A pesar de que la normativa no acepta ni excluye la posibilidad de utilizar capítulos de libros para la presentación de una tesis por compendio de artículos, los tres capítulos que se adjuntan como publicaciones también están publicados en libros indexados en bases de datos de prestigio. Uno de los cinco artículos presentados no se encuentra aún publicado, a pesar de que actualmente está enviado para su revisión y posible posterior publicación en una revista que cumpliría con los requisitos establecidos por la normativa. En cualquier caso, se cumple con el requisito del mínimo de tres artículos publicados en revistas indexadas en bases de datos de prestigio al contar con cuatro artículos que cumplen con este requisito. En la siguiente tabla se presenta un resumen con el título de cada publicación, el soporte en el que está publicado y las bases de datos en las que están indexados.

Tabla 1. Lista de publicaciones que componen la presente tesis doctoral

Tipo de publicación	Título	Publicación	Índices de relevancia
Artículo 1	Los puntos de interés turístico: Relevancia analítica, propuesta metodológica y caso de estudio	*PASOS: Revista de Turismo y Patrimonio Cultural*	WoS (Emerging Sources Citation Index) Latindex
Capítulo de libro 1	Point of interest	*Encyclopedia of Tourism Management and Marketing*	SPI (Q1)
Artículo 2	What is the meaning of most used location-based concepts in tourism research?	Pendiente de publicación	
Artículo 3	How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques	*European Journal of Tourism Research*	SCOPUS (Q3)
Capítulo de libro 2	Application of tracking tools in tourism and hospitality management	*Emerald Handbook of ICT in Tourism and Hospitality*	SPI (Q1)
Artículo 4	Why do tourists differ in their likelihood to visit attractions? The case of Lanzarote	*International Journal of Tourism Research*	JCR (Q2) SCOPUS (Q1)
Artículo 5	Preventing overtourism by identifying the determinants of tourists' choice of attractions	*Sustainability*	JCR (Q2) SCOPUS (Q2)
Capítulo de libro 3	Tourist tracking techniques as a tool to understand and manage tourism flows	*Overtourism: Causes, Implications and Solutions*	SPI (Q1)

La presente investigación se inicia a partir del Trabajo de Fin de Máster del Máster en Dirección y Planificación del Turismo de la Universidad de La Laguna defendido por el autor de esta tesis. Dicho trabajo se titula "Los puntos de interés turístico relevancia analítica, propuesta metodológica y caso de estudio" y fue galardonado con el Premio Extraordinario al Mejor Trabajo de Fin de Máster de Turismo de España del curso 2015/16. Fruto de este premio, la investigación fue adaptada a forma de artículo y publicado en *PASOS: Revista de Turismo y Patrimonio Cultural*. El Artículo 1 de la presente tesis contiene el trabajo publicado en esta revista y sirve como punto de inicio para repasar los objetivos y primeros resultados de la investigación realizada. Así, los estudios siguientes desarrollan y profundizan los resultados que este primer artículo contiene.

El Capítulo de libro 1 consiste en una publicación que ha sido aceptada para su publicación como entrada en *Ecyclopedia of Tourism Management and Marketing*. Como tal, consiste en un breve debate de qué se ha considerado previamente como punto de interés turístico y en una propuesta ejemplificada definiendo qué es un punto de interés. Además, en este capítulo se expone por qué es relevante estudiar los puntos de interés de un destino y se apunta al desarrollo futuro en materia de investigación de puntos de interés.

El Artículo 2 ayuda a justificar de manera empírica la definición del concepto de "punto de interés" recogida en el primer artículo. Este artículo aún no ha sido aceptado para su publicación, aunque está enviado en proceso de revisión. El artículo presenta un análisis bibliométrico del uso de las diferentes definiciones dadas en los artículos más citados en la investigación turística a cuatro conceptos frecuentemente empleados en el análisis del turismo a escala local: destino turístico, atracción turística, alojamiento turístico y punto de interés. El objetivo de este artículo es establecer las diferencias conceptuales existentes entre estos cuatro conceptos y consolidar el concepto de "punto de interés" como un elemento más de la investigación turística que merece ser estudiado.

En el Artículo 3, se realiza una revisión bibliográfica acompañada de un análisis bibliométrico para recopilar información sobre técnicas de rastreo de los turistas, la evolución del número de artículos que las emplean a lo largo de los años y la manera en que los investigadores tienden a combinarlas para obtener una mayor cantidad de información. El artículo profundiza en diferentes técnicas y herramientas que pueden emplearse para conocer cómo se desplazan los visitantes y recopilar información de los lugares que visitan. Este artículo ha sido publicado en *European Journal of Tourism Research*. Este mismo tema también es abordado en el Capítulo de libro 2. Sin embargo, este capítulo se centra en concretar cuáles son las ventajas para los destinos derivadas de la utilización de técnicas de rastreo de turistas. La investigación presentada en este estudio ha sido aceptada para su publicación como capítulo del libro *Emerald Handbook of ICT in Tourism and Hospitality*.

En el Artículo 4 y el Artículo 5 se profundiza en el análisis de los determinantes de la visita a puntos de interés. Esta cuestión ya había sido abordada durante el Artículo 1, pero en estos estudios se profundiza en la misma al analizar una mayor cantidad de variables y emplear modelos econométricos (modelos de elección discreta) para realizar el estudio. En concreto, el Artículo 4 está publicado en *International Journal of Tourism Research* y presenta un estudio más general al analizar únicamente qué características de los turistas explican que visiten al menos uno de los 11 lugares estudiados. Sin embargo, este estudio explica en mayor profundidad cómo funciona la metodología empleada y realiza un análisis más exhaustivo de los resultados alcanzados. Por otro lado, el Artículo 5 presenta un estudio más específico al centrarse en las características diferenciadoras de los turistas que visitan cada uno de los 11 puntos de interés estudiados en el estudio anterior. A pesar de ello, y debido a la gran cantidad de datos, el análisis que se realiza no se centra tanto en estudiar en profundidad los resultados obtenidos para cada uno de los lugares estudiados. En su lugar, este estudio pretende mostrar la capacidad de este tipo de datos para establecer diferencias en los patrones de visita de los turistas. Este trabajo está publicado en *Sustainability* y la relevancia de los resultados alcanzados está justificada al permitir generar estrategias destinadas a redistribuir los flujos turísticos del destino para combatir problemas de congestión.

Al realizar el Artículo 5 pudo comprobarse que el estudio de los puntos de interés de un destino tiene una estrecha relación con los estudios actuales orientados a resolver el creciente problema de la masificación de los destinos turísticos (conocido como *overtourism* en inglés). Por ello, se presenta en esta tesis el Capítulo de libro 3, que relaciona la importancia de utilizar técnicas de rastreo por parte de los gestores de los destinos para recopilar información con la que resolver problemas de masificación. La publicación relacionada con este estudio está contenida como capítulo en el libro *Overtourism: Causes, Implications and Solutions*.

Figura 1. Resumen gráfico de los estudios realizados para presentar esta tesis doctoral

A pesar del orden en el que se han presentado los estudios de esta tesis, las publicaciones no han sido realizadas en el mismo orden en el que se han presentado. Sin embargo, se ha considerado que el orden elegido para presentar cada uno de los estudios era más apropiado al permitir desarrollar la temática elegida siguiendo un patrón lógico. Así el primer artículo presenta un estudio general del tema a tratar, mientras que la segunda, tercera y cuarta publicación profundizan en la conceptualización y defensa teórica del concepto estudiado. El sexto y séptimo artículo sirven como propuesta práctica y aplicada de la investigación y la quinta y octava publicación sirven para justificar las implicaciones del estudio realizado.

Justificación de la unidad temática

En el presente trabajo se intenta abordar un ámbito de estudio escasamente trabajado en la investigación científica del turismo, los puntos de interés turístico. Debido a ello, no abunda la bibliografía en la que se mencione a los mismos, no habiéndose llegado a definir qué son ni cómo pueden contribuir a la mejora de la gestión de la actividad turística a escala local. Por ello, es necesario que en este estudio se definan qué son los puntos de interés turístico, cómo pueden identificarse y qué utilidad puede generar su estudio. Así, los objetivos del conjunto de esta investigación son: la definición del concepto de punto de interés turístico, el análisis de diferentes herramientas para identificarlos, la aplicación práctica de estas herramientas, el estudio de los determinantes que condicionan la visita a estos lugares por parte de los visitantes, la exposición de diferentes mejoras para la gestión de la actividad que podría conllevar su estudio y la redacción de un listado de limitaciones del estudio llevado a cabo.

A la hora de poder definir qué es un punto de interés turístico, será necesario emplear, a su vez, una serie de conceptos asociados a los mismos y a otros elementos de la investigación en curso. Por ello, se deberán definir también otra serie de términos a los que se hará mención durante la investigación. Debido a que existen otros conceptos ampliamente aceptados por investigadores del turismo que son similares al que pretende introducirse en este estudio, se deberá hacer especial incidencia en las diferencias que presenta este nuevo concepto con respecto a otros ya estudiados. Además, se deberá justificar la relevancia del análisis de los puntos de interés turístico como elemento capaz de mejorar la toma de decisiones por parte de los gestores de los destinos.

Para poder analizar diferentes herramientas con las que sería posible identificar puntos de interés, se deberá explicar qué son las mismas y cómo deben emplearse. Por ello, otro objetivo del trabajo consiste en elaborar un listado de herramientas con las que podrían identificarse puntos de interés, explicando en qué consisten las mismas y cómo deben aplicarse. Además, se deberá indicar qué información es posible obtener mediante la aplicación de cada una ellas. También es importante destacar las ventajas y desventajas de su utilización, haciendo un especial énfasis en los dilemas éticos y el coste monetario a los que están sujetas. Por último, se deberá elaborar una clasificación de puntos de interés para poder agrupar los lugares identificados en categorías y facilitar su análisis.

Con el objetivo de comprobar la aplicabilidad de las técnicas, será necesaria la elección de una serie de casos de estudio. Se ha tomado como referencia el caso de Lanzarote como destino turístico en el que centrar la aplicación de la metodología elaborada.

El objetivo de estudiar los determinantes que condicionan la visita de puntos de interés por parte de los visitantes es poder llegar a conocer cuáles son los lugares que es más probable que visite un turista al viajar al destino. Sabiendo esto, se pueden llevar a cabo acciones encaminadas a, entre otros fines, captar a los segmentos interesados en los mismos para poder incrementar la afluencia de visitantes en estos lugares. El objetivo es analizar cómo influyen ciertas características socioculturales, motivacionales y del viaje en los patrones de visita de los turistas. Además, se pretenden estudiar ciertas correlaciones entre estas características para comprobar si existe alguna relación entre las mismas.

Al tratarse de un ámbito de estudio que cuenta con escasos trabajos previos en la investigación científica, debe probarse la utilidad de los puntos de interés turístico como herramienta con la que poder mejorar la gestión de la actividad turística, principalmente a escala local. Es por ello que uno de los objetivos del trabajo es la enumeración de posibles mejoras que podrían implementarse, enfocadas tanto a la gestión pública de los destinos como a la gestión de empresas privadas y la generación de productos turísticos. De nuevo, será necesario enfatizar qué mejoras podrían obtenerse de la aplicación de cada una de estas técnicas y qué dificultades entraña su implantación.

Un último objetivo que alcanzar con este trabajo consiste en la redacción de un listado de limitaciones del estudio llevado a cabo. La necesidad de hacer esto radica en que se pretende que la investigación pueda ser aplicada en otros destinos y, para ello, se han de conocer las limitaciones de este tipo de estudios. Por ello, además de las limitaciones, se deberán indicar una serie de orientaciones que faciliten la aplicación de la metodología utilizada en otros destinos.

INTRODUCTION

According to World Tourism Organization (UNWTO), tourism includes the activities of people who travel to places outside their usual environment during a year or less for leisure, business or other purposes (UNWTO, 2010). This implies that tourism is an activity based on the movement of people to tourism destinations with the aim of enjoying some of the resources available within them. These resources are located in certain places of the destination (Smallwood, Beckley, & Moore, 2012), so that tourists, in addition to moving from their place of origin to the chosen destination, must also move within the destination (McKercher & Zoltan, 2014; Smallwood, Beckley, Moore, & Kobryn, 2011). Knowledge of the places visited by tourists is particularly important for the government and local authorities, as it shows how tourists behave in the destination (Smallwood et al., 2012).

Knowing how tourists move has been of interest to researchers for many years (Shaw, Agarwal, & Bull, 2000). Despite this and the numerous implications of this type of analysis (Asero, Gozzo, & Tomaselli, 2016; Kádár, 2014), few studies on how tourists move within destinations have been published (McKercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011). According to McKercher and Lau (2008), this is because the collection and analysis of data related to tourists' movements are complicated tasks. However, this problem is currently being addressed in greater depth thanks to the possibility of accessing new sources of information (Raun, Ahas, & Tiru, 2016). This has meant that a growing number of studies analyzing tourist displacement patterns have been published (Smallwood et al., 2011).

Traditionally, tourism statistics have been limited to the collection of information at national level regarding the number of passenger arrivals and departures, number of overnight stays, expenses incurred by foreign tourists and other basic data (INRouTe & UNWTO, 2013). In fact, international organizations such as UNWTO or the Statistical Office of the Commission of the European Communities (Eurostat) have published documents with recommendations and manuals on how tourism statistics should be collected at national level (UNWTO, 2010). However, tourism is an activity that only occurs significantly in certain regions or specific places in some countries (INRouTe & UNWTO, 2013). That is why, in recent years, the need to know how tourism activity impacts regions and local communities has increased (INRouTe & UNWTO, 2013).

The International Network on Economy, Mobility and Regional Tourism (INRouTe) collaborates with UNWTO in the development of methodological frameworks that develop Regional Tourist Information Systems (R-TIS) (INRouTe & UNWTO, 2013). From INRouTe, it is argued that the collection of regional and local information should be subject to two requirements: the importance of tourism in the area and the prior existence of a basic set of national statistical sources (INRouTe & UNWTO, 2013). They propose that such information can be used to promote appropriate management of tourism in mature or consolidated destinations. In addition, Kádár (2014) points out that the existence of comparable data and quantitative methods can be useful in tourism research to geographically define the activity. Thus, it seems to be important to be able to compile data regarding the mobility patterns and behavior of tourists within destinations.

Kádár (2014) also states that statistical instruments can only measure controllable agents, but in tourism few of these agents exist, so traditional data collection tools might not be suitable to complete this task. It is possible to measure the flow of tourists to the most visited places that have some type of control system to monitor tourist arrivals, using techniques such as the analysis of the number of tickets sold at certain tourist attractions (Zoltan & Masiero, 2012; Zoltan & McKercher, 2015). However, the most interesting tourism phenomena and conflicts to be studied usually take place in public spaces (Kádár, 2014; Shoval & Isaacson, 2007). Therefore, it seems that the use of tracking techniques can provide statistics about tourists' behavior and compare characteristics of tourist flows in different spaces (Kádár, 2014; Shoval & Isaacson, 2007).

Traditionally, travel journals and maps were used as the main data collection tools to obtain information on tourist movements (Thornton, Williams, & Shaw, 1997). But, according to Eurostat (2014), three recent changes have affected the generation of tourism statistics: continuous geopolitical change; the emergence of a technological environment based on new tools and devices that are used daily by people; and changes in the type of statistics demanded by Agents involved in the sector. This has meant that current data collection methods are now being based on the systematic recording of visitors' spatial and temporal displacements over a certain period of time (Shoval & Isaacson, 2007).

McKercher and Lau (2008) suggest that the main implications of studies based on tourist tracking are related to improving the management of tourism destinations. Among others, tourist tracking has a special impact on the capacity of these studies to improve the planning of attractions in destinations, the development of housing centers and increases in transport connections (McKercher & Lau, 2008). This type of study has direct and indirect implications that could help reduce inequalities in the economic development of a region, in addition to controlling population migration patterns and distributing income and wealth generated by tourism (Lau et al., 2017). Visitor monitoring also highlights the seasonality not only of the destination, but of attractions, points of interest and itineraries (Raun et al., 2016). It is even possible to identify locations visited by tourists that were not known by destination managers (Alawwad et al., 2016). Understanding and measuring the daily movements of visitors is also an important task in other areas of management, such as transport, taxation, public administration, among others (Raun & Ahas, 2016).

Tourist tracking and the generation of statistics at a local level is relevant to the main objective of this research: points of tourist interest. Despite still not being precisely defined, points of interest are basically the places visited by tourists during their trip to a tourist destination. Tracking techniques allow us to identify points of interest in a destination. This dissertation aims to investigate the relevance of these points and why they should be studied in greater depth.

Explanation of the works presented

For the presentation of this doctoral thesis, the compendium of publications modality has been chosen. The presentation of a thesis under this modality requires several formal requirements, included in Article 29 of the Thesis Presentation and Reading Regulations of Universidad de La Laguna. Some of these requirements include having the approval of the supervisor of the dissertation to carry out this type of thesis; the inclusion of an introduction in which the works carried out are presented and the thematic unit of them is justified; the inclusion of a global summary of the objectives, methodology, results, discussion and conclusions at the end of the dissertation; and the inclusion of the full text of the articles published as part of the dissertation. In addition, the regulation of Universidad de La Laguna requires that PhD students have a minimum of three articles within the thematic unit published (or accepted for publication) after the date of their enrollment in the doctoral program in scientific journals indexed in Journal Citations Reports or in other recognized and prestigious indexes (such as Scopus, Latindex or similar) or other publications with special relevance for the area of the dissertation. Therefore, this section explains how this dissertation has been developed, what the published works consist of and how they relate to each other.

This compendium dissertation is composed of eight different publications. Five of these publications are scientific papers, while three of them are book chapters. Four out of these eight publications meet the necessary quality requirements established by the University of La Laguna to present a compendium dissertation (they must be scientific articles published in journals indexed in databases of recognized prestige). Although the regulations do not accept or exclude the possibility of using book chapters for the presentation of this type of dissertation, the three chapters that are attached as publications are also published in books indexed in prestigious databases. One of the articles presented has not been published yet, though it is been submitted for review and possible subsequent publication in a journal that would meet the requirements established by the regulations. In any case, the minimum requirement of three articles published in journals indexed in prestigious databases is met by having four articles that meet this requirement. The following table presents a summary with the title of each publication, the journal or book in which they are published and the databases in which they are indexed.

Table 1. List of publications in this dissertation

Type of publication	Title	Publication	Relevant indexes
Journal article 1	Los puntos de interés turístico: Relevancia analítica, propuesta metodológica y caso de estudio	*PASOS: Revista de Turismo y Patrimonio Cultural*	WoS (Emerging Sources Citation Index) Latindex
Book chapter 1	Point of interest	*Encyclopedia of Tourism Management and Marketing*	SPI (Q1)
Journal article 2	What is the meaning of most used location-based concepts in tourism research?	Submitted to a journal	
Journal article 3	How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques	*European Journal of Tourism Research*	SCOPUS (Q3)
Book chapter 2	Application of tracking tools in tourism and hospitality management	*Emerald Handbook of ICT in Tourism and Hospitality*	SPI (Q1)
Journal article 4	Why do tourists differ in their likelihood to visit attractions? The case of Lanzarote	*International Journal of Tourism Research*	JCR (Q2) SCOPUS (Q1)
Journal article 5	Preventing overtourism by identifying the determinants of tourists' choice of attractions	*Sustainability*	JCR (Q2) SCOPUS (Q2)
Book chapter 3	Tourist tracking techniques as a tool to understand and manage tourism flows	*Overtourism: Causes, Implications and Solutions*	SPI (Q1)

This research started as a Final Project of the Master in Tourism Management and Planning of Universidad de La Laguna defended by the author of this dissertation. This work was entitled "The points of tourist interest analytical relevance, methodological proposal and case study" and received the Extraordinary Award for the Best Final Master Project in Tourism of Spain during 2015/16 academic year. As a result of this award, the work was adapted as an article and published in *PASOS: Revista de Turismo y Patrimonio Cultural*. Journal article 1 of this dissertation contains the work published in this journal and serves as a starting point to show the first results of the research carried out. Thus, following studies have developed and improved the results contained in this first paper.

Book chapter 1 consists of a publication that has been accepted as an entry in the *Encyclopedia of Tourism Management and Marketing*. As such, it consists of a brief discussion of what has previously been considered as a point of interest and an exemplified proposal defining what a point of interest is. In addition, this chapter explains why it is relevant to study points of interest within destinations, and it highlights future research regarding points of interest.

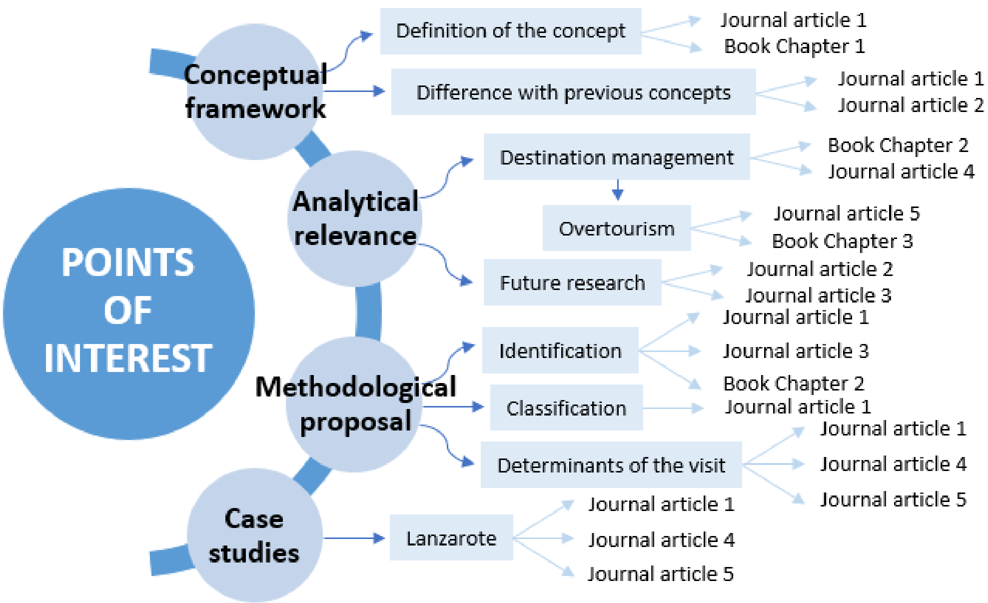
Journal article 2 helps to empirically justify the definition of the concept of ‘point of interest’ elaborated during the first publication. This second paper has not been published or accepted for publication yet. However, it is currently being reviewed to be considered for publication. This study presents a bibliometric analysis of the most frequent definitions given by the most cited articles in tourism and hospitality research to four location-based concepts commonly used in this field of study: tourism destination, tourist attraction, tourist accommodation and point of interest. The objective of this paper is to establish the conceptual differences between these four concepts and consolidate the concept of ‘point of interest’ in order to propose it as an element of tourism research that deserves to be more widely studied.

In Journal article 3, a bibliographic review is carried out accompanied by a bibliometric analysis to gather information on tourist tracking techniques, the evolution of the number of articles that have used them over the years and the way in which researchers tend to combine them to get more information. The article investigates different tools that can be used to identify how visitors move and to gather information on the places they visit. This paper has been published in *European Journal of Tourism Research*. This same issue is also addressed in Book Chapter 2. However, this chapter focuses on specifying the advantages for destinations derived from the use of tourist tracking techniques. This research has been accepted for publication as a book chapter in *Emerald Handbook of ICT in Tourism and Hospitality*.

Journal article 4 and Journal article 5 provide analyses of the determining variables explaining visits to points of interest on the island of Lanzarote. This issue is also addressed in Journal article 1, but these studies delve deeper into this topic by analyzing a greater number of variables and using econometric models (discrete choice models) to conduct the study. Journal article 4 is published in *International Journal of Tourism Research* and presents a more general study by analyzing only which variables explain visits made by tourists to at least one of the 11 places studied. However, this study explains in greater depth how the methodology used works and performs a more thorough analysis of the results achieved. On the other hand, Journal article 5 presents a more detailed study as it focuses on the differentiating characteristics of tourists visiting each of the 11 points of interest studied in the previous publication. Despite this, and due to the large amount of data analyzed, the findings of this publication are not analyzed as deeply as in the previous one. Instead, this study aims to show how the data employed can be used to establish differences in tourists’ visiting patterns. This study is published in *Sustainability* and the relevance of the results is justified by identifying strategies to redistribute tourist flows in the destination.

When carrying out the research contained in Journal article 5, it was found that the study of the points of interest of a destination has a close relationship with current studies aimed at solving the growing problem of overtourism within tourism destinations. For this reason, Book chapter 3 is presented in this dissertation. It relates the importance of using tracking techniques by destination managers to collect data to identify congested areas and solve overtourism issues. The publication related to this study is contained as a chapter in the book *Overtourism: Causes, Implications and Solutions*.

Figure 1. Graphical abstract of the studies carried out to defend this dissertation



Although this dissertation presents its publications in the order mentioned, the studies related to each publication have not been made in the same order in which they are presented. However, the order chosen to present each publication is more appropriate as it develops the topic in a more logical way. Thus, the first publication presents a general study of the topic, while second, third and fourth publications investigate in greater depth the conceptualization and theoretical defense of the concept studied. The sixth and seventh studies serve as practical and applied research proposals, and the fifth and eighth publications provide justification of the implications of the topic under study.

Justification of the thematic unity

This dissertation addresses tourism points of interest; a field of tourism research that has received little attention. Consequently, there are not many studies in which they are mentioned nor even defined in terms of what they are or how they can contribute to the improvement of tourism management on the local scale. Therefore, it is necessary to define what points of interest are, how they can be identified and the implications of their study. Thus, the objectives of this dissertation involve defining the concept of 'point of interest', compiling a range of tracking tools to identify them, applying these tools, studying the determinants that condition visits to these places, explaining the implications of this topic for tourism management and explaining the limitations of current tracking techniques.

In order to define what a point of interest is, it is necessary to use a series of concepts associated with it that are frequently used by tourism researchers. As these other concepts are widely accepted by tourism researchers, they could be confused with points of interest, thus, special emphasis is placed on the differences presented by this new concept with respect to previous terms used in tourism and hospitality research. In addition, the relevance of the analysis of points of interest as a new element of study capable of improving decision-making by destination managers must be justified.

In order to analyze different tools to identify points of interest, tracking techniques must be explained. Therefore, another objective of this dissertation is to compile a list of tools that can identify points of interest, to explain what they consist of and how to apply them. In addition, this research highlights the possible information that could be obtained from the study of points of interest. It is also important to explain the advantages and disadvantages of their use, with special emphasis on the ethical and legal dilemmas linked to them. Finally, a classification of points of interest should be developed to be able to group the places identified in categories and facilitate their analysis.

To verify the applicability of the techniques, the selection of a series of case studies is necessary. The island of Lanzarote was chosen as the destination on which to focus the application of the methodology developed.

Another objective is studying the determinants that condition visits to points of interest, as this identifies which places tourists with certain characteristics are more likely to visit when traveling. Knowing this, actions can be carried out aimed at, among other purposes, capturing the segments interested in these places to increase the flow of visitors to these places. The objective is to analyze how certain sociocultural motivational and trip characteristics influence tourists' visiting patterns. In addition, it is intended to generate certain correlations between these characteristics to check if there are relationships between them.

As it is a field of study that has few previous works in the literature, the usefulness of analyzing points of interest as a tool to improve tourism management must be justified. That is why one of the objectives of this study is the enumeration of possible improvements that could be implemented, focused on the public management of destinations, the management of enterprises and the generation of new tourism products. Again, it is necessary to emphasize what improvements could derive from the application of each technique involved and what difficulties entail in their implementation.

A final objective to achieve is pointing out the limitations of tracking techniques for the study of points of interest. This is necessary as this research may be applied in other destinations by future researcher who will need to know some of the gaps they may have to face. Therefore, in addition to the limitations, a series of suggestions that facilitate the application of the methodology in other destinations should be indicated.

CHAPTER 1

A general overview. Analytical relevance of the concept of *point of interest* and a case study

Journal article 1. **Los puntos de interés turístico: Relevancia analítica, propuesta metodológica y caso de estudio**

Este capítulo se presenta como un estudio piloto en el que se realiza una primera aproximación a la definición de punto de interés y al análisis de los determinantes que condicionan la visita a la isla de Lanzarote mediante tablas de contingencia. Además, también se identifican los puntos de interés de Lanzarote a través de diversas técnicas de rastreo. Tras su identificación, el capítulo propone una clasificación de puntos de interés en Canarias y clasifica los lugares de la isla de Lanzarote previamente identificados.

This chapter is presented as a pilot study in which a first approach to the definition of a point of interest is made. Moreover, the chapter presents a first analysis of the determinants that condition the visit to points of interest through contingency tables. In addition, points of interest in Lanzarote are also identified through the use of various tracking techniques. After their identification, the chapter proposes a classification of points of interest in the Canary Islands and classifies the places identified.

Journal article 1. **Los puntos de interés turístico: Relevancia analítica, propuesta metodológica y caso de estudio**

This work is published in *PASOS: Revista de Turismo y Patrimonio Cultural* (2017) 15(4): 979-1000.
https://doi.org/10.25145/j.pasos.2017.15.066

Resumen

Los puntos de interés turístico son aquellos lugares que cuentan con una serie de recursos que motivan la atracción de visitantes hacia los mismos. El conocimiento de los puntos de interés turístico de un destino ayuda a analizar las actividades que realizan los turistas en el mismo y los patrones de movilidad llevados a cabo para ello. Los objetivos del trabajo son elaborar una serie de conceptos relacionados con los puntos de interés y crear una clasificación de dichos puntos que sea aplicable a Canarias. Además, se identifican los puntos de interés de un caso de estudio, la isla de Lanzarote. Se han empleado datos del ISTAC para saber cómo influyen las características de los visitantes en la creación de itinerarios. Los resultados alcanzados tienen interés desde la perspectiva del desarrollo de ciertas zonas, la movilidad de los turistas y la creación de productos turísticos.

Palabras clave: puntos de interés turístico, movilidad, itinerario turístico, rastreo de turistas, Canarias

Abstract

Tourist interest points are places that have a set of resources which attract visitors towards them. The knowledge of the tourist attractions of a destination helps analyzing the activities carried out by the tourists and the mobility patterns carried out for it. The objectives of the paper are developing a set of concepts and definitions related to the points of interest and creating a classification of them applicable to the Canary Islands. In addition, tourist interest points of Lanzarote have been identified and classified. ISTAC data have been used to know how the characteristics of visitors influence in creating itineraries. The results obtained are interesting from the perspective of the development of certain areas, the mobility of tourists and the creation of tourist products.

Key words: tourist points of interest, mobility, tourist itinerary, tracking tourists, Canary Islands

Introducción

Los puntos de interés turístico son aquellos lugares de un destino turístico a los que se dirigen los visitantes para poder realizar ciertas actividades o disfrutar de unos recursos determinados. Ello genera una serie de desplazamientos por parte de los visitantes dentro del destino. El conocimiento de estos desplazamientos posibilita el análisis de los movimientos que realizan los turistas dentro del destino por parte de los gestores del mismo. A pesar de ello, no se trata de un ámbito de estudio recurrente en la investigación científica del turismo, por lo que no se han elaborado estudios variados en la materia. Además, las investigaciones realizadas se han centrado en el análisis de los recursos que motivan la visita y no en los lugares a los que se dirigen los visitantes.

En este trabajo se han elaborado una serie de conceptos para definir términos que no habían sido establecidos previamente (UNWTO, 2010). Con ello se pretende que puedan ser utilizados como referencia en futuras investigaciones. Los conceptos creados permiten diferenciar distintos tipos de recursos y puntos de interés, estableciendo cómo han de ser analizados y sus características. En este estudio se toma la isla de Lanzarote como caso práctico a partir del que desarrollar la investigación. Por ello, se han identificado los puntos de interés de la isla y se explica la metodología llevada a cabo para su recopilación. Tras ello, se ha elaborado una taxonomía de puntos de interés turístico de Canarias que se ha basado en la realizada por McKercher (2016) y se han clasificado los puntos identificados.

La recopilación de los puntos de interés de la isla ha permitido diferenciar una serie de zonas en las que abundan los mismos. Ello posibilita el conocer dónde se concentra la actividad y permite comparar estas zonas con los microdestinos delimitados por el Instituto Canario de estadística (ISTAC). Además, se analizan las características de los visitantes de las que tiene información el ISTAC y se relacionan con sus patrones de visita de algunos puntos de interés. A pesar de que la encuesta es la herramienta utilizada actualmente por el ISTAC para la recopilación de la información, en el trabajo se explica su ineficacia para la recolección de información sobre los puntos de interés. Por ello, se proponen una serie de herramientas que, combinadas, posibilitarían la recogida de los datos deseados.

Al final del trabajo se señalan las limitaciones que presenta el estudio realizado. Además, se explica la problemática asociada a la utilización de herramientas de rastreo de los visitantes, al ser necesario el consentimiento de los visitantes analizados para poder ser empleadas. También se deja constancia de las limitaciones de las distintas técnicas estudiadas y la necesidad de combinarlas con el fin de poder recabar la información deseada. Sin embargo, se exponen algunas de las múltiples implicaciones que conllevaría la puesta en marcha de estas medidas, tanto para los agentes públicos como privados. Además de los avances que generaría en la investigación turística.

Antecedentes

El turismo es una actividad que implica el desplazamiento de personas a un destino con motivo de disfrutar de uno o varios de los recursos de los que dispone el mismo. Dichos recursos se ubican en ciertos lugares del destino turístico visitado. Dichos lugares son por ello conocidos como puntos de interés turístico. El conocimiento de los puntos de interés turístico con los que cuenta un destino es de especial importancia para la Administración Pública y las autoridades locales, pues permite conocer cómo se mueven los visitantes, cómo actúan y cómo se desenvuelven en la zona. Sabiendo esto, se pueden poner en marcha medidas que permitan redistribuir los flujos de turistas por vías diferentes con el fin de reducir la afluencia de visitantes a ciertos recursos y fomentar la actividad en otros (Smallwood, Beckley y Moore, 2012).

Los estudios de turismo necesitan de datos comparables y métodos cuantitativos para poder definir geográficamente la actividad. Los instrumentos estadísticos solo pueden medir agentes controlables, pero en el turismo pocos de estos agentes existen. Podemos medir la afluencia de visitantes a lugares de interés turístico que cuentan con algún tipo de sistema de control de las visitas, como los museos, pero el fenómeno más interesante para ser estudiado y los conflictos relacionados con la actividad, suelen tener lugar en los espacios públicos. Hay métodos para contabilizar y comparar flujos turísticos en estos espacios, donde los locales y turistas comparten un espacio determinado (Kádár, 2014). Además de las técnicas tradicionales de utilización de encuestas para conocer dónde han estado los turistas, en los últimos años también se comienzan a emplear otras medidas. Entre ellas nos encontramos con el uso de los GPS de los teléfonos móviles para saber cómo se mueven los visitantes o la puesta en marcha de mecanismos de control en las carreteras o vías de acceso a los recursos y puntos de interés turísticos (Smallwood, Beckley y Moore, 2012).

Como mecanismos de rastreo, las nuevas tecnologías digitales presentan ciertos problemas morales y éticos, lo que debe gestionarse si se pretenden emplear como instrumentos de investigación totalmente funcionales. La mayor parte de dichos problemas se relacionan con el modo en que estos dispositivos pueden ser contrarios al derecho a la intimidad de los turistas (Shoval e Isaacson, 2007). Además, las empresas de telefonía móvil tienen la capacidad de localizar y señalar la posición de los usuarios de los teléfonos, información que ellos entonces pueden emplear para bombardear a los usuarios con publicidad e información no solicitada sobre funciones y acontecimientos cercanos (Curry, 2000). De hecho, los sistemas legales aún no se encuentran totalmente preparados para afrontar esta realidad y la problemática asociada a la misma (Renenger, 2002), por lo que la información recopilada puede ser empleada para dichos fines. Parece que el abuso de la intimidad es el menor de los problemas en el caso de la investigación del comportamiento turístico, ya que la gente rastreada es supervisada durante un período de tiempo limitado y definido (Shoval e Isaacson, 2007). Sin embargo, esto puede dar lugar a una nueva dificultad si los turistas, una vez saben que están siendo estudiados, pudiesen cambiar su comportamiento y, en dicho caso, conocer cómo se ha modificado el mismo.

Se han llevado a cabo numerosos estudios para intentar clasificar los productos y recursos turísticos en distintas categorías, pero cada uno de ellos se ha realizado de manera independiente y con poca referencia a los estudios previos. Las diferencias en la metodología empleada para ello varían, además, en función de las características de los destinos y de los turistas. Ello ha generado clasificaciones diferentes que, en muchos casos, son muy similares y, en otros, presentan variaciones significativas (McKercher, 2016). A la hora de realizar clasificaciones en turismo se pueden emplear tipologías o taxonomías. McKercher (2016) propone la realización de una taxonomía en lugar de una tipología para clasificar los puntos de interés turísticos. La razón por la que considera que le empleo de taxonomías es mejor que el de tipologías es que las taxonomías son sistemas con base empírica que sirven para clasificar objetos utilizando características observables y medibles; mientras que las tipologías tienden a basarse en conceptos y nociones sobre un objeto ideal, por lo que podrían no ser encontradas en la realidad. En su caso, analiza las clasificaciones realizadas por diferentes autores a escala internacional y procede, a partir de las mismas, a realizar una taxonomía propia de recursos turísticos, con el fin de convertirla en el marco de referencia a utilizar en el futuro (McKercher, 2016).

En el caso de la taxonomía de McKercher (2016), los puntos de interés deben clasificarse dentro de una categoría determinada. La misma está incluida, al mismo tiempo, dentro de una categoría de orden superior y esta otra en otra categoría y así sucesivamente hasta poder diferenciar 5 categorías que engloban y definen cada punto de interés. Las categorías diferenciadas por McKercher son Motivo de Clasificación, Familia de Productos, Clase de Producto, Línea de Productos y Tipo de Producto, dentro de las cueles nos encontramos con el Objeto. El Motivo de Clasificación representa la necesidad básica que subyace a la familia de productos. La Familia de Productos incluye todas las clases de productos que pueden satisfacer una necesidad básica. La Clase de Producto representa un grupo de productos que tienen cierta coherencia funcional. La Línea de Productos incluye productos estrechamente relacionados que realizan funciones similares. El Tipo de Producto representa objetos que comparten una apariencia similar. El Objeto representa un elemento distinto o un producto específico. Por lo tanto, todas las categorías de nivel inferior comparten el tipo de producto y fijan los tipos de categorías de alto nivel.

Aunque ser capaz de clasificar los puntos de interés turístico en categorías es importante, se ha de tener en cuenta que no todos estos puntos son visitados por los turistas que se alojan en el destino. Ya se ha estudiado cómo afectan las motivaciones e intereses de los visitantes para incitar que los mismos acudan a unos u otros puntos en función de los recursos de los que disponen los mismos (Zoltan y McKercher, 2015). Fennell (1996), por ejemplo, divide a los turistas entre turistas de intereses especiales y turistas de motivaciones generales, y se encontró con que los de intereses especiales realizaron más desplazamientos a través del área del destino en la búsqueda de esos intereses. También fueron significativamente más propensos a visitar los recursos con menor afluencia de visitantes. Masiero y Zoltan (2013) se encontraron con que las personas que viajan por razones de búsqueda de la novedad cultural son más propensas a moverse ampliamente a través de un destino. Sin embargo, los que viajan para disfrutar del paisaje y la naturaleza, o para realizar una actividad física, confluyen áreas específicas, pero recorren mayores distancias durante sus viajes. Finsterwalder y Laesser (2013) definen esferas de consumo experimentales en las que los turistas contribuyen a la creación de su experiencia a través de encuentros con los proveedores de servicios especializados en las actividades que consumen, y establece los patrones de visita derivados de ello. El poder reconocer la importancia del papel de los patrones de consumo en la actividad turística y el movimiento de los turistas en el destino permite a los proveedores de servicios poder cubrir mejor las necesidades de los turistas y desarrollar una mayor variedad de productos hechos a medida para ellos (Zoltan y McKercher, 2015).

Sin embargo, estudios recientes demuestran que existen otros factores, además de dichas motivaciones, que son los que condicionan el que los turistas visiten un lugar u otro. Se ha comprobado que la ubicación del establecimiento alojativo ejerce un efecto significativo sobre los patrones de comportamiento durante el viaje, influyendo en la probabilidad de visitar ciertos núcleos y recursos turísticos, en las horas del día en que los lugares son más susceptibles de ser visitados y en la secuencia de las visitas (Shoval, McKercher, Ng, y Birenboim, 2011). Es por ello que es necesario ubicar los puntos de interés en el destino para analizar los patrones de desplazamiento de los visitantes. Si los estudios se centran simplemente en el análisis de los recursos en función de las motivaciones de los visitantes que acuden a los mismos, no se puede explicar por qué dos recursos de características similares poseen una gran variación en cuanto al número de visitantes. Mientras que el análisis y la recopilación de los puntos de interés cercanos a los establecimientos turísticos explican por qué en ciertos lugares se produce una afluencia turística mayor a la de otros (Zoltan y McKercher, 2015).

En un nivel conceptual, el trabajo de Shoval et al. (2011) destaca el impacto de la distancia en los movimientos turísticos a nivel de microdestinos. El estudio también tiene amplias implicaciones para caracterizar los movimientos turísticos y la planificación y desarrollo urbano de los destinos. Lew y McKercher (2004) han sugerido que los flujos urbanos turísticos claramente tienen una tendencia a extenderse desigualmente, tanto espacial como temporalmente. Ello también explica que en los sitios que son más populares y tienen accesos a diferentes rutas sean en los que más a menudo confluyan un número excesivo de personas, mientras que otros lugares son poco frecuentados. Todo ello refleja el empleo poco eficiente de los recursos económicos y sociales, pudiendo llegar a ocasionar, en última instancia, un desarrollo insostenible del destino.

Los estudios de Shoval et al. (2011) concluyen que la actividad se ve espacialmente concentrada alrededor del hotel existen lugares que a los que los turistas probable o improbablemente visitarán según dónde se alojen, la ubicación del establecimiento afecta al volumen de visitantes de los recursos turísticos cercanos (salvo al de los recursos más populares de la zona), y los patrones de visita difieren según el lugar de estancia. La comprensión de las implicaciones de la posición de hotel sobre el movimiento físico y temporal de los turistas puede ayudar al desarrollo de esquemas de dirección turísticos y nuevos nodos turísticos para ayudar a gestionar el número de visitantes de un modo más racional.

Una vez identificados los recursos turísticos y geolocalizados en distintos puntos de interés es posible, mediante el uso de diferentes mecanismos, conocer cómo se desplazan los visitantes y establecer el orden en el que visitan los diferentes lugares. Con ello se podrían llegar a elaborar itinerarios turísticos en función de, como se ha nombrado anteriormente, la ubicación del establecimiento alojativo y los patrones de consumo del turista. Ello podría tener un efecto trascendental en la actividad, ampliando las actuales fronteras existentes en los estudios del turismo, así como ayudando a mejorar la toma de decisiones en materia de política turística, además de la planificación y la gestión de la misma (Shoval e Isaacson, 2007).

A pesar de la relevancia e implicaciones que puede generar la categorización de los puntos de interés y el control de los visitantes a los mismos, esta materia no ha sido abordada en profundidad en la investigación turística. Nos encontramos con que son muchos los autores que han definido qué es un recurso, pero cada uno de ellos ha creado sus propias definiciones en función de las necesidades de la investigación en curso y las características del destino analizado. La propia Organización Mundial del Turismo (UNWTO) ha creado definiciones para poder establecer qué es el turismo, un destino turístico o una actividad turística. Sin embargo, no ha podido crear definiciones que sirvan como marco de referencia para definir qué se considera un atractivo turístico o un recurso turístico, a pesar de ser términos ampliamente utilizados en la literatura científica (UNWTO, 2010). Por ello, tampoco se han podido establecer qué parámetros o indicadores mínimos han de tener lugar para considerar a un destino o recurso determinado como turístico, debido a que esto se ve fuertemente condicionado por consideraciones subjetivas y por las características específicas de la zona estudiada.

Del mismo modo, al no haber podido establecer qué es un recurso o un destino, y qué no lo es, tampoco se ha definido qué es un punto de interés turístico. Wall (1997) realiza una clasificación de los mismos y los diferencia entre puntos, líneas y áreas turísticas; que considera que pueden tratarse del mismo atractivo, pero considerado a diferente escala. Así, por ejemplo, a escala nacional, las áreas turísticas serían aquellas tales como complejos costeros o parques nacionales. Por otro lado, considera que una simple área de destino puede ser vista como una combinación de puntos, líneas y áreas; configurándose como un conglomerado de nodos y conexiones. Sin embargo, él mismo asegura que incluso un único atractivo turístico, como un parque temático o un museo, puede ser también visto desde esta perspectiva. Por ello, la conceptualización provee cierta flexibilidad con respecto a la escala. A pesar de ser un avance en la investigación en la materia, resultan conceptos demasiado ambiguos, al poder considerar un mismo espacio como un punto o un área en función de la investigación que se realice. Por ello, se han de definir en cada estudio qué se considera un punto de interés y el nivel de profundidad en el que va a analizarse.

Objetivos

Para la realización del trabajo se ha estudiado la literatura científica relacionada con la clasificación y conceptualización de los recursos turísticos. Con ello se pretenden crear una serie de definiciones que sirvan para explicar una serie de conceptos, entre ellos el de punto de interés turístico. Además, se pretende crear una taxonomía de dichos puntos de interés, partiendo de la clasificación elaborada por McKercher (2016), que pueda ser aplicable a Canarias. Para justificar la relevancia del trabajo, se pretenden establecer cuáles son los puntos de interés de un caso de estudio, la isla de Lanzarote. Tras ello, se pretenden conocer las diferencias entre las características de los visitantes que acuden a cada uno de estos lugares y saber, además, cómo influyen ciertos factores (sociodemográficos, ubicación del alojamiento en el destino y motivaciones) en sus patrones de visita durante el viaje. Por último, se explicarán cuáles son las actuales limitaciones existentes en la recogida de información de los turistas y se propondrán medidas de mejora con las que podría recopilarse más datos e información.

Metodología

Para la realización del trabajo, se han revisado los conceptos elaborados y empleados por diferentes autores e investigadores, además de los aceptados por la UNWTO (2010). A partir de ello, se han podido estudiar sus diferencias y limitaciones con el objetivo de elaborar una serie de definiciones que resulten válidas para este estudio. Del mismo modo, se ha utilizado la taxonomía de recursos turísticos elaborada por McKercher (2016) para elaborar una clasificación propia de puntos de interés que pueda ser aplicable a Canarias. Tras la búsqueda de puntos de interés en Lanzarote, se han clasificado los mismos según la taxonomía elaborada. Para la realización de la búsqueda se han empleado diferentes medios. Algunos de los medios principales de referencia han sido portales web gubernamentales, como el portal oficial de turismo de la isla; así como fuentes estadísticas públicas, como el directorio de establecimientos turísticos del ISTAC o los Centros de Cultura, Arte y Turismo del Centro de Datos de Lanzarote.

Al tratarse de fuentes que recogen puntos de interés únicamente desde la perspectiva de la oferta, se han analizado diferentes webs para establecer los mismos desde un enfoque de demanda. Por ello, se ha realizado una búsqueda en Airbnb para recopilar las viviendas vacacionales disponibles en la isla. Del mismo modo, se ha utilizado TripAdvisor como medio para establecer qué bares, restaurantes, pubs, discotecas, etc. son turísticos; debido a que, desde un enfoque de oferta, todas estas empresas lo serían, incluso aquellas en las que no consumieran los turistas. También cabe destacar el empleo de Instasight para conocer cuáles son los lugares más fotografiados de la isla, pues permite establecer como puntos de interés ciertos lugares que no están recogidos en el resto de webs, como los paisajes.

Para intentar conocer las características de los visitantes que acuden a cada punto, se han empleado los datos del ISTAC y el Centro de Datos de Lanzarote relativos a la afluencia de visitantes a estos lugares. Además, se ha empleado información del ISTAC para conocer qué factores incentivan en mayor medida la visita de los puntos de interés de los que se disponen datos. La información del ISTAC ha sido obtenida a partir de las respuestas de los turistas a los que se les realizó la Encuesta de Gasto Turístico durante 2015. Para obtener la información se han filtrado estos datos y se han realizado tablas de sumarización por medio del programa estadístico SAS.

Marco conceptual desarrollado

Como ya se ha explicado, no existen definiciones universales que definan qué es un recurso o un punto de interés turístico (UNWTO, 2010). Existen algunas definiciones que han sido elaboradas por diversos autores en función de las necesidades específicas de la investigación en la que estuvieran involucrados. Por ello, en este trabajo se intenta crear un marco conceptual que sirva como referencia a la hora de estudiar los puntos de interés de un destino y el movimiento realizado por los turistas entre estos lugares para realizar diversas actividades. Para elaborar estos conceptos se han revisado otras definiciones ya elaboradas y se han estudiado sus limitaciones. Además, se ha intentado que las definiciones pudiesen ser aplicables a otros destinos y ámbitos de estudio. Se han ilustrado los conceptos con ejemplos que ayudan a su comprensión y facilitan su diferenciación.

Podríamos definir un recurso turístico desde dos perspectivas, la de demanda y la de oferta. Desde el punto de vista de la demanda, se trata de todo elemento, de cualquier naturaleza, que posee la capacidad de, o bien atraer visitantes a un destino para disfrutar del mismo, o de mejorar la experiencia de los visitantes en dicho destino. Desde el punto de vista de la oferta, se trata de todo elemento que puede ser empleado para la generación o producción de actividades turísticas, o que puede emplearse para la gestión de las empresas turísticas o del propio destino. Por ello, un recurso turístico desde el punto de vista de la demanda podría ser un elemento tangible, como un museo o un sendero; pero también un elemento intangible, como la amabilidad de la población local o un evento de carácter religioso. Desde la perspectiva de la oferta, se consideran recursos turísticos también otros elementos como la formación y experiencia del personal o la cultura empresarial. Además, para una empresa son recursos turísticos tan solo aquellos elementos con los que elabora los servicios que ofrece, no siéndolo la propia actividad ofertada, mientras que la misma sí es un recurso turístico desde un enfoque de demanda. Si consideramos dentro del enfoque de oferta al destino turístico, las actividades ofrecidas por las empresas serían recursos turísticos para el destino.

Cabe hacer mención de aquellos recursos que únicamente pueden disfrutarse en ciertos momentos o períodos del año. Estos recursos modifican el interés de los visitantes por acudir a ciertos lugares en períodos específicos, por lo que generan puntos de interés de manera temporal. Además, para los destinos, generan la necesidad de establecer ciertas medidas puntuales que garanticen la correcta gestión de los visitantes que acuden a dichos lugares. Se trata de un tipo de recurso turístico que tiene lugar en un momento dado y que posee una baja o nula frecuencia de repetición. Dentro de este tipo de recursos podemos encontrar una diversa serie de eventos que pueden poseer una frecuencia preestablecida y otros que son difíciles de predecir o controlar. Como ejemplos podemos citar el Ironman de Lanzarote (con una frecuencia definida) o las nevadas en el Teide (un suceso imprevisto). Además, nos encontramos con que ciertos eventos, pudiendo o no tener una frecuencia determinada, no se producen de manera constante, sino que tienen lugar en momentos distantes en el tiempo. Como ejemplos podemos citar la Bajada de la Virgen de Las Nieves en La Palma (se trata de un evento con una frecuencia preestablecida, pero que se produce una vez cada cinco años) o la erupción de un volcán (es un suceso natural que no puede controlarse y que no muestra una constancia temporal). Todos ellos serían recursos turísticos temporales.

Sin embargo, podemos diferenciar entre recursos turísticos anuales, ocasionales y puntuales. Los anuales son aquellos que se producen, como mínimo, una vez al año y pueden tratarse tanto de eventos organizados, como aleatorios. Los ocasionales son aquellos eventos organizados que tienen lugar con una frecuencia mayor a un año, pero inferior a una década. Por último, los puntuales son todos aquellos sucesos preestablecidos que tienen lugar una vez transcurridos diez o más años, o que no se tratan de eventos organizados y tienen lugar con una frecuencia superior al año. Aquellos sucesos que tienen lugar y que no se espera que vuelvan a repetirse, serían considerados también recursos turísticos puntuales. Como ejemplo de recurso anual nos encontraríamos las celebraciones del Carnaval. La Bajada de La Virgen de Los Reyes de El Hierro sería un recurso ocasional. Por último, los eclipses solares o el concierto de un cantante determinado, serían recursos turísticos puntuales. Cabe mencionar que un recurso turístico puntual puede convertirse en anual u ocasional si se le asigna una frecuencia que se ajuste a los parámetros establecidos y vuelve a repetirse.

A partir de los recursos, y sus características, se crean actividades turísticas, pudiendo definirlas como todo uso que se le da a uno o varios recursos turísticos. Es por ello que las actividades ponen en valor los recursos que emplean, haciendo posible que sean disfrutados por el visitante. La realización de actividades puede ser ofrecida por una empresa o Administración Pública, o ser realizada por los visitantes sin necesidad de contratarla. Así, la realización de una excursión por una ciudad puede ser contratada o diseñada por el propio visitante; tratándose en ambos casos de una actividad turística. La posibilidad de realizar algún tipo de actividad turística en un lugar es lo que hace que el mismo suscite interés a los visitantes y, por tanto, lo convierte en un punto de interés turístico.

Un punto de interés turístico puede definirse como un lugar concreto, dentro de un destino turístico, en el que se ubican uno o varios recursos turísticos y se realizan actividades turísticas a partir de los mismos. El recurso que atrae a los visitantes puede tratarse, en ocasiones, del propio punto de interés. Por ejemplo, la visita al interior de una iglesia puede ser de interés para los visitantes, ello hace que la misma sea un punto de interés y, al mismo tiempo, el propio lugar es el recurso turístico que resulta interesante para los mismos. En otros casos, como en el de los museos, el interés no radica en el lugar en sí, sino en algunos de los elementos que contiene; en este caso, las obras de arte.

También existen puntos de interés turístico temporales, que están relacionados con los recursos turísticos temporales. Al celebrarse algún tipo de evento, ciertas zonas generan una atracción de visitantes mayor a la habitual, convirtiéndose en puntos de interés temporales. En principio podría parecer que los recursos turísticos temporales y los puntos de interés temporales son lo mismo. Sin embargo, existen lugares que atraen visitantes de manera constante y la celebración de eventos únicamente fomenta dicha afluencia en los mismos. En estos casos, el punto de interés no es temporal, ya que los turistas lo disfrutan todo el año. Sin embargo, el evento en sí se trata de un recurso turístico de carácter temporal. Además, el recurso temporal es siempre un evento o suceso, mientras que el punto de interés temporal es el lugar en el que se desarrolla el mismo (un pueblo, sendero, edificio, etc.). Hablamos de puntos de interés turístico temporales cuando únicamente se produce una afluencia significativa de visitantes a los mismos durante un período temporal determinado.

En todo destino encontramos lugares a los que acuden los turistas de manera significativa y que, sin embargo, no generan un interés en los visitantes. A estos lugares acuden los mismos debido a que resultan indispensables para poder disfrutar del destino. Entre estos sitios podemos destacar las infraestructuras necesarias para el transporte y movilidad de los visitantes, los establecimientos alojativos y de restauración o ciertas oficinas gubernamentales. Algunos ejemplos serían las paradas de transporte público, los aeropuertos y muelles, hoteles y apartamentos, bares y restaurantes, paradas de taxi, oficinas de información turística, puestos de control de viajeros en las fronteras de los países, oficinas de alquiler de vehículos, aparcamientos, etc. Estos lugares son los puntos de concentración turística. Se diferencian de los puntos de interés al servir como medio para poder disfrutar de estos últimos y por no generar una afluencia de visitantes por sí mismos.

En ocasiones es complicado delimitar un punto de interés, llegando a encontrar zonas amplias que generan la atracción de visitantes. En estos sitios no es posible establecer qué lugares de los mismos son los que generan la afluencia de visitantes, dificultando la labor de establecer puntos de interés dentro de los mismos. Además, incluso identificándose cuáles son los lugares en los que se detienen los visitantes, no es posible confirmar qué puntos son los que han generado realmente la atracción. Ello se debe a que la existencia del espacio en su conjunto es el responsable de motivar la llegada de visitantes al mismo. Por ello, se distinguen los espacios de interés turístico. Son zonas amplias, que podrían considerarse estar formadas por varios puntos de interés, pero en las que la cercanía y existencia de todos ellos es la que explica el interés suscitado por dicho espacio.

Una vez se han identificado todos los puntos y espacios de interés de un destino, puede procederse a señalizarlos en un mapa. Ello ayuda a diferenciar visualmente dónde se concentran estos lugares, identificando así unas zonas en las que abundan los mismos y otras que presentan un bajo o nulo número de ellos. Con ello nos encontramos con que existen áreas turísticas, siendo las zonas en las que existen conglomeraciones conformadas por distintos puntos y/o espacios de interés que motivan a los visitantes a acudir a las mismas para disfrutar de estos lugares. No han de confundirse con los microdestinos, ya que los mismos son zonas en las que abundan los establecimientos alojativos turísticos, por lo que se han establecido desde una perspectiva de oferta. Las áreas de interés se han señalado partiendo de un enfoque de demanda, al identificar los lugares que resultan atractivos para los visitantes. En muchos casos, los mismos pueden coincidir, ya que los establecimientos tienden a ubicarse cerca de una serie de recursos que sean adecuados para atraer a los demandantes de los mismos. Sin embargo, no siempre es así; como en el caso de las áreas naturales protegidas a las que acuden los visitantes para practicar senderismo, sin poder alojarse en ellas porque la construcción de infraestructuras está prohibida.

Otro concepto a destacar es el del itinerario turístico. Se trata del modo en que los visitantes enlazan puntos de interés, espacios de interés y puntos de concentración, durante un día de estancia. Estos itinerarios son diferentes para cada visitante. Sin embargo, existen herramientas capaces de recabar información relativa al orden en el que se visitan los puntos de interés, según el punto de partida del visitante y el medio de transporte empleado. Con ello se pueden generar modelos de itinerarios en función de las características de los mismos. Estos modelos pueden emplearse tanto para la mejora de la gestión pública de la actividad, como para la creación de nuevos productos. Los itinerarios pueden desarrollarse tanto dentro de una única área turística, como a través de varias de ellas, si se visitan diferentes puntos de interés distantes entre sí.

Al igual que existen puntos de interés temporales, también puede darse el caso de que un evento genere un itinerario turístico temporal. Se tratan de aquellas rutas que realizan los visitantes debido a un evento o suceso que posee una baja frecuencia de repetición. Se diferencian de los puntos de interés en que, para ser considerados como temporales, no es necesario que los lugares que atraviese la ruta no reciban visitantes el resto del año. Es decir, si un evento es capaz de incentivar a los turistas a desplazarse entre diferentes lugares, aun cuando se traten de puntos altamente visitados, estos turistas realizarán un itinerario temporal. La razón para considerarlo como tal es que el evento cambia los patrones de movilidad de los visitantes, incentivándolos a desplazarse de una manera determinada. Se debe señalar que no todos los recursos temporales crean itinerarios turísticos temporales, sino que solo lo hacen aquellos eventos que implican un desplazamiento por sí mismos. Un claro ejemplo de estos itinerarios son los eventos deportivos, tales como maratones o travesías de montaña (a pie, bicicleta, caballo, etc.), y determinadas fiestas religiosas, como ciertas procesiones que recorren largos trayectos.

Un último concepto asociado al de itinerario turístico es el de las vías de conexión. Se tratan de aquellos tramos del itinerario turístico que son empleados para conectar y visitar dos puntos de interés determinados. Ejemplos de vías de conexión son las carreteras o las calles. No suelen generar interés en los visitantes por sí mismas, aunque en ocasiones son las causantes del mismo, como ocurre con ciertos itinerarios turísticos temporales. Es importante conocer cuáles son las vías de conexión principales empleadas por los visitantes. Pueden explicar por qué ciertos puntos de interés son más visitados que otros (dada su cercanía con respecto a otros puntos) y también pueden ser la razón que desincentive a los visitantes a acudir a los mismos (mal estado de las carreteras, lejanía, etc.).

Propuesta de clasificación de puntos y espacios de interés turístico

A partir de la taxonomía elaborada por McKercher (2016) y de la búsqueda de los puntos de interés de la isla de Lanzarote, se ha elaborado una clasificación de puntos de interés aplicable a Canarias. A pesar de haber sido pensada para ser utilizada en el archipiélago, es posible tomarla como referencia para la elaboración de clasificaciones a nivel internacional. La clasificación elaborada es una taxonomía en la que se le asigna una categoría a cada punto de interés, la cual pertenece a su vez a otra categoría que también se encuentra dentro de otra. Así, se diferencian cinco categorías que engloban y definen las características de cada punto de interés.

Se ha establecido un único Motivo de Clasificación que define el objetivo de la clasificación. Tras la misma nos encontramos con siete Familias de Productos que engloban de manera genérica los puntos de interés clasificados. Luego, se han identificado 24 Clases de Productos, asignados a las distintas Familias de Productos, que definen el lugar en mayor profundidad. Dentro de las mismas, se reparten 80 Líneas de productos que ya especifican qué punto de interés pretende clasificarse. Por último, se han establecido 197 Tipos de Producto que especifican alguna característica relativa a las Líneas de Producto en las que se engloban. Hay que señalar que no todas las Líneas de Producto cuentan con subcategorías, pues no se ha considerado relevante ahondar aún más en sus características. Dentro de cada Tipo de Producto (o Línea de Producto en caso de no haberse subdividido) encontramos el Objeto, que sería nombre de cada uno de los puntos de interés clasificados. La taxonomía de puntos y espacios de interés turístico que se ha elaborado puede verse a continuación (Tabla 1).

Tabla 1. Clasificación de puntos y espacios de interés turístico de Canarias

Motivo de Clasificación	Familia de Producto	Clase de Producto	Línea de Productos	Tipo de Producto
Puntos de interés	Restauración	Bebidas	Bodega Licorería No alcohol	
		Comida	Restaurante	Estándar Étnico Canario Pescado Otros
			Bar	Estándar Tapas Tasca
			Guachinche	
	Alojamiento	Hotelero	Hotel	1 estrella 2 estrellas 3 estrellas 4 estrellas 5 estrellas Gran lujo
			Hotel Urbano	1 estrella 2 estrellas 3 estrellas 4 estrellas 5 estrellas Gran lujo
			Hotel Rural Hotel Emblemático	
		Extrahotelero	Apartamento	3 estrellas 4 estrellas 5 estrellas
			Casa Rural Casa Emblemática Vivienda vacacional Zona de acampada Otro	
	Transporte	Aéreo	Aeropuerto Helipuerto	
		Marítimo	Puerto Puerto deportivo	
		Terrestre	Guagua	Intercambiador Parada estándar Guagua turística
			Taxi	
			Alquiler de vehículos	Coches Limusinas
	Ocio	Compras	Mercado Mercadillo Calle de tiendas Centro comercial Tienda de suvenires Supermercado	
		Nocturno	Calle de bares	

		Pub	
		Discoteca	General
			Electro
			Latina
			House
			LGTB
			Otro
	Parque temático	Atracciones	
		Acuático	
		Zoo	
		Acuario	
		Otro	
	Área deportiva	Campo o cancha público	Complejo deportivo
			Golf
			Fútbol
			Rugby
			Béisbol
			Tenis
			Padel
			Otro
		Estadio profesional	
		Gimnasio	
		Piscina	Natural
			Artificial
			Deportiva
	Juego y apuestas	Casino	
		Casa de apuestas	
	MICE	Palacio de congresos	
		Sala de conferencias	
		Sala de eventos	
		Otro	
	Salud	Bienestar	SPA
			Sauna
			Masaje
			Otro
		Centro médico	Cirugía plástica
			Dermatología
			Dental
			Óptica
			Rejuvenecimiento
			Reasignación sexual
			Chequeo
			Hospital
			Centro de salud
Cultura	Religión	Templo cristiano	Catedral
			Iglesia
			Ermita
			Basílica
			Santuario
		Residencia religiosa	Convento
			Monasterio
		Otro	
		No cristiano	Mezquita
			Sinagoga
			Otro
	Tradición	Rural	Pueblo

			Pueblo costero
			Casa tradicional
			Campo de cultivo
			Zona de pastoreo
			Era
			Lagar
			Lavadero
			Acueducto
			Cantera
			Pozo
			Galería
			Otro
		Aborigen	Grabado
			Necrópolis
			Edificación
			Residencia
			Lugar de reunión
			Otro
	Centro de visitas	Museo	Centro de interpretación
			Sala de exposiciones
			General
			Arte
			Naturaleza
			Historia
			Cultura aborigen
			Personaje histórico
		Representación	Teatro
			Anfiteatro
			Auditorio
			Cine
			Centro cultural
		Ciencia	Astronomía
			Vulcanología
			Conservación animal
			Otro
	Urbano	Construcción exterior	Plaza
			Parque
			Jardín
			Fuente
			Monumento
			Calle
			Avenida marítima
			Faro
			Otro
		Edificación histórica	Palacio
			Castillo
			Vivienda tradicional
			Edificio administrativo
			Hospital
			Escuela
			Otro
Naturaleza	Acuático	Marino	Fondo oceánico
			Zona de navegación
			Cetáceos
			Otro
		Agua dulce	Lago
			Laguna

			Acuífero
			Fuente natural
			Otro
	Costa	Zona de baño	Playa de arena
			Piscina natural
			Callados
			Artificial
			Otro
		Acantilado	
		Otro	
	Interior	Vulcanismo	Volcán
			Malpaís
			Tubo volcánico
			Cráter
			Otro
		Zona de montaña	Montaña
			Valle
			Barranco
			Cueva
			Mirador
			Otro
		Bosque	Matorral costero
			Laurisilva
			Pinar
			Sabinar
			Alta montaña
			Otro
Temporal	Anual	Cultural	Artístico
			Musical
			Religioso
			Otro
		Deportivo	Campeonato
			Competición
			Carrera
			Partido
			Otro
		Profesional	Convención
			Seminario
			Otro
		Otro	
	Ocasional	Cultural	Artístico
			Musical
			Religioso
			Otro
		Deportivo	Campeonato
			Competición
			Carrera
			Partido
			Otro
		Profesional	Convención
			Seminario
			Otro
		Otro	
	Puntual	Cultural	Artístico
			Musical
			Religioso

		Otro
	Deportivo	Campeonato Competición Carrera Partido Otro
	Profesional	Convención Seminario Otro
	Otro	

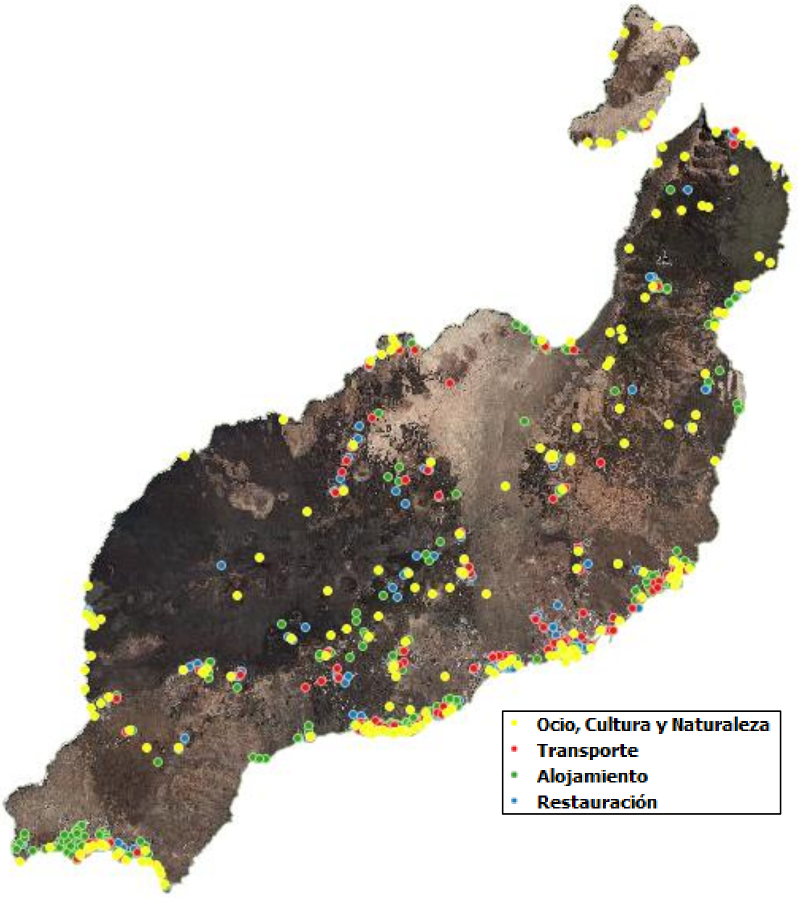
El caso de Lanzarote

Los puntos de interés de la isla de Lanzarote (más de 2500 puntos identificados) han sido clasificados en la taxonomía elaborada. En el presente trabajo no se ha realizado una búsqueda de puntos de interés temporales debido a que la misma solo sería de utilidad si se realizase con anterioridad a que tenga lugar el evento. Al tomar como referencia los eventos celebrados antes de 2016, la inclusión de estos puntos de interés no aportaría mejoras a la gestión de la actividad turística.

Los puntos de interés se han recogido, en algunos casos, con el nombre oficial del lugar y, en otros, con el nombre que la ha dado el propietario o alguna clase de organismo. Esto se debe a que existen ciertos puntos de interés que poseen una denominación oficial fácilmente identificable y aceptada por la Administración Pública, como es el caso de las calles, hoteles, plazas, iglesias o playas. Sin embargo, existen lugares que no cuentan con un nombre oficial que haya sido aceptado oficialmente, por lo que se le ha asignado el nombre otorgado por un tercero responsable de haber transformado el lugar en un punto de interés. En este último caso destacan las viviendas vacacionales, a las que se les ha puesto el nombre exacto con el que son vendidas en Airbnb. También es el caso de las paradas de guagua, que tienen el nombre que les ha asignado la compañía a cargo de prestar el servicio de transporte.

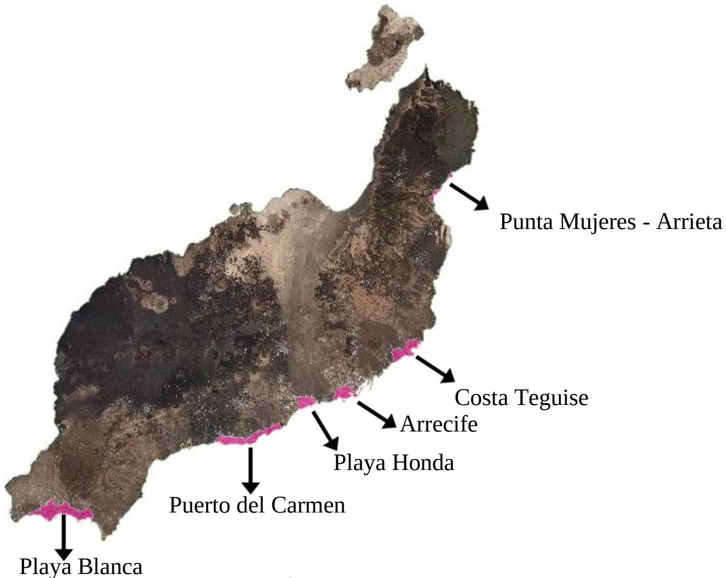
En la Imagen 1 pueden verse todos los puntos de interés ubicados en una única imagen. Los denominados como Ocio, Cultura y Naturaleza se ubican en la capa superior de la imagen elaborada, seguidos de los de Transporte, tras ellos los de Alojamiento y, en la capa inferior, los de Restauración. Gracias a la elaboración de estas imágenes se han podido establecer las áreas turísticas de la isla, que pueden verse en la Imagen 2. Una vez delimitadas, se han comparado las mismas con los microdestinos, considerándose como tales a las entidades turísticas del ISTAC. Por ello, en la Imagen 3 puede verse la ubicación de los tres microdestinos.

Imagen 1. Puntos de interés turístico de Lanzarote



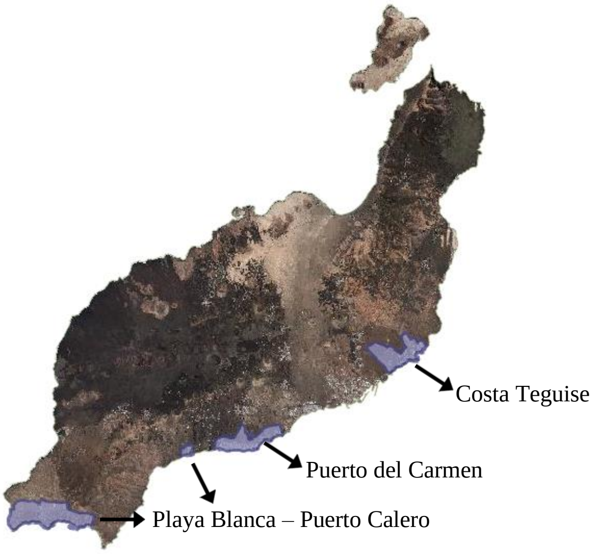
Fuente: Elaboración propia

Imagen 2. Áreas turísticas identificadas en Lanzarote



Fuente: Elaboración propia

Imagen 3. Microdestinos de Lanzarote según el ISTAC



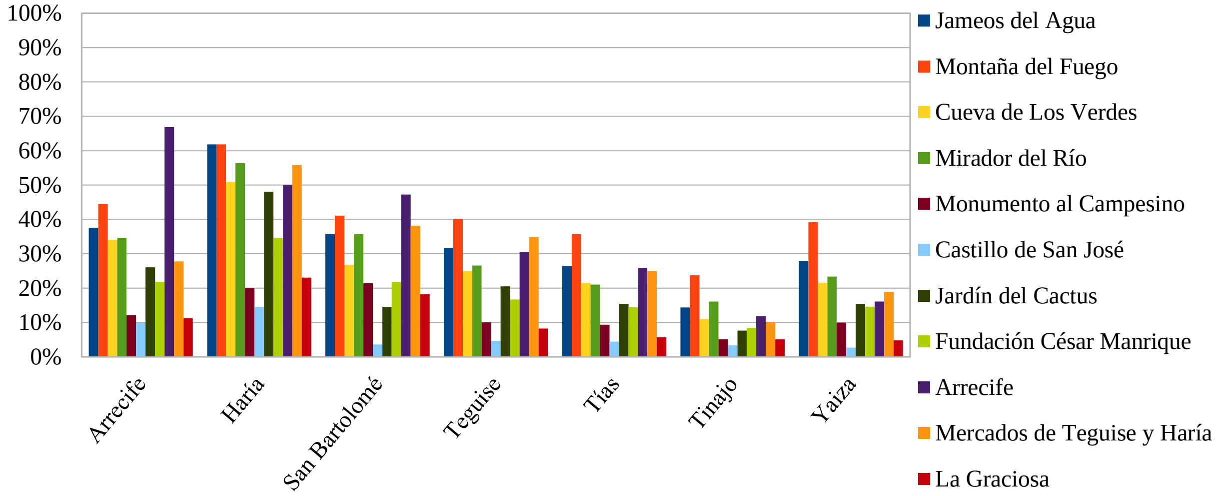
Fuente: Elaboración propia a través de imágenes de www.idecanarias.es

Como puede observarse en las imágenes, las principales áreas turísticas identificadas (tanto en tamaño como en número de puntos que contienen) se corresponden con los microdestinos delimitados por el ISTAC. Sin embargo, también pueden apreciarse ciertas diferencias entre los mismos. En primer lugar, se han identificado un mayor número de áreas turísticas (6 en total) que de microdestinos (existen 3 al considerar Playa Blanca y Puerto Calero como una única entidad). Además, no se ha considerado a Puerto Calero como un área turística relevante ni se ha unido a ninguna de las áreas establecidas, debido a que se encuentra geográficamente alejada de las mismas. En su lugar, se ha considerado Playa Honda, Arrecife y Punta Mujeres-Arrieta como áreas turísticas, dada la cantidad de puntos de interés que existen en las mismas. La comparación entre microdestinos y puntos de interés muestra que, desde una perspectiva de demanda (áreas turísticas), el espacio delimitado es inferior, al solo tener en cuenta aquellas zonas en las que exista una alta concentración de puntos de interés de diversa índole. Sin embargo, desde una perspectiva de oferta (microdestinos) este espacio es mayor al agrupar todos los establecimientos turísticos ubicados en un mismo núcleo urbano.

Factores determinantes de la visita a puntos de interés

En el presente trabajo se han tomado como referencia la nacionalidad del turista encuestado, los aspectos por los que eligió Canarias como destino turístico y la ubicación del establecimiento alojativo en el que ha pernoctado. Todos estos datos han sido cedidos por el ISTAC y se han relacionado con la información relativa a la visita de centros turísticos recopilada a través de la Encuesta de Gasto Turístico. Todo ello ha sido procesado con el programa estadístico SAS. Un primer hecho que debía probarse es la relevancia de la ubicación del alojamiento turístico como factor que influye en la toma de decisiones relativa a la visita de puntos de interés turístico en Canarias. Este hecho ya había sido estudiado por Shoval (2011) en otros destinos, pero debía verificarse que en las islas este factor también cobraba importancia. A continuación, se expone el gráfico 1, en el que se muestra el porcentaje de turistas alojados en los diferentes municipios de Lanzarote que han visitado algún punto de interés de los que el ISTAC recaba información.

Gráfico 1. Afluencia porcentual de visitantes a puntos de interés turístico de Lanzarote según su municipio de estancia (2015)



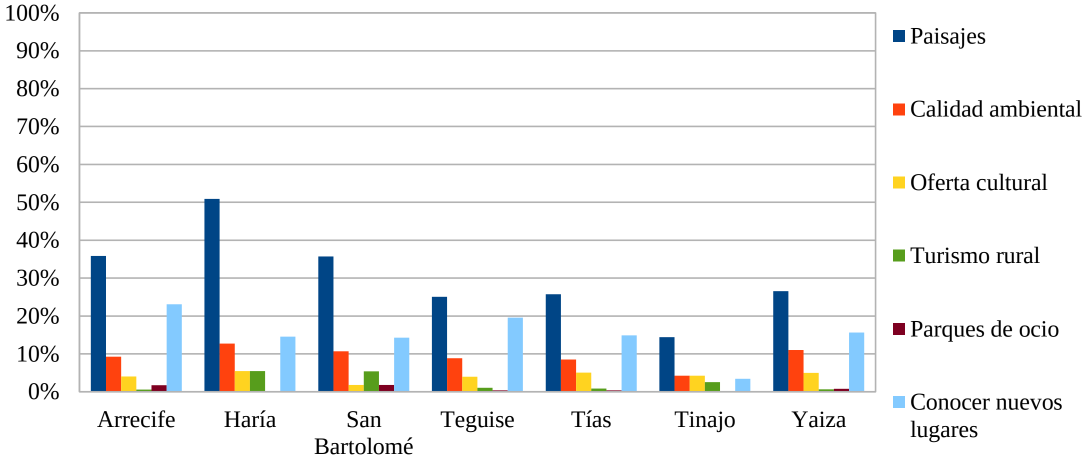
Fuente: Elaboración propia a través de datos cedidos por el ISTAC y procesados con SAS

A primera vista puede apreciarse que, efectivamente, existen diferencias relativas a los lugares visitados por los turistas en función de la ubicación del establecimiento alojativo. Los alojados en Haría parecen ser los más propensos, en general, a visitar los lugares de interés de la isla. Tan solo son superados por lo alojados en Arrecife en la visita de la propia ciudad de Arrecife y por los alojados en San Bartolomé en la entrada en el Museo al Campesino. Además, puede verse como los alojados en Tinajo son los menos propensos a visitar puntos de interés. En algunos casos parece influir la cercanía del punto de interés al establecimiento turístico (la visita de la ciudad de Arrecife), pero, en otros casos, parece que este factor no cobra tanta importancia (la visita a La Graciosa no es practicada con mayor frecuencia por los alojados en Arrecife, Haría y San Bartolomé que por los alojados en Teguise, a pesar de ubicarse en este municipio).

El hecho de que existan municipios en los que se alojen visitantes más propensos a visitar puntos de interés genera dos hipótesis. Por un lado, es posible que los turistas elijan la ubicación del alojamiento debido a que les gusta el lugar en el que se encuentra el mismo y los que se alojan en ciertos lugares son más propensos, por sus motivaciones, a visitar diferentes puntos de interés del destino. Por otro, puede que se elija el alojamiento debido a que se encuentra relativamente cercano a los lugares que pretenden visitar y que sea la cercanía de los mismos lo que los motiva a elegirlo. De cualquier modo, parece que las motivaciones tienen un papel fundamental a la hora de incentivar a los turistas a visitar puntos de interés.

Las motivaciones de los turistas que están relacionadas con los puntos de interés analizados, y según el municipio de estancia de los mismos, puede verse en el gráfico 2.

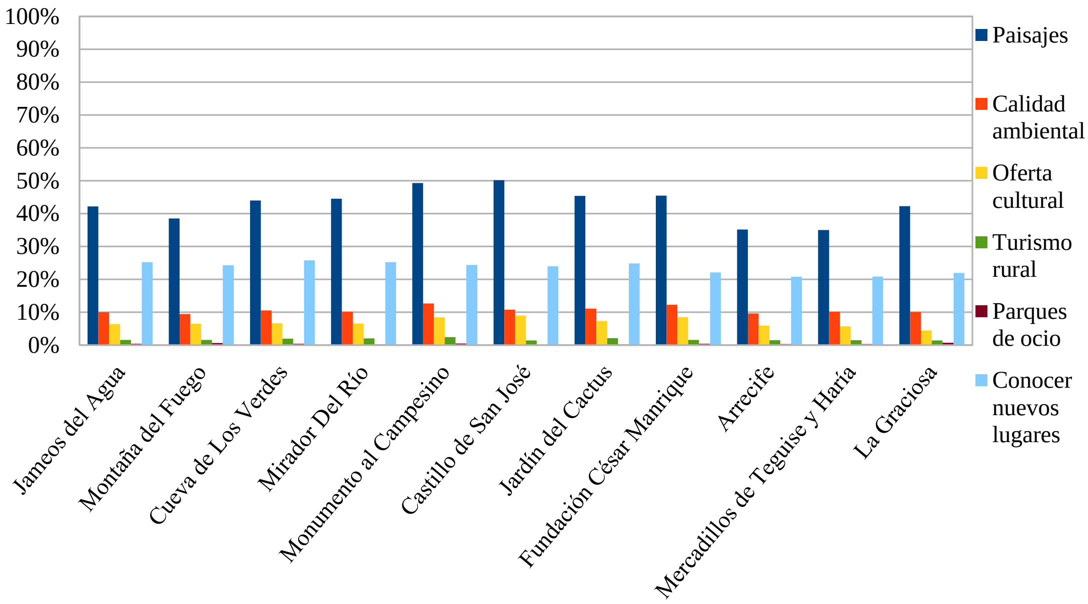
Gráfico 2. Porcentaje de visitantes que han seleccionado alguno de los siguientes aspectos de elección de Lanzarote como destino turístico según municipios de estancia (2015)



Fuente: Elaboración propia a través de datos cedidos por el ISTAC y procesados con SAS

Al comparar los dos gráficos anteriores, se aprecia que las motivaciones no son el único factor que influye en los visitantes para motivarlos a visitar un lugar determinado. Por ejemplo, se aprecia que, en Haría, ninguno de los turistas alojados en el municipio ha señalado la visita a parques de ocio como una motivación de relevancia y del mismo modo se observa que no son los más motivados por conocer nuevos lugares. A pesar de ello, según se ve en el gráfico 1, son los que tienden a visitar en mayor medida los Jameos del Agua, el Jardín del Cactus o la Fundación César Manrique. De ello también se deduce que los visitantes de ciertos lugares, a pesar de haber señalado que se sienten motivados por ciertas actividades, no las han realizado. Al saber esto, se han analizado las motivaciones de los visitantes según el punto de interés visitado en la isla de Lanzarote, lo que puede verse en el gráfico 3.

Gráfico 3. Porcentaje de turistas que han señalado uno de los siguientes aspectos de elección según la visita de los puntos de interés analizados (2015)

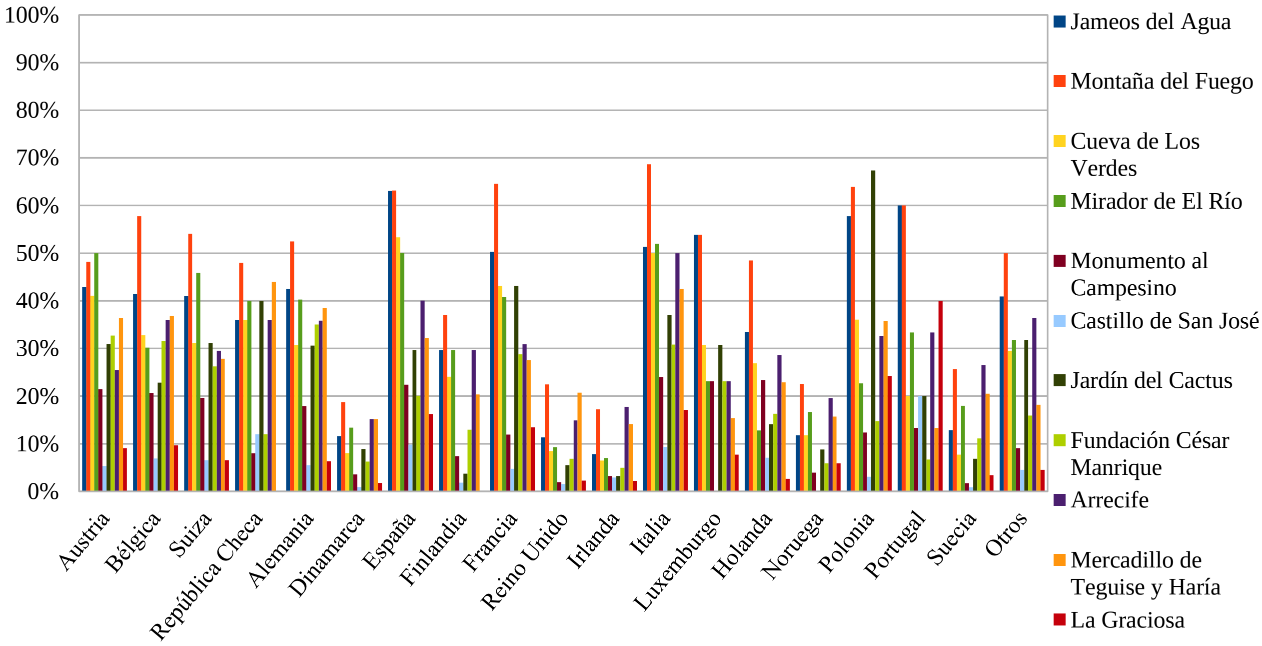


Fuente: Elaboración propia a través de datos cedidos por el ISTAC y procesados con SAS

En este último gráfico puede verse que los turistas que visitan la Montaña del Fuego son algunos de los menos interesados por el paisaje canario, mientras que los más interesados en el mismo son los que visitan el Castillo de San José y el Monumento al Campesino. Esto podría probar que las motivaciones del visitante no influyen de manera significativa en sus patrones de visita. Sin embargo, en otros casos sí que se demuestra que las motivaciones influyen en los mismos. Por ejemplo, se aprecia que los interesados en la oferta cultural tienden a visitar en mayor medida lugares como el Castillo de San José, la Fundación César Manrique y el Monumento al Campesino. Todo este análisis prueba que la ubicación del establecimiento alojativo juega también un papel muy importante en la toma de decisiones relativa a la visita de puntos de interés turístico en Canarias. Así, existen ciertos lugares que deben la afluencia de visitantes a las motivaciones de los turistas y, otros, en los que es necesario analizar otros factores, tales como la ubicación del alojamiento turístico.

Una vez probado este hecho, se plantea la necesidad de conocer en qué medida afectan otras características de los visitantes a sus patrones de visita. Por ello, se ha analizado la influencia de ciertos rasgos socioculturales en dichos patrones. Para ello, se han cruzado los datos relativos a las visitas realizadas por los turistas con los relativos a su nacionalidad. El gráfico 4 muestra los resultados obtenidos. Cabe señalar que existen una amplia variedad de rasgos culturales que podrían haberse tenido en cuenta (edad, sexo, profesión, etc.), pero se ha escogido la nacionalidad al considerarla una característica que influye significativamente en los patrones de consumo. Además, la comparación de otros rasgos hubiese supuesto un aumento considerable de la extensión del estudio.

Gráfico 4. Tendencia de afluencia de visitantes a puntos de interés según nacionalidad (2015)



Fuente: Elaboración propia a través de datos cedidos por el ISTAC y procesados con SAS

Se aprecia que existen ciertas diferencias relativas a la visita de puntos de interés en función de la nacionalidad del visitante. Se aprecia que los daneses, británicos e irlandeses son los que muestran una tendencia menor a visitar los principales atractivos turísticos de la isla. Ello podría deberse a que prefieren disfrutar del clima canario y, para ello, permanecen en sus respectivos alojamientos turísticos y en las playas (cuya visita no es recogida por el ISTAC). Por otro lado, puede verse que los españoles, franceses e italianos son los más propensos a visitar los puntos de interés de la isla. El gráfico muestra que efectivamente la nacionalidad es un factor a considerar, debido a que existen ciertas nacionalidades más propensas que otras a visitar puntos de interés. Sin embargo, cabe destacar que no se aprecian diferencias notables relativas a la preferencia de determinados puntos de interés según la nacionalidad del visitante. Es decir, los españoles tienden a visitar en mayor medida todos los puntos de interés analizados, al igual que los británicos visitan en menor medida todos ellos. Sin embargo, coinciden los lugares más visitados por cada nacionalidad.

Por ello, podemos afirmar que no existen preferencias destacables entre nacionalidades en lo relativo a la visita de unos recursos o lugares determinados, pero sí en su tendencia a querer viajar dentro del destino. Sin embargo, al analizar los patrones de visita en función del municipio de estancia, sí que se han podido reconocer diferencias notables. Además, se ha probado que, al igual que ocurre con las nacionalidades, los alojados en determinados municipios visitan en mayor medida diferentes puntos de interés de la isla. La importancia de conocer estos hechos radica en la información que puede obtenerse al cruzar determinados datos. Por ejemplo, el conocer la nacionalidad del visitante permite saber su predisposición a visitar diferentes lugares de la isla y, de saberse también dónde va a alojarse, se pueden estimar los lugares que es más probable que visite.

Conclusiones, implicaciones y discusión

En este trabajo se han elaborado una serie de conceptos para subsanar algunas de las lagunas en la investigación turística. Por ello, se han definido términos como recurso turístico, puntos de interés turístico o itinerario turístico; que pueden ser empleados como referencia en investigaciones futuras. Con el objetivo de que la investigación pueda ser de utilidad en Canarias, se ha elaborado una taxonomía de puntos de interés aplicable a Canarias. Tal como refleja McKercher (2016), estas clasificaciones están fuertemente influenciadas por las características del destino analizado y de los recursos que posea. Por ello, esta taxonomía no puede ser exportable a otros destinos, al estar fuertemente marcada por elementos propios de la cultura y naturaleza canaria. Sin embargo, sí que puede ser tomada como referencia. Además, se ha utilizado la isla de Lanzarote como caso práctico para la identificación y clasificación de los puntos de interés de la misma. Tras ello, se han señalado los puntos de interés identificados en una imagen de la isla, con lo que se ha podido analizar de manera visual y sencilla dónde se ubican los mismos. Ello ha permitido establecer una serie de áreas turísticas que han sido comparadas con los microdestinos recopilados por el ISTAC.

La utilización de datos del ISTAC ha permitido conocer cuáles son las características y motivaciones de los turistas que influyen en mayor medida en la visita de puntos de interés. Tras el análisis se ha podido concluir que la nacionalidad del turista y la ubicación del establecimiento alojativo son factores relevantes a la hora de poder estimar qué lugares se visitarán. Así, se ha comprobado que las personas de ciertas nacionalidades (como españoles, italianos o franceses) se muestran más propensas a visitar los puntos de interés canarios. Sin embargo, existen otras nacionalidades (como británicos o irlandeses) que muestran una tendencia muy inferior a visitar estos lugares. Además, la ubicación del establecimiento alojativo influye a la hora de motivar a los turistas a visitar unos puntos de interés u otros. De ello se concluye que conocer la nacionalidad del visitante permite estimar su propensión a visitar puntos de interés del destino y, de conocerse también dónde se alojará, se puede saber qué lugares es más probable que visite. Sin embargo, parece que las motivaciones no ejercen un papel tan significativo en este aspecto.

El conocimiento de los puntos de interés e itinerarios realizados genera una serie de beneficios para la gestión turística a escala local. A pesar de ello, existe una fuerte limitación para llevar a cabo acciones encaminadas a estos fines debido a la dificultad que representa la obtención de información en este ámbito. La Encuesta de Gasto Turístico del ISTAC no es capaz de recoger todos los puntos de interés que conforman un destino. Es por todo ello que la recopilación de la información ha de llevarse a cabo mediante técnicas diferentes a las convencionales.

Para los gestores de los destinos turísticos, permite identificar cuáles son las áreas turísticas del destino y cómo llegan los visitantes a las mismas. Sabiendo esto, se pueden poner en marcha medidas que tengan la finalidad de incrementar o reducir la afluencia de dichos visitantes a un área determinada. De igual modo, permite conocer qué impacto supondría para el destino el aumento de la oferta alojativa en una zona determinada y cómo influiría en la visita de ciertos puntos de interés. Además, ayuda a estimar qué lugares son dependientes de otros, es decir, qué puntos de interés son visitados debido a su cercanía con respecto a otro punto de interés.

Para las empresas, puede servir para crear nuevos productos turísticos o mejorar la gestión de las actividades desarrolladas. Si un establecimiento alojativo conoce a qué lugares suelen ir sus clientes al alojarse en el mismo, puede recopilar un mayor número de folletos o mapas de dichas zonas con el objetivo de ofrecerlos y mejorar su estancia. El conocimiento de los itinerarios realizados y vías de conexión utilizadas por los visitantes puede ser usado por las empresas para saber en qué lugares deben promocionarse para que el mensaje sea captado por un público concreto. Además, si las empresas oferentes de actividades turísticas tienen conocimiento de cómo los visitantes enlazan los servicios que cada una de ellas ofrece, pueden aliarse con el fin de que su unión mejore la experiencia de sus clientes o reduzca costes. Para agencias de viajes y turoperadores suponen un modo de conocer lugares de interés para los turistas que resultan difíciles de identificar y que podrían incluir en sus paquetes.

En el presente trabajo se han estudiado los puntos de interés de la isla de Lanzarote. Con ello se han podido establecer cuáles son las áreas turísticas de la isla y los lugares en los que existe una mayor abundancia de establecimientos alojativos. Sin embargo, la aplicación práctica de la investigación se ve limitada dado que no se han podido rastrear los movimientos de los turistas para identificar itinerarios turísticos en la isla, al no haber información relativa al orden de visita de los puntos recopilados. Además, la utilización de otros métodos hubiese desvelado, seguramente, puntos de interés turístico adicionales. El descubrimiento de otros puntos de interés podría haber derivado en la modificación de la taxonomía elaborada. Del mismo modo, el estudio de dichos puntos en otras islas hubiese hecho necesaria la actualización de la clasificación para crear nuevas categorías que estuvieran en concordancia con los nuevos puntos descubiertos. A pesar de ello, el trabajo sirve para poder continuar la investigación en este ámbito y expandirla a toda Canarias e, incluso, ser empleada como marco de referencia en la investigación turística de otros destinos. También muestra qué características de los visitantes influyen en sus patrones de visita, lo que puede servir a los gestores de la actividad como herramienta con la que promocionar ciertos puntos de interés en los segmentos interesados en los mismos.

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CHAPTER 2

The concept of *point of interest* in the context of tourism literature

Book chapter 1. **Point of interest**

Journal article 2. **What is the meaning of most used location-based concepts in tourism research?**

En este capítulo se define el concepto de punto de interés, estableciendo las diferencias del concepto creado en relación con conceptos previos tradicionalmente empleados en la investigación turística. Para establecer estas diferencias, se realiza un análisis bibliométrico del uso dado a cuatro conceptos por los investigadores que cuentan con publicaciones en revistas indexadas en SCOPUS.

This chapter defines the concept of point of interest, establishing the differences of the concept created in relation to previous concepts traditionally used in tourism research. To establish these differences, a bibliometric analysis of the use given to four concepts by the researchers who have publications in journals indexed in SCOPUS is carried out.

Book chapter 1. **Point of interest**

This work has been accepted for its publication in *Encyclopedia of Tourism Management and Marketing* (2022). This book is edited by Dimitrios Buhalis and will be published by Edward Elgar Publishing.

Keywords: point of interest, location, tracking, POI, stops, attraction

Wall (1997) defined the concept as those small spaces that concentrate a large number of visitors. The definition is interesting as a first approximation to the definition of the concept, but it has some conceptual limitations. There are places where numerous visitors converge but are not visited because they generate interest in them. This could be the case of airports or accommodation establishments for some tourists. For others, the plane trip and the hotel chosen to spend their holidays might be key in their choice of the trip. According to the definition created by Wall (1997), the concept of point of interest is similar to that of tourist attraction. However, previous definitions of the concept of tourist attraction serve to establish differences between the two concepts (e.g. Benckendorff, 2016). A point of interest is a specific place within a tourism destination where a significant number of tourists stop. The reason for stopping must be their interest in enjoying one or more elements that can be found within that place. This means that those places whose visit is obliged or required are not points of interest. All points of interest must have these characteristics:

- Locatable: It must be a geographical space and, therefore, it must be possible to locate it through coordinates on a map.
- Geographically limitable: It is possible to establish the space it occupies and define the limits it covers.
- Accessible: The space can be enjoyed by tourists and residents, so they must be capable of accessing it.
- Visited by tourists: Allowing the access to the place is not enough, but there must be a significant number of people who access the place. In addition, it is essential that a significant part of the visits is made for tourism purposes. If the place is visited by residents of the area and not by visitors, it will not be a point of interest (at least not for tourism and hospitality research). On the contrary, if it is visited only by visitors and not by locals, it can be considered as such.
- Attractive: The place must generate interest in visitors. In other words, the influx of visitors to it must be since said visitors are attracted to the place itself or to carry out a certain activity. This implies that sites visited for a need, obligation or to get to the real place that generates interest are not points of interest.

The element that attracts visitors can sometimes be the place or point of interest itself. For example, visiting a church may be of interest to some visitors, which makes the church a point of interest. The church itself is the element that generates interest. In other cases, the element that attracts tourists can be enjoyed from the distance. For example, in the case of certain points of interest such as viewpoints, people converge in these places to enjoy the views or other elements that can be seen from the distance. However, the point of interest is the viewpoint as it is the place where tourists concentrate. There are also intangible elements attracting tourists. In the case of festivals, the interest does not lie in the place itself (point of interest), but in some of the elements that can be enjoyed in these places (the festival, in this case). In this case, the festival is the element attracting tourists. However, the points of interest would be those places within the destination where tourists are concentrated to enjoy the festival. In the case of large areas attracting tourists, such as natural parks; points of interest are those places in the area where tourists concentrate. For example, viewpoints, information centers or trails. Places such as airports or hotels concentrate a lot of tourists, but they are not usually points of interest. Tourists visiting these places do not tend to be interested in them, but in their utility to enjoy their trips. However, points of interest are a "personalized" element because they differ from a certain person to another. For some tourists, their stay at the hotel could have an important role on their trip, making the hotel a key point of interest to visit. The same could happen with restaurants to tourists interested in gastronomy, even if restaurants are not so important for other tourists.

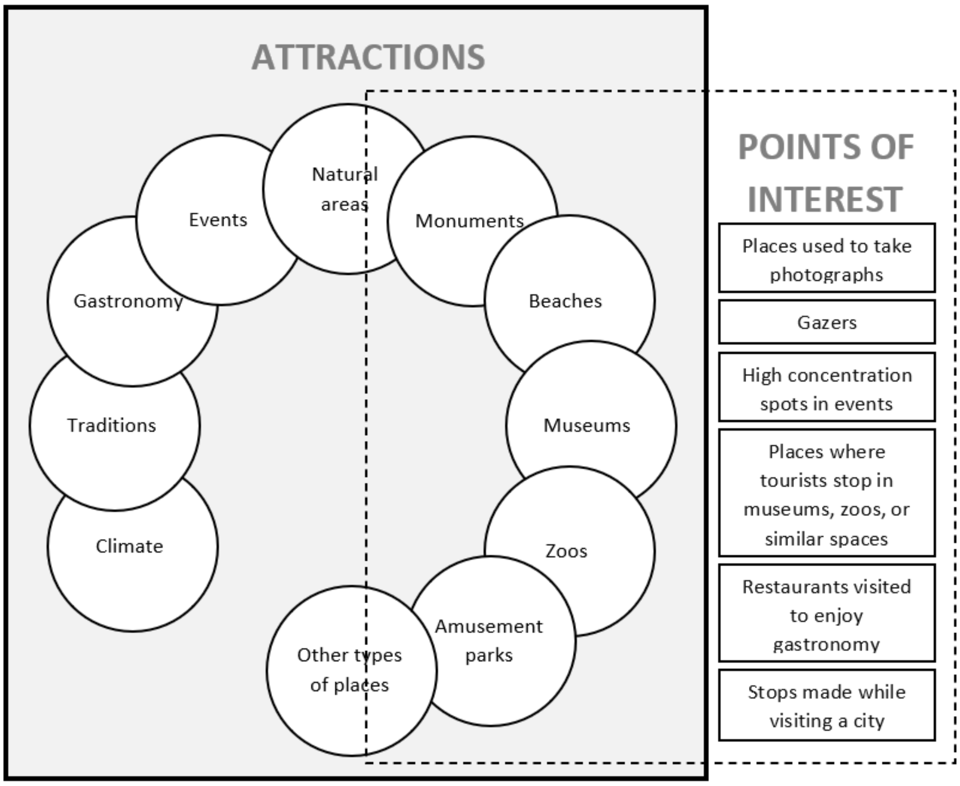
Various researchers have established that tourist attractions are those key elements attracting tourists to the destination. They do not have to necessarily correspond to geographical spaces, since elements such as climate, events or gastronomy can also be tourist attractions (e.g. Benckendorff, 2016; Lohmann & Netto, 2016). Points of interest are always geographical spaces, so intangible elements cannot be points of interest. Wall (1997) stated that points of interest are those places where visitors stop because they feel interested in them. This includes stops made within large tourist attractions such as natural parks (Wall, 1997). It also includes stops in other places that do not represent one of the main attractions of the destination. This means that a single attraction might present several points of interest. Attraction are basically the main reasons chosen to travel to a certain destination (Beckendorff, 2016). Points of interest are all those places where tourists stop to enjoy their trip. These stops can be made to enjoy an attraction, to visit destination facilities or to practice an activity.

The use of the concept of point of interest has become crucial to study the mobility patterns of tourists. Researchers have been interested in knowing how tourists move since early 90s (Padrón-Ávila & Hernández-Martín, 2020). There have been various attempts to find out how tourists move around the destination and the places they visit. The rise of Information and Communication Technologies (ICTs) has allowed researchers to effectively track tourists and study their mobility patterns (Padrón-Ávila &

Hernández-Martín, 2020). The places that tracking devices can detect are basically points of interest (Signorelli, Reis, & Biffignandi, 2016). As previously mentioned, attractions are only those key elements - of any type, not only places- attracting tourists to the destination (Benckendorff, 2016). However, tracking devices can only detect the places visited, not other type of elements. Despite this, tracking devices can detect both, most visited spots of the destination and less frequented places. This makes the concept of point of interest a much precise term to refer to the places detected by tracking devices than the concept of attraction.

Integrating the use of ICTs into tourism management is essential to keep the competitiveness of destinations (Buhalis & Sinarta, 2019). As technologies are constantly evolving, tourism management requires a constant improvement. Tracking technologies are not an exception and they are continuously evolving and improving (Padrón-Ávila & Hernández-Martín, 2020). Interviews and surveys were the most popular tools to track tourists in the 90s (Padrón-Ávila & Hernández-Martín, 2020). Other sources of information have emerged since 2010. Buhalis & Sinarta (2019) point to the improvement of ICTs to allow tourists to give opinions, share contents or using hashtags as a key element to gather information from tourists. The rise of location-based technologies and devices also facilities geolocating the places visited by tourists and identifying points of interest (Buhalis & Foerste, 2015). This rapid growth of ICTs seems to indicate that new technologies will be constantly created. The future development of technologies will increase the use of the concept of point of interest. Because tracking technologies and the sources of information to gather data from tourists will also improve. New types of studies using them will be required to understand how tourists move and behave. Identifying the places visited by tourists during their trips (points of interest) will become fundamental for properly manage and promote tourism destinations.

Figure 1. Difference between attractions and points of interest.



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Journal article 2. **What is the meaning of most used location-based concepts in tourism research?**

This work is currently been reviewed for publication.

Abstract

This paper is motivated by the lack of agreement on the meaning of frequently used terms in tourism research, particularly when dealing with location-based concepts. This lack of agreement has been up till now a neglected issue in the academic literature on tourism. Thereby, results of different studies referring to different topics are using the same concept, what complicates the comparison of findings. Thus, the aim of this paper is to propose an objective method that may help researchers reach a consensus on the definition of the main location-based concepts in tourism research. In this paper, the authors have focused on four main concepts: destination, attraction, accommodation and point of interest. To do so, following a literature review on the use of these concepts in scientific publications, a bibliometric analysis is carried out to quantify how often researchers employ the different definitions given to each term. This allowed identifying the definition more frequently given to each concept, what could be used to reach consensus in the definition of these four terms. Results show that bibliometrics can help identifying most frequent definition given to a certain concept. This study can help future researchers to define concepts in tourism studies, as it can be used to achieve a consensus between international organizations, researchers and practitioners when elaborating reports on tourism and hospitality.

Keywords: conceptualization, tourism terms, bibliometric, definition, location

Introduction

Conceptualizing elements and providing term definitions is important for researchers because it helps readers understand what their studies are addressing This study emphasises the lack of agreement when defining most used terms in tourism research. Despite the efforts made by World Tourism Organization, researchers continue creating different definitions to tourism-related concepts. This has led to certain terms having various definitions depending on the study where they appear. Thus, results of several studies referring to different elements are using the same concept, hindering the comparison of their findings. This paper's aim is providing researchers a tool that could help them arrive to a consensus on the definition of concepts in tourism research. In this study, authors have decided to focus on analysing the terms of destination, attraction, accommodation and point of interest. To do so, we make a literature review to compare the different definitions provided by researchers to these concepts in tourism research. Results show that definitions are diverse, ambiguous and that even all concepts studied could fit in the definitions provided for each of them. In addition, a bibliometric analysis has been carried out to quantify how often researchers employ the different definitions given to each term. This allowed identifying the definition more frequently given to each concept, what could be used to reach consensus in the definition of these four terms.

(Blackstone, 2018). However, providing different definitions for the same term in multiple studies may confuse readers and complicates being understood by organizations and practitioners. Moreover, the use of different definitions does not allow comparing results, as the same term can be used with different meanings in different studies (Blackstone, 2018). Despite the importance of correctly defining concepts, the definition of most frequently used terms in tourism research has been one of the main challenges for researchers and organizations during last decades, as there is no consensus about it (UNWTO, 2010). World Tourism Organization (UNWTO) has been highly involved in creating these definitions (UNWTO, 2007, 2010) and is probably the most appropriate agent to carry out this task. However, its definitions have been widely criticized for being too generic and for only compiling a very limited set of terms (Ghanem, 2017; Jafari and Xiao, 2016). Thereby, diverse definitions have been developed by various authors depending on the needs of the research developed.

The concept of "tourism destination", being the most basic unit of analysis in tourism research (Saraniemi and Kylänen, 2011; UNWTO, 2007), has not even been properly defined. It seems that boundaries of destinations are perceived in a different manner by tourists, firms and public administrations (Jafari and Xiao, 2016; UNWTO, 2007). Thus, previous definitions of the concept have considered that destinations can be defined at any scale (UNWTO, 2004). However, this generates issues among researchers and destination managers, as they cannot establish where the boundaries of destinations are in order to propose policy actions aimed to improving their management or to carry out studies oriented to analyse particular realities happening within the destination.

Moreover, the case of the concept of "tourism destination" is not an isolated case. Other location-related tourism terms have shown problems to be properly defined. Terms such as "attraction", "accommodation" or "point of interest" may be confused by researchers and used indifferently. Following UNWTO (2004), tourists' perceptions of the destination are the important fact to establish which destination they are visiting. This report even indicated that a hotel can be the destination of tourists (UNWTO, 2004). However, if this were the case, then a hotel could be the destination visited, only attraction enjoyed, accommodation chosen and unique point of interest visited by a certain tourist. Nevertheless, researchers and managers do not tend to use these terms with the same meaning. In fact, hotels are usually only considered as tourists' accommodation, while attractions are main pull elements explaining tourist arrivals (Jafari and Xiao, 2016) and points of interest tend to refer to places visited (Padrón-Ávila and Hernández-Martín, 2017). Despite this might seem easy to explain, researchers continue debating about the meaning of these terms. For example, in the case of tourists sleeping in their cars or camping, can these elements be considered their accommodation? And, do the concepts of “attraction” and “point of interest” have the same meaning?

As definitions of most used location-based concepts in tourism research appear not to be clearly defined by researchers or institutions, this paper aims to analyse how previous studies have defined the terms “destination”, “attraction”, “accommodation” and “point of interest” in tourism research. Following Lewis (1970), in order to establish the meaning of terms, researchers need to look at the first mentions of those terms (when they were introduced) but they also have to consider how their meaning has evolved and the main references using them. Thus, a bibliometric analysis of most cited papers indexed in Scopus has been carried out to establish how researchers have used the concepts mentioned. Thereby, the purpose of the paper is not providing a new definition for these terms, but to identify how tourism researcher use them in their studies so a consensus on their meaning can be achieved.

Current debate about the definition of terms in tourism research

UNWTO (2010) simply defines destinations as the places where tourists spend most of the time during the trip. Based on this definition, it could be understood that hotel rooms are the destination of tourists’ trips. However, this is not what tourism researchers refer to when using this concept. Hong-Bumm (1998) considers destinations as complex products composed by climate, infrastructure, superstructure, services, nature and culture. Similarly, Buhalis (2000) defines it as an amalgam of products, services and facilities of a place that meets the needs of tourists. Baggio & Cooper (2010) point out that a destination is formed by a group of institutions and tourism companies that collaborate, generating the network of structures that conform the destination. Although these definitions consider the elements composing a destination and how they interrelate, there is a problem that they do not solve. It is the spatial dimension of a destination, as none of these studies establishes the territorial unit that forms and defines a destination. In fact, researchers have not agreed on the scale on which a territory should be considered as a destination (Lohmann & Duval, 2014; Lohmann & Netto, 2016). Sometimes, tourism studies consider the entire country as the destination (e.g. Ahas et al., 2007; Izquierdo Valverde et al., 2016; Roose, 2010). Sometimes, the region visited is identified as tourists’ destination (Aquilino et al., 2018; Wu and Pearce, 2012). On other occasions, the city studied is considered as destination (e.g. Lew & McKercher, 2002; McKercher et al., 2012). In fact, even a part of a city, an island or a tourist attraction can be considered as tourism destinations (Smallwood et al., 2012).

In past reports, UNWTO (2004) defined the concept of destination as a physical space with administrative limits in which the visitor stays, at least, during one night and the set of services, attractions and tourism resources that can be enjoyed during a unique day of stay. The problems linked with this definition are that tourists may need more than a day to visit some places, such as certain natural areas, and that UNWTO

(2004) does not specify which administrative limits cannot be exceeded (municipality borders or country frontiers, among others). Thus, UNWTO (2015) later states that destinations are physical spaces with or without administrative or analytical limits in which a visitor can overnight and also indicates that destinations can be grouped to conform larger destinations. This idea is also supported by Jafari & Xiao (2016) and Fletcher et al. (2013), who consider that a destination can be included within another one depending on the scale at which they are analysed. Despite this definition may solve the problems of the previous definition provided by UNWTO (2004), it allows considering a wide set of places as destinations, even hotels or resorts, as visitors can overnight and practice several tourist activities within them.

Thereby, taking as reference the definitions mentioned, a series of conclusions can be reached regarding the definition of the concept of “tourism destination”. First, all authors agree that the destination is a geographical space where visitors travel to (Baggio & Cooper, 2010; Buhalis, 2000; Hong-Bumm, 1998; Lohmann & Netto, 2016; UNWTO, 2010). Secondly, they are formed by a set of interconnected elements that meet the needs of tourists (e.g. Baggio & Cooper, 2010; Buhalis, 2000; Hong-Bumm, 1998). Finally, there is a huge problem to establish the geographical limits defining destinations (city, island, region, country...) (UNWTO, 2007). Therefore, it seems appropriate to consider that they can be grouped to form, in turn, other destinations (UNWTO, 2004, 2015). However, as definitions have not been able to indicate the lowest possible level at which a destination can be defined, it is not possible to establish when destinations are being grouped or not.

In the case of the term “attraction”, Jafari & Xiao (2016) point out that, despite researchers usually consider attractions as physical spaces, this term comprises a wider set of elements. In fact, Jafari & Xiao (2016) define tourist attractions as all those places, people, events and things that attract tourists to destinations. Other works have also supported the idea of considering not only geographical spaces as tourist attractions, but also the culture, traditions, events and climate of destinations (Lohmann and Netto, 2016; Shoval and Raveh, 2004; Timothy, 1995). Thus, the conceptualization of tourist attraction seems to be designed from a demand perspective, as researchers agree that it refers to those elements attracting tourists to the destination. The problem with this definition arises when considering the extremely wide set of elements that can be considered as attractions. For some tourists, theme parks may be the reason for choosing a certain destination. However, for other tourists, a certain person (friend, relative or couple) could be the “attraction” motivating the visit of a place and no other elements linked to the destination. Moreover, the low price of flights or the characteristics of the accommodation establishment could be also considered as an attraction of the destination following these definitions, as they might be the reasons attracting tourists.

Despite the definitions of “attraction” created by the authors mentioned (Jafari and Xiao, 2016; Lohmann and Netto, 2016; Shoval and Raveh, 2004; Timothy, 1995), researchers do not tend to use this term with this meaning. Actually, it seems that locations are usually the only elements considered as attractions (e.g. Baggio & Cooper, 2010; Padrón-Ávila & Hernández-Martín, 2019) and the willingness to enjoy a certain resource also seems to be relevant to establish whether if it is an attraction or not (Richards, 2002). However, considering attractions as the place where tourists can enjoy a certain resource derives in equalizing this term with the concept of destination, despite researchers clearly differentiate them in their studies. In addition, points of interest are also locations attracting tourists, so this could mean that the terms "attraction" and "point of interest" are used indifferently. Moreover, the accommodation establishment can be also considered as the place that tourists have chosen to enjoy their vacations and, thus, a tourist attraction.

The term "accommodation" has not been widely defined in tourism research. In fact, the only direct definition found to this term was included in the Encyclopedia of Tourism (Jafari and Xiao, 2016). Nevertheless, "accommodation" is simply defined as the "home away from home" where tourists stay during the night (Jafari and Xiao, 2016). Taking this definition as it is, no boundaries have been set to delimit this concept. Thus, the room where tourists stay can be the accommodation, or the whole building in which they are sleeping or even the city if they consider it their "home away from home". To be more specific on this concept, Jafari & Xiao (2016) later state that people usually consider as accommodations the "hotels, inns, or lodges". Despite this clarification helps specifying what places can be considered as accommodations, it seems to point that accommodations necessarily need to be firms or, at least, places providing service facilities, as Gunn (1979) points. However, tourists do not always stay in hotels or similar enterprises, as they can also camp or sleep in caravans, for example.

The concept of "point of interest" also shows a lack of references about its definition. Despite it is not even included in the Encyclopedia of Tourism (Jafari and Xiao, 2016), certain researchers have recently begun to include it in their studies and reports (e.g. INRouTe, 2017; Padrón-Ávila and Hernández-Martín, 2017; Signorelli et al., 2016). Even so, most of them have not created a definition to explain what this concept refers to, which could lead to confusing it with other similar terms. The first reference found in tourism research to this concept was elaborated by Wall (1997), who uses this term from a geographical and spatial perspective stating that points of interest are specific locations that concentrate a large number of visitors. In this study, Wall (1997) also points that points of interest differ from attractions in terms of size. While attractions tend to be enjoyed in large areas with certain attractiveness to tourists, points of interest are those locations within these areas where tourists usually concentrate (Wall, 1997). From this definition, some research-related issues may arise as certain attractions do not show a particularly high concentration of tourists in specific spots, such as festivals or beaches. Moreover, tourism-related places (such as airports, tourism information offices and accommodation establishments, among others) usually present a huge concentration of tourists, but not all of them generate interest in tourists, so they should not be defined as "points of interest". In addition, Wall (1997) does not establish criteria to determine the maximum size of a place or the minimum number of visitors that it must receive to be considered as a point of interest. Thus, the place to consider could be a beach, city, region or country, what could derive in equalizing points of interest to the terms previously discussed.

Thereby, Padrón-Ávila & Hernández-Martín (2017) define points of interest as "a specific place, within a tourism destination, in which one or several tourism resources are located and tourist activities are carried out from them". Despite this study tries to solve the issues derived from the definition of point of interest provided by Wall (1997), it also presents some issues. A specific place can be understood as a building, park, the exact coordinates where tourists are or even a whole city. Moreover, authors state that this place has to be within a tourism destination (Padrón-Ávila and Hernández-Martín, 2017) but this term has not been properly defined yet by tourism research. In addition, the definitions of tourism resource and tourist activity can also generate problems as other tourism terms (UNWTO, 2010). Thus, more discussion about all these terms is required to achieve a consensus among researchers.

Data collection

In this study, a bibliometric analysis has been carried out. The use of bibliometric in tourism research has become popular in last years (Strandberg et al., 2018; Wu and Pearce, 2012). To do this analysis, most cited studies indexed in Scopus database have been used. Ginieis, Sánchez-Rebull, & Campa-Planas (2012) point out that bibliometric analysis has gained importance in recent years in certain fields of economic sciences, particularly in marketing, tourism and strategic innovation. Although there are different databases from which the analysis could have been performed, Scopus has been chosen mainly because it is the largest bibliographic database in the world that indexes more than 21,000 titles of international scientific publishers (Rudchenko et al., 2017). In addition, other bibliometric studies conducted in the field of tourism research have also supported its use (Boselie et al., 2005; Gallardo-Gallardo et al., 2013; Jiménez-Caballero and Polo Molina, 2017; Rudchenko et al., 2018). Rudchenko, Martín, & Sánchez-Rebull (2017) also indicate that another of the advantages of Scopus is offering the possibility of searching for keywords included in the article title, summary and keywords and provides links to the publishers' websites and to the full text of the articles. Although bibliometric analysis techniques are mainly used to know what are the methods used by researchers to study a given phenomenon or the journals most likely to publish studies about a certain topic (Barrios et al., 2008), some researchers have successfully applied them to know how certain terms are used in order to establish their definition. Among others, this type of study has been used to define the concepts of international competitiveness (Olczyk, 2016), green innovation (Albort-Morant et al., 2017), reverse salient (Dedehayir, 2009) and resilience (Exterckoter et al., 2016). Moreover, bibliometric has been also used in previous studies to analyse the state of certain topics in tourism research and to criticise research published on a certain topic (e.g. Yankholmes, 2014).

To carry out the bibliometric analysis, the terms "tourism destination", "tourist attraction", "tourist accommodation" and "points of interest tourism" were introduced on Scopus. Thus, papers containing these terms in their title, summary or keywords appeared. This search was carried out on July 16th 2019. Once the search was done, only the 50 most cited papers (of each term) available in Scopus database were considered for analysis. After collecting the papers, we read them to collect data about definitions to the concepts or, if definitions were missing, to identify the use authors gave to the concepts in the papers collected. Blackstone (2018) accepts this as defining does not always imply providing a direct definition to a concept but specifying the use researchers are giving to the term. In order to decide if linking the words "tourism" or "tourist" to the terms of destination, attraction and accommodation, authors decided to use the combination that showed to have more results in Google Scholar. In the case of the concept of point of interest, the word tourism was added in the search engine because this term is also highly used in non-tourism related areas.

In the case of the search of publications addressing "tourism destination", 50 most cited papers had received between 322 and 1,478 citations and they were published from 1978 to 2015. In the case of the concept of "tourist attraction", the selected contributions had been published between 1987 and 2016 and they had between 200 and 631 citations. In the case of "tourist accommodation", studies had been cited between 81 and 322 times and they had been published from 1978 to 2016. In the case of the concept of "point of interest tourism", the contributions analysed had been published between 2001 and 2019 and they had between 5 and 205 citations.

Data processing

Once papers were found, they were completely read to find definitions of their respective authors stating what they considered as destination, attraction, accommodation or point of interest. If no definition was provided, we considered the use given to the term to establish it. For example, if a paper focuses on analysing a certain country and identified the country as the destination studied, we considered that the authors of the paper were defining destinations as the country visited by tourists. Despite this means that not all data relate to papers using definitions to the terms studied, the use given to concepts by researchers is also considered a way of defining them in social sciences (Blackstone, 2018; Lewis, 1970). The reason for this is that establishing what researchers mean when carrying out a study is necessary to let readers understand the assumptions made by the researchers (Blackstone, 2018). Thus, papers have to define the terms they use, even if they do it in an indirect manner (Blackstone, 2018).

In order to get quantitative data from the revision of the papers, definitions to terms were categorized. Categories were created based on the definitions found during the search. Different categories were created for each term based on the data found and the literature review carried out. This also allows establishing clear differences between the concepts. In the case of "tourism destination", definitions were classified as "Country", "Region", "City", "Small island" or "Not specified". The category "Region" also includes papers that considered that destinations are counties or provinces. The category "City" not only includes cities, but also towns and villages. In the case of the category "Not specified", it refers to papers that were tagged with the keyword "tourism destination" by Scopus (so they appeared while searching) despite they do not contain this term and not mention the place where authors apply the study. In the case of the concept of "tourist attraction", definitions were categorized as "Places, traditions and others", "Large spaces with minor attracting spots", "Specific locations" or "Not specified". Again "Not specified" was assigned to papers not dealing with attractions and "Large spaces with minor attracting spots within" refers to definitions directly stating that the attraction studied was composed by smaller places where tourists tended to concentrate. In the case of "tourist accommodation", the categories created were "Apartment", "Bed & breakfast", "Campground", "Cruise", "Farm or rural house", "Holiday home", "Hostel", "Hotel", "Motel", "Resort", "Shared accommodation", "Staying with friends or relatives" and "Not specified". In the case of this term, some studies were dealing with several accommodations as many of them were comparing customer satisfaction, incomes, reputation or other performance-related topics between customers of different types of accommodation. Last, in the case of the term "point of interest", definitions were classified by "Specific locations", "Particular spots" and "Not specified". The category "Specific locations" refers to the same elements than the same category created for "attraction" items. However, elements categorized as "Particular spots" refer to studying addressing specific coordinates (latitude and longitude) where tourists have been while travelling.

After categorizing the definitions found, data were analysed through the frequency of use of each of the categories created. Thus, several tables were created pointing to the different definitions given by researchers to the terms studied. This allows understanding which definitions are more popular among researchers and establishing differences between the concepts. These tables contain information about the number of studies found dealing with each definition and the relative weight of each category. Moreover, data about the first and last year when each definition of the concept was employed is also presented. In addition, the average year of publication of papers using the different types of definitions are also shown.

Data analysis

As can be seen in Table 1, researchers usually understand tourism destinations as the cities visited by tourists. The second most frequent definition for this concept is considering the whole country as tourists' destination. Curiously, the most specific definition of this term is the most used one, while the most generic one is the second most used definition. Moreover, some studies have also considered the region visited as the destination of tourists' trips. Results of the bibliometric analysis also seem to point that, when studying small island destinations, researchers usually consider the whole island as the destination of tourists, instead of considering one of the cities of the island, as it happens in non-insular territories. As the use of the term "tourism destination" is frequent in tourism research, almost a third of the studies found contained this term in their title, abstract or keywords even if they did not actually study a particular destination. Thereby, several studies were categorized as "Not specified".

Table 1. Results for each definition of "tourism destination" and evolution of the term.

Definition	Number	Percentage	First mention	Last mention	Mean year
Country	10	20%	1982	2006	1997.9
Region	4	8%	1979	2009	2000.6
City	17	34%	1978	2015	2003.3
Small island	3	6%	2000	2004	2002.0
Not specified	16	32%	1990	2011	2002.1

In this study, we also wanted to analyse if the definitions of the terms chosen have evolved along the years. Thus, Table 1 also shows the evolution of the definition of "tourism destination". Results point that first studies (late 1970s) considered cities as destinations but researcher started to consider countries as destinations in early 1980s. Probably because, despite the study of tourism at local scale can bring more interesting results, it was easier for first tourism researchers to start analysing the activity at a more generic scale. In fact, the average year of publication of the studies found shows that defining "tourism destination" as the country visited by tourists was more frequent in past research. Currently, researchers tend to use the city (which represents a more specific scale of analysis) as the destination to be studied. Moreover, results also point that more recent studies are also considering islands as tourists' destination. The results displayed in the table show that researchers do not use this word to refer to hotels or similar places where tourists stay (accommodation), or to refer to the location and resources explaining tourists' arrival to the destination (attractions or points of interest).

Similar to previous table, Table 2 shows how researchers use the term "tourist attraction". Results point that the most frequent definition of this term relates to the one given by Jafari & Xiao (2016), considering that attractions are not only places but also traditions and weather, among others. However, it seems that researchers studying attractions usually focus on location-based attractions instead of intangible ones. Curiously, some studies define attractions as large spaces containing several places where tourists tend to concentrate, as pointed by Wall (1997). Results also indicate that considering only locations as attractions was more frequent in past research than in current studies. Nowadays, an extended vision of this concept is more frequent among researchers. Moreover, when studying location-based attractions, results indicate that some researchers consider them as large areas comprising several spots that are the ones visited by tourists. Comparing Table 1 and Table 2, it can be appreciated that cities, regions or countries are not attractions, while other spaces are, such as national parks, museums or old towns. Moreover, the last places mentioned are never considered as destinations by researchers, despite UNWTO supports this claim (UNWTO, 2007). In addition, attractions do not necessarily have to be related to a geographical space (they can also be traditions, festivals, among others), while destinations are always a specific place.

Table 2. Results for each definition of “tourist attraction” and evolution of the term.

Definition	Number	Percentage	First mention	Last mention	Mean year
Places, traditions and others	21	42%	1992	2014	2003.2
Large spaces with minor attracting spots	4	8%	2000	2010	2004.5
Specific locations	14	28%	1990	2009	2001.9
Not specified	11	22%	1987	2016	2005.7

In the case of the concept of “accommodation”, results are displayed in Table 3. Data point out that hotels have been the most studied accommodation in tourism and hospitality research. Moreover, hotels were the most studied type of accommodation in past research but they continue being currently studied. Despite this, results indicate that recent research is also focusing in holiday homes, probably due to the rapid rise of this type of accommodation during last years. Other frequent types of accommodation studied are bed & breakfast, motels and tourists staying with friends or relatives. Results seem to indicate that analysing tourists’ accommodation usually imply studying hospitality enterprises. The only exception found are those studies focusing on tourists staying with friends and relatives. However, other non-business-related accommodations are not frequently studied, such as staying in caravans, camping for free or owning second homes. As previously mentioned, some studies using the term “accommodation” deal with several types of accommodation. Thereby, even if only the 50 more cited studies were considered for the analysis, the sum of the number of studies in Table 3 referring to each of the definitions identified exceeds this amount.

Table 3. Number of results for each definition of "accommodation" and evolution of the term.

Definition	Number	Percentage	First mention	Last mention	Mean year
Apartment	1	2%	2012	2010	2012.0
Bed & breakfast	9	18%	1996	2009	2003.9
Campground	5	10%	1996	2009	2002.8
Cruise	1	2%	1996	1996	1996.0
Farm or rural house	4	8%	1996	2007	2001.0
Holiday home	4	8%	2007	2016	2012.5
Hostel	3	6%	1996	2003	2000.0
Hotel	32	64%	1991	2012	2004.9
Motel	6	12%	1996	2006	2001.2
Resort	2	4%	2005	2005	2005.0
Shared accommodation	1	2%	2003	2003	2003.0
Staying with friends or relatives	6	12%	1996	2012	2005.7
Not specified	7	14%	1978	2009	1996.7

When comparing Table 3 with previous tables, some findings can be made. Accommodations always relate to a location, like destinations and contrary to attractions. However, in opposition to destinations, cities or other urban nucleus are not considered the accommodation of tourists. Instead of this, researchers only consider as accommodation certain buildings or infrastructures (in the case of cruises and campgrounds) where tourists overnight, while these places are not considered the destinations of tourists by researchers, despite UNWTO pointed to this possibility (UNWTO, 2007). In addition, studies tend to relate the term "accommodation" with places related to hospitality industry, while these locations are not considered as attractions by researchers.

Results found about the definition of "point of interest" in tourism research can be seen in Table 4. Data show that this term is the one that has more recently started to be used in tourism research. Moreover, data also indicate that researchers tend to use this term to refer to specific locations, such as squares, museums, buildings, etc. In addition, some studies have also used the term to refer to all those places where tourists stop, particularly in studies using tourist tracking techniques. In this regard, when researchers use this definition (particular spots) to refer to "points of interest", they do not mean the facilities visited (such as museums or natural areas) but the specific coordinates where tourists have been.

Table 4. Number of results for each definition of "point of interest" and evolution of the term.

Definition	Number	Percentage	First mention	Last mention	Mean year
Specific locations	39	78%	2001	2019	2013.2
Particular spots	8	16%	2002	2015	2011.1
Not specified	3	6%	2006	2016	2011.7

Comparing Table 4 with the other three previous tables, several differences between the terms studied can be identified. First, points of interest are more specific places than destinations as supported by Padrón-Ávila and Hernández-Martín (2017). Moreover, points of interest always refer to a location, not like the term "attraction", despite both terms have been used indifferently in some studies. Nevertheless, this consideration of attractions as specific locations was more frequent in the past, while current studies usually define them not only as places but also as other elements. In addition, some studies consider that location-based attractions can be large areas comprising minor spots and these spots could be understood as points of interest, as suggested by Wall (1997). With respect to the concept of "accommodation", none of the studies found considered that points of interest could be defined as hotels, apartments, resorts, among other types of accommodation establishments.

Conclusion

This research intended to clarify the meaning of most used location-based concepts in tourism research. Despite the importance for researchers of understanding the meaning of terms (Blackstone, 2018) and the efforts made by UNWTO (2004, 2007, 2010, 2015), conceptualizing in tourism continues being a task to face (UNWTO, 2010). The literature review carried out during this study shows the low agreement about the meaning of frequently used tourism concepts among researchers and the issues that each of the definitions created present. This low level of agreement has been also proved through the bibliometric analysis carried out in this study. However, results show which are the main definitions used by researcher for the terms studied. In this regard, destinations usually refer to the cities visited by tourists, attractions tend to be any kind of element (not necessarily locations) motivating tourists to visit the destination, accommodation is used to refer to tourism firms hosting tourists and points of interest are those specific locations visited by tourists during their trips.

This paper may help clarify the definition of the four terms analysed, so researchers can properly use them in their studies. This could lead to a unique interpretation of these terms in future studies, deriving in research analysing the same elements so results of different studies can be compared. Moreover, this study can also serve to future researchers willing to analyse the definition of other concepts used in tourism research or other fields.

Despite the implications of this study, it also has some limitations. First, definitions of only 50 more cited studies using each term have been used to collect data the required to carry out this research, so considering a larger amount of studies or even all of them could lead to different results. Second, Scopus has been the unique database used to gather data, despite others, such as Web of Science or Google Scholar, can be used to compare the results obtained. Third, only definitions provided by researchers were considered to carry out this analysis, despite practitioners, destination managers and politicians could use the same terms with a different meaning. Last, this study does not intend to provide a definitive definition for the terms studied, as authors intention is simply providing a way to arrive to a consensus about the meaning of these four concepts among tourism researchers.

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CHAPTER 3

Mobility, points of interest and tourist tracking techniques

Journal article 3. **How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques**

Book chapter 2. **Application of tracking tools in tourism and hospitality management**

Este capítulo se basa, primero, en el uso de un análisis bibliométrico para conocer cómo pueden los investigadores identificar puntos de interés turístico en un destino. Tras ello, el capítulo analiza las implicaciones para mejorar la gestión de destinos turísticos a través del uso de técnicas de rastreo y la identificación de puntos de interés.

This chapter is based, first, on the use of a bibliometric analysis to understand how researchers can identify points of interest within tourism destinations. After that, the chapter analyzes the implications of the use of tracking techniques and the identification of points of interest to improve the management of tourism destinations.

Journal article 3. **How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques**

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Abstract

In this study, an identification of tourist tracking techniques, their evolution, advantages and disadvantages is made to help researchers decide which techniques to use. First, a literature review is carried out to explain how current tracking techniques work and what information can be obtained through their use. A total of 31 different tracking techniques were found. Afterwards, a bibliometric analysis was conducted to gather data regarding studies published on tourist tracking, the evolution of these studies and the most used techniques. To do so, all empirical contributions using tourist tracking techniques found in Scopus were considered for the analysis. Results point that geolocation-based techniques currently are the most frequently used ones to track tourists. Techniques such as the direct observation of tourists were the first techniques used in tourism research but are currently in disuse. Finally, based on a further literature review, the main advantages and disadvantages of the techniques found are highlighted. The study has implications for researchers interested in tracking tourists to study their behaviour and mobility patterns. It can be also used by destination managers willing to gather data of tourists to better understand tourism activity and industry.

Keywords: tracking techniques, tourist, mobility, bibliometric analysis, behaviour

Introduction

Tracking is an increasingly relevant technique in tourism studies that provides information on the behaviour of visitors within a destination (Hardy et al., 2019; Shoval & Isaacson, 2010). Tourist tracking techniques can be used to identify the places in a destination visited by tourists (McKercher & Lau, 2008; Shoval & Isaacson, 2010; Shoval et al., 2011) or to identify those tourists visiting certain points of interest (Barton & Graf, 2016; Smallwood et al., 2012). Through a literature review, it can be seen that there are techniques with similar characteristics, facilitating their classification into categories. In general, these techniques have two main focuses. They can be used to identify the places visited by a certain tourist (e.g. Raun, Ahas, & Tiru, 2016). Alternatively, they can help determine what type of tourists visit a certain place (e.g. Izquierdo Valverde, Prado Mascuñano, & Velasco Gimeno, 2016). Thus, techniques have been differentiated between tracking techniques from a demand-side approach (they directly track tourists) and tracking techniques from a supply-side approach (they identify which tourists visit a specific place). Moreover, using a bibliometric analysis, the evolution of the use of tourist tracking techniques and which techniques are most frequently used in tourism research can be investigated (Jiménez-Caballero & Polo Molina, 2017). The main advantages and disadvantages of these techniques are also evaluated. Knowing the pros and cons of the techniques can be useful for researchers interested in tracking tourists to study behaviour within destinations (Raun et al., 2016).

The main benefit derived from this analysis is for researchers to know which techniques can be used in their studies and help them choose the most appropriate techniques for their aims. Indeed, choosing a suitable tracking technique is important as it determines the implications of the research. Likewise, Lau, Koo, & Dwyer (2017) state that the implications derived from studies based on tourist tracking depend on the technique used, as each technique gathers different data. The application of a correct tracking technique may also help improve the management of tourism destinations and firms (McKercher & Lau, 2008; Shoval & Isaacson, 2007). The results of tracking studies can contribute to reducing the existent inequalities in the economic development of a region, controlling migration patterns of the population and distributing the incomes and wealth generated by tourism activity (Lau et al., 2017). These studies are also capable of helping researchers and managers understand the seasonality of destinations, the attractions and itineraries of certain places (Raun et al., 2016) as well as identifying tourist attractions that may have been ignored by destination managers (Alawwad et al., 2016). Raun & Ahas (2016) even pointed to the contribution of these kinds of studies in the improvement of transport management, taxation regulations, public administrations' management, among others.

Thereby, this paper's aim is analysing how tourist tracking techniques were used by previous researchers, describe the techniques used, analyse how their use has evolved and point to the advantages and disadvantages that each technique presents. To do so, this paper has been divided in several sections. First, a literature review has been carried out to describe those techniques used in past studies. Afterwards, we detail the method applied to gather the data used to carry out this study. Later, we present a classification of tourist tracking techniques created to facilitate the analysis of our results. After this, the study shows how the use of tracking techniques has evolved along the years. After that, the advantages and disadvantages of existing tourist tracking techniques are discussed. Finally, the results are discussed, and the conclusion of the study is presented.

Literature review: Description of existing tourist tracking technique

Surveys have been the traditional data source used by tourism researchers to gather information for their studies (Eurostat, 2014). Traditional surveys used in tourism research consist of questionnaires with the objective of gathering data about tourists' characteristics, the activities they have carried out during their trip and the amount of money spent during their trip. From these data, information regarding the sociodemographic characteristics of the visitors, their motivations, the estimated expenditure made during the trip, the place of stay, the activities carried out and the degree of satisfaction with them, among others can be obtained. In addition, it is possible to ask tourists if they have visited a limited number of places and attractions of the destination. Surveys allow obtaining information regarding the influx of tourists to certain places and the characteristics of tourists who consume a certain type of product (East et al., 2017).

Street surveys are based on questionnaires related to tourists' itineraries during the day in which they are surveyed. They are typically carried out in places with a great confluence of tourists and are usually in the vicinity of certain tourist attractions, accommodation establishments or parking lots. Through them, tourists' sociodemographic characteristics and the places they stay can be known. However, their main contribution is to obtain data related to the activities carried out, the time and space itinerary followed, and the expenditure made. In addition, tourists can say where they have been before arriving at the site where they are being surveyed. This type of survey is typically made in places researchers are interested in studying, and they can be conducted in the form of an interview instead of using a traditional survey (Keul & Kühberger, 1997). For example, Sandbrook & Semple (2006) interviewed the tourists of the Bwindi National Park, once they had returned to the city to identify their behaviour during their visit to the park.

Travel diaries are a type of survey based on the completion of a daily questionnaire to know what places tourists have visited, the order of visits, how tourists have travelled from one place to another and the time when these visits occurred. Liu, Huang, & Fu (2017) pointed out that the questionnaire can be used in the form of a survey, interview or self-administered questionnaire. In addition, the tourists surveyed must be specific groups of tourists who must be questioned daily from the first day of stay until the day of departure from the destination. On the other hand, spatiotemporal movement diaries are based on a single questionnaire carried out at the end of the trip. Tourists must state what activities they did on each day of their trips. This technique was used by Thornton, Williams, & Shaw (1997) to analyse the behaviour of tourists to Cornwall according to their characteristics. Through these questionnaires, researchers can know the characteristics of the tourists surveyed, the activities and itineraries carried out and the place of stay during the trip. They are also able to collect information on the expenditure made to carry out these activities or the price of certain visits. Its main objective is to configure the itineraries based on tourists' accommodation establishments.

Social media have become the main tool used by tourists to let others know the destinations and places they have visited during their trips (Kádár, 2014). Social media allow sharing photographs, comments, opinions, locations, videos, etc. Thus, it is possible to search for information about a specific destination to know what contents are published about it. To do this, the search for the hashtag linked to the destination can be used, among others (such as those hashtags linked to an enterprise or attraction). With this, researchers can search for the name of a destination and to identify what the main and secondary tourist attractions of the destination are, the tourists' opinions about them and the perceived image of the destination. Barton & Graf (2016) even managed to collect similar information through travel blogs. Other websites that can be consulted to obtain these data are opinion portals (Kirilenko et al., 2019) that allow tourists to share their experiences during and after trips. All these types of webpages work in a similar way to put tourists in contact with each other and allow them to exchange contents and opinions that can be analysed by researchers.

However, hashtags are not the only element that can be used to analyse the contents of social media. Currently, social media user can geotag all contents uploaded to one of these platforms. It is possible to perform a search for a specific place and see which contents have been uploaded to the platform regarding that place (Alawwad et al., 2016; Raun et al., 2016). Through the comments left by visitors, researchers can know these visitors' characteristics and motivations, the attractions they have visited to a greater or lesser extent, the opinion they have regarding certain places or activities and the image they have of the destination. In addition, there are picture processing engines that can show a 'heat map' with the places of a destination of which the greatest number of photographs have been uploaded on certain social media (Konijn et al., 2016). With these programs, it is feasible to track the places from which a user has uploaded photographs and even show in real time what kind of photographs are being uploaded to the web. An analysis of the photos uploaded to the web shows the most visited spots, the temporal itinerary of visitors, the accommodation establishment where they have stayed and places they have liked the most.

Travel fora are also configured as a type of social media. These are tools used by tourists to give information about places they have visited and the opinions they have about them (Alawwad et al., 2016). In addition, they allow assessments of the visited places and to know the experiences of other tourists in them. Through the number of comments, it is possible to identify which are the main attractions of the destination, and which are secondary ones. The assessments of these attractions are useful to determine the degree of satisfaction of tourists with them. Through these elements, the perceived image of a destination from previous visitors can be ascertained and the profile of potential tourists seeking information about it can be identified. In fact, de Oliveira & Porto (2016) analysed TripAdvisor to create a series of indicators based on the comments left by the users of this platform.

Currently, there are several electronic devices that are able to track and locate their users (Renenger, 2001; Shoval & Isaacson, 2007). These devices can be used to determine how tourists move within a destination and the places they visit. Several studies have proven that it is possible to give tourists a GPS tracking device to take with them throughout their trip (Lau & McKercher, 2006; McKercher & Lau, 2008; McKercher & Zoltan, 2014b; Shoval et al., 2011). These devices are usually delivered in accommodation establishments and their function is to emit an intermittent signal indicating the position at which the tourists are located, which is recorded by computer software and marked on a map. Shoval & Ahas (2016) and Thimm & Seepold (2016) point to GPS-based techniques as the future of tourist tracking because they allow getting more precise data. In fact, the knowledge of the exact location of tourists allows the temporal and spatial itineraries to be ascertained, as well as the roads used to connect the places visited. In addition, it also allows to establish which places receive a greater or lesser influx of tourists. As the devices tend to be delivered to accommodation establishments, the location of the accommodation chosen by the tourists is also discovered. East, Osborne, Kemp, & Woodfine (2017) delivered GPS devices to tourists at Marwell Zoo to identify the main routes taken by them when visiting this tourist attraction. The use of this technique identifies in which places of the zoo tourists spend a greater amount of time and at which times certain places of the zoo are more likely to be visited. In addition, this technique was combined with the use of surveys to establish what factors explained why tourists move in one way or another.

It is not always necessary to give tourists a device that registers their location, as other tools can be used. Shoval & Isaacson (2007) commented that the GPS incorporated in the rental cars can be used to know the roads and car parks mainly used to travel through a destination. It is possible to find out the itineraries followed and the place of stay of the tourists studied. If this information is also complemented with the personal data held by the rental companies, the socio-demographic characteristics of the tourists can be gathered. In the same way, GPS incorporated in other means of transport can be used, such as rental bicycles or recreational boats. Other portable devices with an Internet connection, such as tablets or smart watches, can also be tracked. These devices can pinpoint the most and least visited places of the destination, and the spatial and temporal itineraries carried out.

Although there are several geolocation based techniques that can track tourists, Yun, Kang, & Lee (2018) pointed out that the most appropriate one is the tracking of mobile phone users. Shoval & Isaacson (2007) stated that there are several methods that can be applied. One of them would be to activate the tracking function in each of the telephones belonging to the tourists studied by installing a tracking application. In fact, there are several studies in which this technique has been used (Alawwad et al., 2016; Dattilo et al., 2016; Hardy et al., 2017; Raun et al., 2016; Yun et al., 2018). Through these studies, it has been possible to analyse the itineraries of visitors according to visitors' characteristics and their places of stay in the destination. In addition, it can also identify the most visited tourist attractions and the transport means used to connect these attractions when visiting the destination. In fact, recent research such as the one carried out by Baggio & Scaglione (2018) has used tourists' mobile phones to track the places visited during their visit to the destination. Another method described by Shoval & Isaacson (2007) is to trace the origin of the electromagnetic frequencies of the active telephones in the destination during a given period. The problem with this technique is that it does not allow differentiating tourists' mobile phones from locals' ones. Finally, Shoval & Isaacson (2007) stated that researcher can make a formal request to a telephone company for a report of the movements and characteristics of users of foreign telephone numbers in a specific destination. Foreign telephones need to connect to a local telephone networks in order to make calls and connect to the Internet, so the data of these phones are registered by the companies with which they establish a connection. Raun et al. (2016) highlight the large amounts of data that this technique can provide, although they do not apply them in their study. However, Seynaeve & Demunter (2016) used this technique during their research with the support of a local telephone company. The technique provides visitors' characteristics, since their personal data are registered in their telephones. In addition, it allows identifying itineraries, which attractions are the most visited in the destination, how tourists have reached the places visited and where they have stayed.

Advertising is used by different tourism agents to promote products and various destination attractions. The advertising actions of tourism companies and destinations are aimed at attracting tourists interested in the tourism activities offered. Therefore, the places visited can be known through an analysis of the advertising carried out in a destination. Widespread Internet access also allows potential tourists to be informed of the places they can visit in a destination. Therefore, previous studies have suggested the analysis of the activities carried out by tourists within a destination through an analysis of tourism promotion portals and destination web pages (Alawwad et al., 2016; Buhalis & Law, 2008; Wang et al., 2016). The pages that can be consulted are very varied. Through these web pages, it is possible to identify which the most visited tourist attractions of a destination are, although they have the disadvantage that less visited or known attractions may not appear in them. In addition, information can be gathered regarding the price of certain activities and the type of clients to whom they are oriented. This analysis also shows the image projected by public and private agents of the destination. In fact, Signorelli, Reis, & Biffignandi (2016) analysed the information offered by the Wikipedia website to find out the characteristics of tourists from four European cities. To do this, they analysed the data of users who had visited Wikipedia pages corresponding to different tourist attractions in the cities studied. Other websites from which information can be extracted are travel blogs or search engines through tools such as Google Trends.

Web pages are not the only source to identify the places and activities promoted. Advertising brochures, web advertising, billboards on the roads in destination, videos of tourism promotion, etc. highlights the places for visitors to focus on, some of the most known places and activities in a destination, the price of certain activities and the image projected by the destination. It is also feasible to ask public administrations for an official list of tourist attractions in their destinations. Thus, information can be obtained on which places are visited in the zone, even if they are not promoted. However, the information that will be obtained will generally refer to most frequently visited attractions, the price to access them and the image generated by the destination.

Certain techniques show if tourists have gone to certain places. However, not all of them can show if tourists have really enjoyed the attractions they have been to, if they have accessed them or have just passed by them or photographed them from the outside. However, certain attractions have control systems that require tourists to pay an entrance fee to access them or use some type of registration system (Han et al., 2018). The revenues obtained by tourist attractions are registered and, through them, it is possible to know the number of visitors who have been to these attractions (Zoltan & Masiero, 2012; Zoltan & McKercher, 2015). If the price of the tickets is fixed, the division between the total revenues obtained during a specific period and the price of the ticket would result in the number of visitors during the period. If the price of the entrance varies depending on the tourist (due to age, being a resident, etc.), the agency responsible for managing revenues must record the number of tickets sold of each type, which can be verified through the tickets issued during the period analysed. This technique is especially suitable to know the price of visits to certain places, the time of completion of these activities and the influx of tourists to certain places. Some companies also have their own inflow records in which they collect data not only on the number of visitors received, but on their characteristics. Asking for this type of information provides a more in-depth analysis, as there is a greater amount of information available. Certain companies even conduct surveys of their clients to obtain even more information about them. Current research such as the studies made by Alawwad et al. (2016) and Eccleston, Hardy, & Hyslop (2019) accepts the use of these data as valid for carrying out mobility studies and for making a characterization of the profile of the tourists of a destination. However, the study points out that it is worth bearing in mind that the technique has the limitation of analysing only those companies or public centres that have this kind of record.

It can be also known the connections used by tourists between the tourist attractions visited through the sale of destination cards (Zoltan & Masiero, 2012; Zoltan & McKercher, 2015). These are a special type of ticket sold by the destination managers that include, under a single price, access to various tourist attractions. The price of this ticket is lower than the sum of the individual access cost of each attraction (Zoltan & Masiero, 2012; Zoltan & McKercher, 2015). Zoltan & McKercher (2015) used them to determine how tourists connect to certain tourist attractions in Switzerland. Destination cards seem to be able to provide information on which the main tourist attractions of the destination are and which ones are less visited. Their analysis also shows the money paid by visitors to perform the activities contained in destination cards.

Tourism intermediaries can merge, in the same service, the transport, accommodation and activities to be carried out in the destination. This service is known as a tour package. Hyde & Lawson (2003) pointed out that their study allows identifying the places visited by tourists in a destination if the itineraries offered by tourism intermediaries are analysed. The web pages of these intermediaries show which activities are sold by them and the way they distribute the activities during the time of a trip. The intermediaries also have personal information of their clients, lists of the main attractions of the destinations and the activities carried out by their clients. They also know the price paid for the attractions and the places where tourists have stayed. As with intermediaries, it is also possible to analyse the places visited by tourists through the activities contracted for them by reservation managers (Alawwad et al., 2016). These managers are, in fact, computer applications that companies install on their web pages. These applications allow clients to book the day, timing and activity they want from those offered by the company. The company that owns the software has all the information related to the reservations made by the clients of the tourism companies that have contracted their services. Requesting this information from reservation managers provides information on places in which tourists have consumed tourism products. By having access to these reservations data, researchers can analyse the characteristics of the clients, the activities carried out, the times at which clients have booked activities and the prices paid. Another similar technique is to request this information from travel planners (Zoltan & Masiero, 2012). They are web applications that allow visitors to choose the places they wish to visit during a trip in order to obtain a proposal of the most efficient way to make the selected visits. They differ from reservation managers in that the selection of a place does not imply making a reservation at it. On the contrary, the application acts simply as an aid for tourists to configure their itineraries before visiting the destination. The visits chosen by the users of these applications are recorded in their database (Zoltan & Masiero, 2012). In this case, the socio-demographic characteristics of visitors can be found out and, in addition, this allows differentiating between the main and secondary attractions of the destination. The estimated expenditure they intend to make during their stay, the spatial and temporal itinerary visitors intend to follow and the place in which they will stay can also be ascertained.

Finally, there are techniques that study the movement of tourists in specific places of the destination. Traffic cameras and controls are used by Izquierdo Valverde, Prado Mascuñano and Velasco Gimeno (2016) to analyse the registration numbers of the cars that crossed the land borders in Spain and the time at which they did it. Through this analysis, they were able to gather information about tourists arriving and leaving the country and the length of their stays. This study could also be applicable to traffic cameras and controls located within destinations, which could track the itineraries and stops made by tourists' cars. Through this analysis, researchers can highlight certain characteristics of the visitors, some of the stops in their itineraries and the routes taken while travelling. In addition, certain car parks have video surveillance systems or sensors that register the vehicles that access them. Shoval and Isaacson (2007) pointed out that it is possible to use these systems to identify the places where tourists stop when making their trips. This study could establish the characteristics of car park users, the hours in which they carry out activities and the influx of tourists to certain attractions. In addition, sensors are used to monitor visitors' entrances to places, such as the entrance to certain buildings, tourist information offices, etc. Silva, Allbesmart, & Rodrigues (2016) used these control systems to know the number of tourists that completed each of the available trails in a protected natural area of Portugal. Shoval & Isaacson (2007) also indicated that surveillance cameras can be used to control the way tourists move within a small space, such as parks, buildings, museums or others. This technique allow identifying some of the main and secondary tourist attractions of the destination, the activities carried out, the timing of these activities and the behaviour of the visitors in the space analysed.

Certain techniques not only provide data on what places are visited, but also where tourists consume, and the amount of money spent at them. For this, researchers can analyse the spending made by tourists through their credit cards (Huang et al., 2014). In order to obtain this information, it is necessary to ask banking entities for information regarding tourists' personal data and the movements made in their bank accounts while travelling. Through this technique, researchers can identify the places where tourists have paid with their cards or where they have withdrawn money from at an ATM. This way, tourists' characteristics, the timing and typology of activities, the expense incurred in doing them and the place of stay of these tourists can be known.

Tourism destinations themselves may have certain tools which track the places visited by tourists. The access points to free Wi-Fi of certain destinations can register users' data who have accessed them and the time they have done it, thus providing information on places visited and the time spent in these places (Buhalis & Law, 2008; Wang et al., 2016). When accessing one of these networks, users' personal data are extracted providing information on tourists' characteristics, their itinerary can be monitored through their connections to the network, their behaviour through the content they search for on the web, the timing when certain places were visited and the influx of tourists to certain areas. Destinations also have signs and indications in which they inform tourists which way to go to enjoy certain activities. These elements facilitate tourists' arrival at certain companies, natural spaces, historic buildings, etc. which have a significant influx of visitors. Through the analysis of these elements researchers can identify some of the most visited places at the destination (Buhalis & Law, 2008; Wang et al., 2016). In addition, it also helps predict the way in which tourists will tend to follow their itinerary.

Another technique that provides information on how tourists visit a specific area is the on-site direct observation of tourists at a place (Koo et al., 2017; Lau et al., 2017; Smallwood et al., 2012). In fact, Thornton, Williams & Shaw (1997) tracked tourists in the city of Cornwall to compare the data obtained through surveys regarding the places visited by these tourists. Recently the technique has been used in other studies, such as the one developed by Kiefer, Giannopoulos, Kremer, Schlieder, & Raubal (2014). It is a technique that can be used on a local scale to know which the most and least visited places in a specific area are, the activities carried out by tourists within it and the spatial and temporal itineraries carried out in these areas. In addition, the technique can be combined with conducting surveys on the tourists followed to obtain information regarding their socio-economic characteristics (Keul & Kühberger, 1997).

Method

With the aim of determining which techniques are currently being used by researchers to track tourists, a bibliometric content analysis of the publications indexed in Scopus has been carried out. Bibliometric analyses comprise a wide range of methodologies focused on studying previous scientific contributions. In this paper, we have complemented bibliometrics with content analysis. This technique is oriented to analysing words and terms used by studies addressing a certain topic to identify patterns and tendencies (Schreier, 2012). In this type of analyses, search results must be coded to generate data in order to achieve the findings of the study (Krippendorff, 2004). Content analysis has allowed us the identification and classification of tracking techniques in the first phase of the research.

Ginieis, Sánchez-Rebull, & Campa-Planas (2012) pointed out that bibliometric analyses have gained importance in recent years to study certain areas in economic sciences, especially in marketing, tourism and strategic innovation. In fact, recent studies have proven that bibliometrics can be used when studying certain tourism-related topics (del Río-Rama et al., 2018; Jiménez-Caballero & Polo Molina, 2017).

In this study, carrying out a bibliometric content analysis has been considered the best tool to use, since it identifies which techniques are currently being used, and how their use has evolved over recent years. This could allow an estimation of the expected frequency of use of these techniques in the future, what past studies point to being important (Thimm & Seepold, 2016). A previous tourism study of Palmer et al. (2005) used content analysis to determine which statistical techniques have been more frequently used in tourism research. To elaborate this paper, the study and method used by Palmer et al. (2005) were followed. However, some differences can be noticed. They focused on determining current statistical techniques used in top journals, while the current paper analyses the evolution of tracking techniques over time and considers all journals, books and conference papers contained in Scopus database.

Data collection

Although there are different databases from which the analysis could have been conducted, Scopus has been chosen mainly because, as Rudchenko, Martín, & Sánchez-Rebull (2017) stated, it is the world's largest bibliographic database indexing more than 21,000 titles of international scientific publishers. Moreover, the use of Scopus to get data to carry out bibliometric analysis has been widely supported (del Río-Rama et al., 2018; Maldonado-Erazo et al., 2019). In addition, other bibliometric studies conducted in the field of tourism research have also supported its use (Boselie et al., 2005; Gallardo-Gallardo et al., 2013; Jiménez-Caballero & Polo Molina, 2017; Rudchenko et al., 2018). Rudchenko, Martín, & Sánchez-Rebull (2017) also pointed out that another of its advantages is that it offers the possibility of looking for specific terms included in the title of the article, summary and keywords. In addition, it provides links to the websites of the editors and to the full text of the articles.

To search the publications through Scopus, the terms tourist and tracking were introduced jointly in the search engine of the platform. Thus, the database showed scientific contributions that contained both terms as part of their title, summary or keywords. The terms could be separated or together in all or just one of these three items. The search was made on February 7, 2019, so previous or subsequent searches could yield different results than those obtained. The search was carried out for all the years available on the platform, so that the evolution of the publication of articles regarding this topic could be compared. In addition, all types of communications (scientific articles, conference papers, books, etc.) were considered in order to cover a larger sample. The platform found 291 scientific contributions that fitted the conditions established. Subsequently, all the contributions obtained were accessed to verify that they all dealt with the issue of tracking tourists within destinations. This resulted in 186 publications being discarded. Most of the studies discarded did not track tourists. Many of them dealt with the tracking of the behaviour of animal species and the changes in their migratory movements due to the arrival of tourists to a specific place. Other studies were about purchase decisions taken by tourists based on tracking of the movements of their eyes when deciding which products or services to buy. In addition, seven communications were literature reviews comparing some tourist tracking techniques. However, they did not perform an empirical study of tracking, so they were also discarded. Finally, 98 scientific contributions were considered for analysis. In order to visualize the results obtained through a bibliometric analysis, figures and tables have been added. As the analysis was carried out at the beginning of February 2019, the communications sample of 2019 was not relevant. So, data related to publications made in 2019 were discarded.

Regarding the data collected in this study, the year of publication, method used, cites, authors and journals (books or conferences, in some cases) were gathered. However, the aim of this study is not performing a traditional bibliometric analysis to analyse co-citation (Leung et al., 2017), co-words (Ding et al., 2001; Leung et al., 2017), journals most likely to publish papers dealing with a certain topic (Smith & Hazelton, 2008) or to establish which papers or authors are the most cited ones (Ioannidis et al., 2014). In contrast, this study pretends to analyse how the use of tracking techniques has evolved in tourism research and to determine which techniques have been used more frequently in recent studies to help researchers decide which technique to apply. Thereby, the year of publication and the method used were the only variables finally employed to achieve the findings of this study.

The bibliometric analysis has identified studies in which more than one technique were used, which raises the question of identifying the need for using different techniques. Raun, Ahas, & Tiru (2016) state that there is no perfect technique to gather all the data that researchers may require for a study. Therefore, the combination of different techniques is key to understanding how tourists move. This implies that all techniques present certain deficiencies or problems that limit their use, as well as certain benefits that make them more convenient than others to gather data. Therefore, a second literature review was carried out to study the main advantages and disadvantages associated with the use of tourist tracking techniques.

Data analysis

In order to analyse the data, all scientific contributions found were carefully read to identify the tracking techniques used in the study. As previously mentioned, those contributions that did not deal with tourist tracking techniques were disregarded, as well as those ones based on carrying out only a literature review. The different tracking techniques used by previous studies were firstly noted down using the original terms used by the authors of all contributions to name each technique. When information about all tracking techniques was gathered, the names of the techniques were standardized. Despite most researchers tend to name tracking techniques using the same terms, some techniques showed different names in different studies. For example, travel diaries can be sometimes called trip journals or travel journals. Thus, the findings achieved when carrying out the literature review were used to name the codes of the contributions found during the bibliometric analysis.

As suggested by Krippendorff (2004) at least two coders participated during the coding process. In this case, authors addressed this task. Moreover, Krippendorff (2004) suggest that, in order to be able to enhance reliability in a content analysis based paper, coders must be independent during the coding process. It was not the case of this study, as authors divided this process into three stages. First, the exact terms used in all the studies found were noted down. Afterwards, authors independently proposed the codes to use to classify the results based on the literature review carried out. Last, authors agreed in those studies that should be eliminated and the coding to be used and classified the contributions found. Thus, as pointed by Krippendorff (2004), no reliability index can be provided in this study as authors agreed on the coding to be used before the classification of the studies. However, the reliability of our bibliometric content analysis is supported by the fact that all articles indexed in Scopus database fulfilling the criteria previously mentioned were used. In addition, two coders established the categories and assigned papers to a certain category through an iterative process.

Results of the analysis of the literature review

31 different tourist tracking techniques were identified during the literature review carried out. Some of these techniques share several characteristics, so they can be grouped and categorized to facilitate the explanation of our subsequent findings. Thus, tourist tracking techniques have been divided into six categories. The categories created are: Survey, Web analysis, Geolocation, Advertising, Sales and Specific places. The first three categories refer to techniques that allow tourists to be tracked from a demand-side approach as they focus on analysing tourists' behaviour to understand the places they have visited. The last three correspond to techniques aimed at tracking tourists from a supply-side approach because they focus on studying places to establish if they receive tourists or not. All the techniques allow the identification of at least one of the places visited by tourists when traveling to a destination. In addition, some techniques also gather other types of data to improve the findings of the studies carried out. An explanation of the categories created is provided in Table 1, while Table 2 and Table 3 contain the techniques included in each category.

Table 1. Categories created to classify tourist tracking techniques

Category	Description
Survey	Techniques consisting of the collection of tourists' data through questionnaires.
Web analysis	Techniques that use the analysis of comments, opinions, evaluations, contents, etc. from online sources.
Geolocation	Techniques that consist of the continuous monitoring of tourists during their trip through electronic devices.
Advertising	Techniques consisting of the analysis of marketing campaigns made by public and private institutions.
Sales	Techniques related to the data collection on entrance or admission charges, packages, products, etc. sold by companies and tourist attractions.
Specific spots	Techniques that can only identify the movement and behaviour of visitors in limited spaces of a destination

Table 2. Techniques to track tourists from a demand-side approach

Category	Technique
Survey	Traditional survey Street survey Travel diary Spatiotemporal movement diary
Web analysis	Contents linked to a hashtag Geotagged contents in social media Photographs uploaded to social media Travel fora contents
Geolocation	Independent GPS devices Rental car GPS systems Other means of transport GPS Electronic devices GPS Mobile phone GPS Mobile phone radiofrequencies Telephone company report

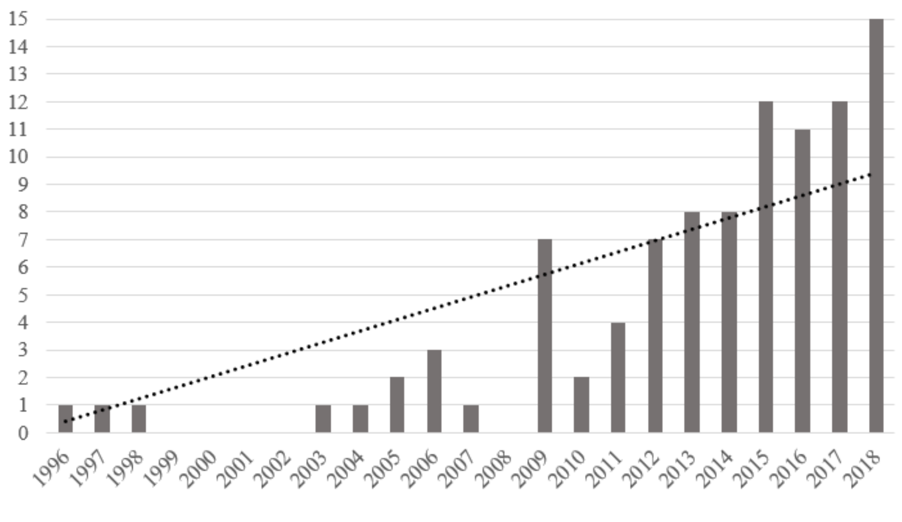
Table 3. Techniques to track tourists from a supply-side approach

Category	Technique
Advertising	Analysis of tourism promotion websites Analysis of fliers and similar sources Request of tourist attractions' lists to public administrations
Sales	Entries sold by tourist attractions Report of customers' characteristics Destination cards sold Tourist packages sold by intermediaries Reservation manager's bookings Trip planner programmed visits
Specific spots	Traffic cameras and controls Access points' controls Surveillance cameras images Free Wi-Fi access Credit and debit card expenditure Destination signage analysis Tracing and direct observation of tourists

Evolution of the use of tourist tracking techniques

Once the techniques used to track tourists have been explained, it is worth analysing which techniques have been used in previous studies and which techniques have been most frequently used in current tourism research. To perform this task, a bibliometric analysis has been carried out to gather data of scientific contributions analysing tourist tracking within destinations. In Figure 1, it can be observed how the tourist tracking contributions have evolved from 1996 to 2018. The figure shows three different stages in which tourist tracking techniques have been applied. A first stage took place at the end of the nineties, in which very few contributions related to this area were published. In fact, after this short period of time, it seems that relevant articles on tracking were not published for some years. From 2003 to 2007 certain researchers began to publish studies in this area again. Although there were more contributions published during these years than in the late 1990s, it seems that these studies were not able to encourage many researchers to specialize in this matter. However, in 2009 there was a boom in the number of articles dealing with the tracking of tourists. In addition, although the number of contributions made is reduced to a considerable extent in 2010, the data suggest that tourist tracking has become a growing field of study. In fact, since 2010 the number of contributions has continued growing steadily, reaching 15 published contributions indexed in Scopus in 2018, this being the year with the highest number of publications found in the series. The data regarding the number of contributions has an upward trend, so it can be expected to continue growing in the coming years.

Figure 1. Evolution of the number of studies using tourist tracking techniques



Through the analysis carried out, we have reviewed the articles to identify which techniques are more frequently used by researchers to track tourists. This information is depicted in Table 4. In this figure, the frequency of use of each technique can be observed. The techniques based on geolocation of tourists are the most commonly used to identify the places visited, with this technique being used in 56% of the studies found in Scopus. After these techniques, the use of different types of surveys is the most common technique, representing 18% of total contributions. Techniques based on the study of specific places and the analysis of web pages have also been widely used in scientific research (12% and 10% of studies, respectively). Techniques based on the analysis of the sales or reports of companies and the study of destination advertising have been used, in both cases, in only 2% of the studies.

Table 4. Frequency of use of each type of tourist tracking technique

Technique	Cases	Percentage
Survey	21	18.7%
Web analysis	11	9.8%
Geolocation	62	55.4%
Promotion	2	1.8%
Sales	2	1.8%
Specific spots	14	12.5%
Total	112	100%

The bibliometric analysis identified not only the typology of techniques used, but also the specific techniques that had been used. Specifically, 16 techniques were identified. They have been used to a different extent in the 98 investigations that were found. In Table 5, it can be seen how the types of techniques used have changed and how the variety of techniques used to track the movement of visitors has also increased. Table 6 shows main statistics of the database used.

Table 5. Evolution of the use of tourist tracking techniques

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Survey	**1**	**1**	**1**								**1**			**2**	**1**		**1**	**1**	**2**	**3**	**4**	**1**	**2**
Traditional survey			1											2	1				2	3	4	1	1
Street survey	1	1									1						1	1					1
Web analysis											**1**			**1**				**1**	**2**	**2**		**3**	**1**
Photographs											1							1	2				
Geotagged contents														1						2		2	1
Travel forums																						1	
Geolocation								**1**	**1**	**2**	**1**	**1**		**3**	**1**	**4**	**5**	**5**	**6**	**6**	**9**	**7**	**10**
GPS device										1				2	1	3	3	4	3	3	3	6	6
Mobile phone GPS								1			1			1		1	2		1	3	3		2
Mobile radiofrequencies									1	1		1						1	2		3	1	2
Advertising																				**1**	**1**		
Fliers analysis																				1	1		
Sales																				**1**			**1**
Sales report																				1			1
Specific spots	**1**	**1**												**1**			**1**	**2**	**1**	**1**	**1**	**2**	**3**
Direct observation	1	1																	1				
Access control														1				2		1	1		1
Surveillance camera																						1	
Free Wi-Fi access																	1					1	2

Table 6. Main statistics of the database used.

	Cases	Percentage	Mean*	Median*
Traditional survey	15	13.4%	2013	2015
Street survey	6	5.4%	2007	2006
Photographs	4	3.6%	2012	2013
Geotagged contents	6	5.4%	2015	2015
Travel forums	1	0.9%	2017	2017
GPS device	35	31.3%	2014	2014
Mobile phone GPS	15	13.4%	2013	2014
Mobile radiofrequencies	12	10.7%	2013	2014
Fliers analysis	2	1.8%	2016	2015
Sales report	2	1.8%	2017	2016
Direct observation	3	2.7%	2002	1997
Access control	6	5.4%	2014	2013
Surveillance camera	1	0.9%	2017	2017
Free Wi-Fi access	4	3.5%	2016	2017
Total	112	100%	2013	2015

*Calculated based on the year of publication of all studies using each technique.

In the early years, the most frequently used techniques were based on the direct observation of visitors and on surveying them to complement the information obtained. In the middle of the first decade of 2000, the techniques used began to diversify. Surveys continued being used, but data from web pages and geolocation devices also started to be analysed. At the end of this decade, the number of studies related to the tracking of visitors increased noticeably and, during the second decade of the millennium, it can be observed how these studies became popular, as shown in Figure 1. In addition, it is observed that after 2009, a multitude of studies have begun to be published in which visitors are tracked through independent GPS devices. This technique has been increasing its use to become the most commonly used tracking technique in tourism research in 2017 and 2018. This technique was also one of the most used ones from 2014 to 2016. However, during these years, there were other techniques that were frequently used by researchers, such as conducting traditional surveys or tracking the location of tourists through their mobile phone GPS. It can be observed in the table that the use of GPS devices has experienced a strong increase as a tracking technique after 2017. However, the rest of the techniques, although they have been used, have reduced their use.

In Table 5, the techniques found have been grouped according to the classification of techniques created for this study in order to see how their use has evolved. Techniques linked to the geolocation of tourists are those that have experienced the greatest growth since their appearance, increasing almost continuously during all the years studied. Techniques focused on analysing specific places also seem to have increased their use throughout the period studied, although their usage shows to be lower than the use of geolocation-based techniques. The collection of data from surveys has also increased, but seems to have reduced its usage in the final years of the series. The analysis of web pages presents a discontinuous evolution and latest available data seem to indicate that its use is currently declining. Advertising and sales techniques have been used in few studies in all the period analysed, so it is difficult to estimate how their usage will evolve in future years.

When carrying out the literature review to determine which tracking techniques have been used by researchers to analyse how tourists move, it was observed that more than a single technique was used to obtain the desired data. In fact, Kádár (2014) and Raun et al. (2016) stated that all techniques have limitations and, therefore, the combination of them is key to complement the deficiencies of certain techniques with the data provided by others. Table 6 shows the different classifications of the techniques and indicates, for each case, the frequency they tend to be used independently and in combination with techniques from other categories.

Table 6. Individual vs combined use of tourist tracking techniques

Category	Number of studies		Percentage	
	Individual use	Combined	Individual use	Combined
Survey	8	13	38.1%	61.9%
Web analysis	11	0	100%	0%
Geolocation	51	11	82.3%	17.7%
Advertising	2	0	100%	0%
Sales	2	0	100%	0%
Specific spots	10	4	71.4%	28.6%

From the data reflected in the table, it can be noted that techniques included in the "Web analysis", "Advertising" and "Sales" categories do not tend to be used in conjunction with other tracking techniques. Despite this, it should be noted that two studies were identified in which data mining had been used to obtain the data. In both cases, the studies have been included as part of the "Web analysis" category and have not been considered as studies combining techniques. This is because both studies extracted web data published by tourists, so the data obtained in these studies refer to contents in social media, travel forums and online communities. As all these techniques refer to "Web analysis" category, it cannot be stated that techniques from other categories tend to be used with "Web analysis" techniques. The data also indicate that techniques grouped into the "Surveys", "Geolocation" and "Specific spots" categories have been used in combination with other techniques. According to the data, techniques based on conducting surveys have a high tendency of being used in combination with other techniques, limiting their individual usage to approximately 38% of cases. However, techniques included in "Geolocation" and "Specific locations" categories, although used in combination with other techniques, have a greater tendency of being used individually.

Through this analysis, it has not only been possible to identify which types of tracking techniques are more likely to be used in combination with other techniques, but we have also analysed which techniques are more frequently used in combination with others. In order to graphically display these data, Table 7 is presented. It only shows which techniques have been used in combination with others and those techniques that have been used in conjunction with them.

Table 7. Combinations of tourist tracking techniques in tourism research

Technique	Combinations	Number of studies	Percentage
Traditional survey	GPS device	10	76.9%
	Mobile GPS	2	15.4%
	Access controls	1	7.7%
Street survey	Direct observation	2	100%
GPS device	Traditional survey	10	90.9%
	Mobile GPS	1	9.1%
Mobile GPS	Traditional survey	2	50.0%
	GPS device	1	25.0%
	Access controls	1	25.0%
Direct observation	Street survey	2	100%
Access controls	Traditional survey	1	33.3%
	Mobile GPS	1	33.3%
	Wi-Fi	1	33.3%
Wi-Fi	Access controls	1	100%

As can be seen in Table 7, three of the seven techniques identified have been used only in conjunction with a single technique. In the case of street surveys and direct observation, these techniques are usually combined. These techniques were the most frequently used by researchers in the oldest studies from which data could be obtained. In these studies, tourists were followed in certain places of the destination to gather data on their movements, and they were surveyed afterwards to collect data regarding their socioeconomic and motivational characteristics. Data gathered through free Wi-Fi connections are commonly combined with data collected by access controls. When connecting to public Wi-Fi networks, the data linked to tourists' devices are accessible to the managers of these networks and, through access controls, it can be known if tourists have accessed certain attractions and the amount of time spent within them.

Traditional surveys carried out at the end of the tourists' trips are usually combined with GPS tracking devices given by researchers. This shows the places tourists have visited during their trip and, through the surveys, researchers can collect their socioeconomic characteristics and their motivations to visit certain tourist attractions. Similar results can be obtained by combining surveys with the records of access controls or mobile phone GPS data that enables researchers to identify the places visited by tourists. Tracking through GPS devices has mostly been combined with surveys, but also with the data of tourists’ mobile phone GPS. The data provided by GPS tracking or by a mobile phone GPS will tend to be similar, so using them together would not significantly increase the amount of information obtained. In fact, they have only been used together in one study in which the aim was to compare which technique was more suitable for collecting data from tourists. Mobile phone GPS data have been mainly combined with surveys and GPS devices, as already mentioned. However, they have also been compared with data provided by access controls, identifying the places which tourists have accessed, not just if they have been in the vicinity of these places.

Techniques: advantages and disadvantages to consider

As has been shown, the techniques described have been commonly combined. Doing this, researchers can achieve a larger sample, gather more information about more variables and test the data collected. Previous studies have already pointed out that combining different techniques is a key aspect of using tourist tracking techniques to understand tourists' movements and behaviour within destinations (Raun et al., 2016). The problem arises when researchers must choose which techniques to use. The existence of so many techniques is justified as all of them present certain limitations that prevent them from being used in all kinds of study (Shoval & Isaacson, 2010). In fact, the studies of Hardy, Aryal, & Wells (2019) and McKercher, Hardy, & Aryal (2019) used two tracking techniques to compare the data gathered and they conclude that both are required to get as much information as possible. Therefore, researchers need to properly consider the advantages and disadvantages of each technique, before deciding which one to use or which ones to combine in order to achieve the aims of their research (Raun et al., 2016). In our research, six key aspects have been found that should be considered before choosing a certain technique. The six aspects are: an obtainable sample using the technique; the monetary and time investment for its application; the degree of dependence on third parties to obtain the data; the type and number of variables gathered; the quality and accuracy of the data obtained; and the ethical and data protection restrictions linked to the use of the tracking technique.

Obtainable sample

The number of tourists or places that can be analysed is one of the aspects that must be considered when choosing the techniques to be used. Certain techniques allow a large amount of information to be obtained from a single tourist but the collection of data cannot be done simultaneously for several tourists (Keul & Kühberger, 1997). Thus, gathering information becomes harder and it limits the sample researchers will eventually use to carry out their studies. This difficulty could be solved by using enough time to obtain a sample that is considered significant for the study. However, this could delay the publication of the results of the study, which could lead to a loss of relevance of the conclusions. Other techniques, however, make it easier to obtain a larger sample (de Oliveira & Porto, 2016). Having statistically significant samples is useful to justify the validity of the research carried out. In addition, having enough data allows publishing information related to certain segments without it being possible for third parties to distinguish specific individuals.

Traditional surveys can gather information regarding a significant sample of individuals, since they are usually carried out in places of frequent transit of tourists, such as airports (Eurostat, 2014). However, the rest of the techniques included in the "Survey" category present difficulties to study a large number of individuals. Street surveys are carried out at specific locations and times, so they only focus on certain tourists. Travel diaries should be made by the same tourists at the end of each day of stay, so they require choosing specific individuals to study and any kind of error or missing value could derive in the non-consideration of all data regarding an individual (Zoltan & McKercher, 2015). Spatiotemporal movement diaries require a large amount of time to be given by tourists, as they must state which places have been visited and the timing of the visits at the end of the trip. In addition, these kinds of surveys require tourists to voluntarily participate in the research, as researchers need them to give as sincere and detailed responses as possible (Zoltan & McKercher, 2015).

Techniques classified within "Advertising" category are characterized by being able to provide information relative to a wide sample of places. Destinations usually have an abundant number of brochures. In the same way, public administrations usually have a detailed record in which they list the main attractions of a destination. In addition, they are likely to promote attractions in official tourism promotion portals to capture more tourists (Shoval & Isaacson, 2010). The same applies to those techniques categorized as "Sales", because the number of tourists received by the places analysed can be accurately known. These techniques can also be applied to all those places that require an entrance for their access. The exception would be the analysis of destination cards, since the acquisition of one of them does not guarantee that the tourist has visited all the places it contains, which makes it difficult to know the behaviour of the individuals studied (Shoval & Isaacson, 2010). The use of the techniques included in the "Web analysis" category also allows a large sample to be obtained, given the number of users who currently use social media (Kádár, 2014).

Certain techniques are only valid for the study of certain places or segments. Through their use, specific tourists or places can be analysed, as happens with techniques based on the use of geolocation devices or the analysis of specific sites in a destination. Therefore, data collected through these techniques cannot gather information from all the agents that may be involved in the analysis (Raun et al., 2016). This can considerably reduce the statistical population that will be analysed and limits the sample from which the information will be obtained which, in turn, reduces the reliability of the results.

Application cost

Although certain techniques allow a greater amount of data to be obtained more easily, it is possible to use any of the techniques mentioned to obtain the desired data sample. However, what will determine the size of the sample or the information obtained by a specific technique is the investment made to carry it out. When talking about investment, we are referring to monetary and temporal investments. Certain techniques may have a low monetary cost but require, instead, a large investment of time to obtain the sample required for the research. Thornton et al. (1997) pointed out that this is the case of direct observation of tourists, as the researcher is usually responsible for applying the technique, but the consumption of time required for this is enormous. It is worth mentioning that time consumption can be reduced by increasing the number of participants involved in the study. However, this usually increases the monetary cost of the research.

On the other hand, certain techniques do not require a high amount of time. However, obtaining the information represents a high monetary cost for researchers (Eurostat, 2014). Certain mobile phone companies have begun to sell information regarding the movements made by tourists within destinations. Obtaining this type of data would not entail a significant time investment, since data have already been collected by telephone companies (Dattilo et al., 2016; Seynaeve & Demunter, 2016). However, accessing these data would imply an important monetary investment (Eurostat, 2014). In the same way, it must be considered that the person in charge of the data collection is a factor that affects the costs incurred when applying the technique. By contrast, public statistical agencies perform the data collection function with the aim of publishing data and making them freely accessible. In this case, access to this information does not require a high monetary or time investment by the researcher. However, if the researcher is the one in charge of gathering data from tourists, the monetary or time cost that could be incurred to collect these data could be quite significant (Eurostat, 2014).

It should also be considered that certain techniques require a greater investment of time than others in order to process the information once it has been collected. The collection of data related to the trips made by visitors through GPS devices, web pages or the processing of qualitative information obtained through interviews require slower and more complex processing. Data obtained by these techniques are not always imported directly into a spreadsheet and are often difficult to quantify, which makes it difficult to extract results from them.

On the other hand, there are other techniques that can be applied by making a small monetary investment and do not require high time consumption while applying and processing the information. Techniques based on obtaining data from public administrations and companies usually fit this description. Some examples would be gathering data from public surveys, companies' client records when companies are interested in carrying out the study or the analysis of official lists of tourist attractions. By contrast, certain techniques require a high monetary cost of application and, in turn, a high amount of time, which discourages researchers from using them. Such is the case of the installation of video surveillance cameras in certain spaces of a destination, the direct observation of tourists' movements or the delivery of independent GPS devices to tourists.

Third party dependence

Companies and other institutions may have information regarding the number of products, services or activities sold to tourists during a given period. Through these data, it is possible to find out the number of users who have acquired a certain type of product, as well as the places visited through the number of packages sold by intermediaries, etc. (Shoval & Isaacson, 2010). The possibility of purchasing through the Internet electronic records of the sales made. However, needing the support of an external institution to obtain information about tourists generates a series of problems and limitations when certain techniques are applied by researchers.

First, the study must be supported by a third party willing to provide access to the information needed. Establishing contact with certain organizations requires a significant amount of time, as the reason to have the information must be explained and researchers must wait for the response of the organizations. Moreover, researchers must wait until the required information is eventually received. In addition, possible meetings and intermediate agreements should be considered to specify what information is desired and which data will be granted in the end. It should also be considered that the justification of the data requested may not convince the organization and, thus, it could finally decide not to cede the data required.

Secondly, it must be considered that, even though the desired information is obtained, institutions that have granted access to it may request a data transfer agreement to be signed. Thus, certain conditions of the concession may prevent the publication of the results obtained. Occasionally, this type of information is even limited by data protection laws (Renenger, 2001), preventing either the institutions from transferring the data or the data being published by them or third parties. In addition, each institution can have different types of information, which limits the standardization of the data obtained from different sources. On the other hand, access to information can be easier if it is compiled by some type of public organization, such as statistical institutes or certain public administrations.

A final aspect to consider is the knowledge of the methodology used by the institution to collect the data. When aiming to analyse the places visited by tourists, it is necessary to know if organizations are differentiating between those visitors to a place who are tourists and those who are not. In the case of data collected by companies, data are likely to only refer to their clients, without making a distinction between tourists and residents. However, public agencies are more likely to publish differentiated and more detailed information. Along the same lines, it is more complicated to find private organizations that have detailed methodological reports that explain how the information has been collected and processed. This could lead to a series of problems for researchers to be able to justify the reliability of the study carried out.

As conducting surveys is the most commonly used technique to collect data from tourists (Eurostat, 2014), this function is usually performed by public statistical institutes that publish the data collected and a methodological document explaining how the collection and processing of data have been conducted. Therefore, the use of these data is easier for researchers. However, statistical institutes tend to collect information only through limited types of surveys, such as traditional surveys or, occasionally, street surveys. Travel diaries or spatiotemporal movement diaries are usually applied by researchers themselves when interested in specifically studying the movements of tourists (Liu et al., 2017; Thornton et al., 1997).

Techniques based on the analysis of places promoted have the advantage of analysing easily accessible information made by public and private institutions. The same applies to the analysis of social media and information shared by visitors through the Internet, as researchers can search and access it with relative ease (Shoval & Isaacson, 2010). Researchers can also convince tourists to voluntarily participate in studies where GPS tracking is applied, so accessing the data collected presents no limitations (East et al., 2017). The request of information to public administrations implies waiting for the information and the uncertainty of its quality. However, accessing this data should be simple as it is public property information. On the other hand, when dealing with private agents, their agreement is necessary to receive data about products and services sold, to access their databases, etc. In addition, access to some of these data may require prior payment, as is the case with telephone companies (Shoval & Isaacson, 2010).

Amount of data gathered

Although the general objective of tracking tourists is the study of the places that tourists visit during their trips, there are other data that are relevant for analysis. Although all techniques listed allow the identification of places that have received a certain influx of visitors, the additional information these techniques can provide must be considered. Therefore, when choosing techniques to apply, researchers should know what additional information they may want to gather in their studies. This may condition the choice of a certain technique instead of another (Raun et al., 2016).

Among others, knowing the socioeconomic profile of a tourist can be used to link data to tourists' characteristics with the places they have visited. Some of the characteristics most commonly analysed are nationality, age, gender, incomes or educational level (Padrón-Ávila & Hernández-Martín, 2019b). However, there are other characteristics that could lead to interesting results, such as knowing why tourists have visited the destination, their motivations for travelling, how they assess the trip or the attractions visited, among others (Padrón-Ávila & Hernández-Martín, 2019a). There are even other variables that can greatly condition the places visited by tourists during the trip, such as having previously visited the destination, purchasing all-inclusive packages from tour operators or travel agencies, travelling with a certain travel group, etc. (Thornton et al., 1997). In addition, it is even possible to link tourists’ profiles to the total expenditure made during the trip, as well as the expenses incurred when visiting a specific place. This allows a relationship to be established between the visit to a place and the total expense incurred during the trip.

Moreover, while studying how tourists move, researchers could be interested in knowing how they have visited the places visited. Among others, some interesting topics to be analysed would be: knowing how tourists connect to the places visited; the order in which they have made these connections; the time they have spent at them; the time at which a certain place receives the greatest influx of visitors, etc. (McKercher & Lau, 2008; McKercher & Zoltan, 2014; Shoval et al., 2018). In addition, certain techniques can even ascertain how the number of days spent at the destination are linked to the number of places visited during the trip and with the itineraries made. All techniques are limited to obtaining certain information, which may require the use of different techniques to gather all the data required (Raun et al., 2016). It should also be considered that certain techniques present a higher degree of flexibility than others to gather data. Thus, certain techniques can be adapted to the needs of the study and obtain certain information depending on the needs of the research. Those techniques that are more flexible and allow the greatest amount of data to be obtained will tend to be the most convenient in studies (Shoval & Isaacson, 2007).

Surveys allow the collection of a wide variety of information because questions can be adapted to the information needs of the research. However, collecting accurate data regarding the places that have been visited and the itinerary through a survey is a complex task. Traditional surveys cannot collect all the places that can be visited by tourists. However, Leones, Colby, & Crandall (1998) indicate that they are appropriate when trying to obtain data related to the expenses incurred by visitors, given the limitations of other techniques to collect this kind of information. But even the data relating to expenses incurred during the trip are limited, since tourists must remember the exact sum of money used during their trips. For this reason, street surveys, travel diaries and spatiotemporal movement diaries tend to be more appropriate techniques for collecting this type of information.

Techniques categorized in "Advertisement" only identify places where products or services are sold to visitors and, on certain occasions, the markets to which these products are oriented. However, it does not facilitate the identification of itineraries (Shoval & Isaacson, 2010). "Sales" techniques do not gather these data either, although they do provide more data regarding tourists’ characteristics based on the information that is compiled by the companies or organizations collecting the data. Counting the number of tickets to attractions or destination cards sold is very useful to know the exact number of tourists entering a place.

Moreover, client reports also allow show the characteristics of the tourists of these places. Despite this, these techniques are only applicable in those places where control systems to enter them are used (Shoval & Isaacson, 2010).

The analysis of web pages, the use of geolocation devices or the study of specific places identify which places are visited, the itineraries that are followed, the satisfaction with the trip and the places visited, the sociodemographic characteristics of tourists and others. However, information such as the expenses incurred during the trip are not always possible to obtain through these techniques (Shoval & Isaacson, 2010).

Quality and accuracy of the data

Although certain techniques can provide information about many different variables, the data obtained could be imprecise or even erroneous. For this reason, certain techniques are sometimes chosen instead of others because they can gather more data. Problems arising from the need for certain data may not directly be linked to the technique used to gather data, but with the answers and information provided by tourists. Certain personal data are less likely to be provided by tourists, such as annual income, political and religious affiliation or sexual orientation. However, these variables may be relevant to understand tourists' behaviour and their mobility patterns (Visser, 2014; Waitt & Markwell, 2006). In addition, there is certain information that may be unremembered or ignored by visitors. For example, they may forget some of the places they have visited or may not know how some of these places are named.

For this reason, techniques that depend on the responses provided by tourists, such as surveys, are more likely to present errors that could be difficult to detect (Shoval & Isaacson, 2007). Tourists do not tend to remember the precise amount of money spent during the trips and the places where they have spent this money. Unless surveys are conducted just after the expense, this type of information will tend to be forgotten or confused (Shoval & Isaacson, 2007). However, other techniques, such as geolocation tracking devices, can provide more solid information that the researcher can objectively verify. All this also explains why if a certain tourist is tracked using two different methods, the data that could be obtained from them could be contrary. Some researchers have also highlighted that how the awareness of being tracked can affect the mobility patterns of tourists has not been studied (Shoval & Isaacson, 2007). So even those techniques that do not depend on the subjectivity of the tourists' responses can provide partially erroneous information if tourists behave in a such a way as to deceive the techniques used.

Contents shared on web pages, despite being able to help identify the places visited and the itinerary carried out, present certain analytical problems. When collecting data, the time the contents have been uploaded to the platform by users can be determined, however it cannot be verified if the activity that is reflected in them has taken place at the precise moment when contents were uploaded (Shoval & Isaacson, 2010). In addition, depending on the social media analysed, data obtained varies. Moreover, the analysis of multiple social media as sources of information can cause double counting of a single visit made by the same tourists if they have profiles in various social media (Shoval & Isaacson, 2007). Similarly, an analysis of advertising campaigns identifies which places are being promoted among tourists, but not if tourists actually go to these places or if enterprises are attracting the segments to which promotional campaigns are oriented. By contrast, sales records provide information of high quality and reliability based on real records of clients who have visited certain places. In the case of sales records, the information collected is used through the accounting of tickets sold, as well as possible surveys that may have been made to a sample of users.

Ethical dilemma and data protection restrictions

Certain tracking techniques present moral and ethical dilemmas that must be considered if researchers intend to use them in their studies. Most of these problems are related to the way in which certain procedures may be contrary to visitors' rights to privacy (Shoval & Isaacson, 2007). In fact, legal systems are not fully prepared to handle this reality and the problems associated with it yet (Renenger, 2001), so the information collected can be used for various purposes that could be considered unethical. On the one hand, tracking people can be a violation of their right to privacy. In addition, the current data protection laws establish limits to the use of the data that could be obtained (Renenger, 2001). Therefore, the consent of the participants would be necessary in the study to use their data. On the other hand, some researchers have pointed out that intimacy abusing is not such a major problem to consider, since tracked people are supervised for a limited and defined period of time (Shoval & Isaacson, 2007).

Regarding the legal framework that would affect the possible implementation of this type of technique, several regulations and agreements on an international scale could condition the application of certain tracking techniques, as well as existing restrictions at national or subnational scales. The Organization of the United Nations (UN) and the Organization for Economic Cooperation and Development (OECD) are the main international organizations that have established guidelines in this regard. Within the framework of the European Union (EU), the Charter of Fundamental Rights of the European Union (Charter of fundamental rights of the European Union, 2000) and the Treaty of Lisbon (Treaty of Lisbon, 2007) agree on the regulation of the legal protection of EU citizens' data.

Article 12 of the Universal Declaration of Human Rights of the UN (United Nations, 1948) establishes that every person must be protected against the interference of third parties in their private life, family, home and correspondence. This seems to indicate that this body intends to limit the collection of personal information of a specific individual by third parties. However, in the Guidelines for the Regulation of

Computerized Personal Data Files, the UN allows the collection of personal data (Guidelines for the Regulation of Computerized Personal Data Files, 1990). Despite this, it proposes the establishment of a series of limitations and guarantees that ensure the privacy of personal data and the agreement of the people studied to collect data related to them. In addition, it prohibits the collection of certain information, such as data concerning religious beliefs, political preferences, ethnic origin, skin colour or sexual orientation.

In the case of the OECD, the Guidelines on the Protection of Privacy and the Transborder Flows of Personal Data includes a principle of limitation of the collection of personal data (OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, 1980). This principle establishes that people should be aware that their data are being collected and the purpose for which the data are being used. It also states that the aim of the data collection cannot vary without the authorization of the people from whom the information has been collected. Years after writing this document, the Ministerial Declaration on the Protection of Privacy on Global Networks was signed, which ratifies the recommendations contained in the document prepared in 1980 and undertakes to launch legal actions to ensure its compliance. It also promotes the exchange of information among member countries (Ministerial Declaration on the Protection of Privacy on Global Networks, 1998).

The EU has also started to regulate practices that violate the right to privacy of EU citizens. Article 8 of the Charter of Fundamental Rights of the European Union (Charter of fundamental rights of the European Union, 2000) specifies that personal data must be used for specific purposes that must be previously approved by the person from whom data are being collected. In addition, the Treaty of Lisbon (Treaty of Lisbon, 2007) ratifies the agreement reached through the Charter of Fundamental Rights of the European Union, although it adds some modifications to facilitate the exchange of data among EU countries, especially in judicial matters.

Certain tracking techniques seem to be more susceptible to violating the principles contained in the regulations quoted than others. For example, data collected by companies through sales or through clients' records are especially likely to violate certain regulations and international agreements if they are disclosed. This is because clients of these companies may not know that their data are being collected or what the purpose of the data collection is. The use of surveys on tourists can be carried out but must be carried out in accordance with the specific regulations that regulate them, which may not allow publishing information regarding the trips made by a tourist. In addition, certain regulations may increase the restrictions when it comes to applying certain techniques, such as using surveillance cameras or access controls in certain spaces, to gather data from tourists who are not informed that they will be supervised for this purpose before entering certain spaces. All these limitations vary depending on the place where techniques are applied and the legislation of these areas. Thus, researchers need to consider all the existing legal limitations when deciding which tracking techniques to use and which data can be gathered with them.

Summary of strengths and weaknesses of tracking techniques

To facilitate the choice of the tracking technique to apply to future researchers, the main strengths and weaknesses of the tracking techniques identified have been summarized in Table 8. As can be seen in the table, techniques composing the categories created usually share some (or even all) the strengths and weaknesses analysed.

Table 8. Comparison of strengths and weaknesses of tourist tracking techniques

Technique	Main strengths	Main weaknesses
Traditional survey	Big sample, much information	Difficult to analyse all places visited and itineraries, time-consuming
Street survey	Many variables, precise data	Difficult to analyse itineraries, expensive, time-consuming
Travel diary	Many variables, precise data	Difficult to analyse itineraries, time-consuming
Spatiotemporal movement diary	Much information	Difficult to analyse all places visited and itineraries, time-consuming
Contents linked to a hashtag	Huge sample	Imprecise, dependence of a webpage, limited variables
Geotagged contents in social media	Huge sample	Imprecise, dependence of a webpage, limited variables
Photographs uploaded to social media	Huge sample	Imprecise, dependence of a webpage, limited variables
Travel fora contents	Huge sample	Imprecise, dependence of a webpage, limited variables
Independent GPS devices	Good to study all places visited and itineraries, much information, very precise data	Small sample, expensive, time-consuming
Rental car GPS systems	Good to study all places visited and itineraries, big sample, much information, very precise data, data already processed	Dependence of a company, ethical issues
Other means of transport GPS	Good to study all places visited and itineraries, big sample, much information, very precise data, data already processed	Dependence of a company, ethical issues
Electronic devices GPS	Good to study all places visited and itineraries, big sample, much information, very precise data, data already processed	Dependence of a company, ethical issues

Mobile phone GPS	Good to study all places visited and itineraries, much information, very precise data	Small sample, time-consuming
Mobile phone radiofrequencies	Huge sample, data already processed	Expensive, dependence of a company, imprecise
Telephone company report	Good to study all places visited and itineraries, huge sample, much information, very precise data, data already processed	Expensive, dependence of a company, ethical issues
Analysis of tourism promotion websites	Precise data, free and fast access	Difficult to analyse all places visited and itineraries, small sample, few information, dependence of a third party
Analysis of fliers and similar sources	Precise data, free and fast access	Difficult to analyse all places visited and itineraries, small sample, few information, dependence of a third party
Request of tourist attractions' lists to public administrations	Precise data, data already processed	Difficult to analyse all places visited and itineraries, small sample, few information, dependence of a third party
Entries sold by tourist attractions	Precise data, data already processed	Difficult to analyse all places visited and itineraries, small sample, few information, dependence of a third party
Report of customers' characteristics	Much information, precise data, data already processed	Difficult to analyse all places visited and itineraries, small sample, dependence of a third party
Destination cards sold	Big sample, precise data	Difficult to analyse itineraries, few information, dependence of a third party
Tourist packages sold by intermediaries	Big sample, much information, precise data	Dependence of a third party, ethical issues
Reservation manager's bookings	Precise data	Difficult to analyse all places visited and itineraries, small sample, dependence of a third party, ethical issues
Trip planner programmed visits	None	Difficult to analyse all places visited and itineraries, small sample, few information, dependence of a third party, ethical issues
Traffic cameras and controls	Good to study itineraries, big sample, precise data	Difficult to analyse all places visited, time-consuming, few information, ethical issues
Access points' controls	Big sample, precise data	Difficult to analyse all places visited and itineraries, few information
Surveillance cameras images	Big sample	Time-consuming, few information, ethical issues

Free Wi-Fi access	Huge sample, precise information, data already processed	Difficult to analyse all places visited and itineraries, few information, dependence of a third party
Credit and debit card expenditure	Good to study itineraries, huge sample, much information, precise information	Difficult to analyse all places visited, dependence of a company, ethical issues
Destination signage analysis	None	Difficult to analyse all places visited, few information, time-consuming
Tracing and direct observation of tourists	Good to study all places visited and itineraries	Small sample, few information, ethical issues

Discussion

When carrying out the literature review, 31 possible tourists tracking techniques were identified. However, the results of the bibliometric analysis applied in this study points to the actual use of just 14 techniques. As Scopus was the unique database used to perform the analysis, contributions indexed in other databases might have been ignored. The use of Web of Science, Google Scholar or similar scientific databases could have brought other relevant publications into the analysis. Nevertheless, as the literature review carried out did not only focus on analysing those tracking techniques previously applied but also those techniques suggested by past studies, certain techniques might have been suggested but not actually applied. For example, travel diaries were pointed by Liu et al. (2017) as a tracking technique, but they do not use it. In addition, as the unique search terms used were tourist and tracking, those contributions containing other search terms have been ignored. Thereby, even if Liu et al. (2017) point to studies using travel diaries, these studies did not contain the aforementioned terms in their title, abstract or keywords, so they were not identified.

Kádár (2014) and Raun et al. (2016) state that there are not perfect tracking techniques, what can be verified through the explanation of the advantages and disadvantages conditioning the choice of the technique to apply. Moreover, these authors point to combining tracking techniques as key to gather the data required to carry out different studies. Our findings support this claim as they point that combining tracking techniques is frequent in tourism research. The results also show the most frequently combined techniques. However, Kádár (2014) and Raun et al. (2016) point to all techniques having strengths or weaknesses to justify the existence of so many different tracking techniques and the apparition of new ones. Despite this, the study identified several techniques that had never been used and certain studies even discouraged future researchers to use the technique employed. For example, Keul & Kühberger (1997) do not recommend the direct observation and follow-up of tourists for being very time-consuming and for disturbing the tourists tracked. In addition, analysing programmed visits recorded by trip planners might allow knowing tourists' intentions but not their actual behaviour and it requires having the support of the company managing the platform to access data. In the same lines, studying destination signage might help identifying most usual mobility patterns but not tourists' true behaviour.

Conclusions

Despite several studies analysing tourists' mobility and behaviour using tourist tracking techniques, there are no previous papers gathering information about these techniques in order to let researchers know how these techniques could be applied. Moreover, there are only a few studies that have been carried out to compare the data that can be obtained using a small number of tracking techniques. Thus, more theoretical studies are required, as they help understand how these techniques work and the problems researchers find when applying them. In fact, the main aim of this study is to help researchers choose the right tracking techniques to apply in their studies. To do so, this study has attempted to summarize the characteristics of the current tourist tracking techniques used by researchers in studies on tourist mobility and behaviour. In order to achieve this, a literature review has been carried out to understand which techniques have been used and how they work. After this, a bibliometric analysis has highlighted the evolution of the use of these techniques, which has also allowed an estimation of their future evolution. The analysis has also been complemented with another literature review to analyse pros and cons of different tourist tracking techniques.

The literature review has identified the existence of 31 techniques to track tourists' movements. These techniques focus on two different elements as some of them analyse the movements made by tourists to identify which places are visited (techniques from a demand-side approach), while others study some places in the destination to ascertain the characteristics of those tourists visiting them (techniques from a supply-side approach). Moreover, as all techniques share common characteristics with others, they have been grouped into six different categories. These categories have also been divided into those ones used from a demand-side approach and those used form a supply-side approach. On the one hand, demand-side techniques are based on surveying tourists, analysing online contents posted by previous tourists, and using geolocation devices to track tourists' movements. On the other hand, supply-side techniques are those analysing tourism advertisement campaigns to know which places are promoted, studying sales records of tourist attractions, and analysing the actions taking place in specific sites of tourism destinations.

When choosing the techniques to use, researchers should consider which the mostly used techniques are in order to increase their probabilities of writing papers that journals will be more likely to be published. The performance of a bibliometric analysis has shown that currently the most used techniques to track tourists are those techniques grouped under the "Geolocation" category. Techniques based on surveying tourists and analysing specific sites in destinations are also used to track tourists' movements. Certain techniques, such as the direct observation of tourists or conducting street surveys, have been used in the past but their usage is currently declining. However, other techniques, such as tracking tourists' position through GPS devices, their mobile phones or the analysis of contents posted on web pages, are expected to be used in a larger numbers of studies in coming years. Consequently, the number of studies based on the use of tourist tracking techniques in general is expected to grow during next years.

In spite of the importance of using current research tracking techniques, researchers should also consider the advantages and disadvantages of the possible techniques to use. These pros and cons are important, as they may restrict the use of certain techniques or make other techniques more suitable to carry out some studies. Through a literature review, six key aspects to consider before choosing a tracking technique have been found. These considerations are: the sample that can be obtained, the monetary and temporal cost involved in the application of the technique, the dependence of third parties, the number of variables gathered with the technique, the quality and accuracy of the data gathered, and the ethical and legal dilemmas linked to certain techniques.

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Book chapter 2. **Application of tracking tools in tourism and hospitality management**

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Abstract

In this chapter, the concept, use, evolution, problems and implications of tracking techniques in tourism and hospitality research are addressed. First, the concept of tracking is defined and its applications in different sciences and, particularly, in tourism and hospitality are explained. Then, the past, present and uncertain future of tracking techniques is briefly discussed, including the evolution of the different types of tools used to track the places visited by tourists. Afterwards, the chapter continues pointing to the limitations of tracking tools and it points to combining different tracking techniques as a key element to gather more accurate data from tourists. Last, the chapter focuses on the implications of data gathered through tracking tools for destination and industry managers. This chapter may serve to students interested in understanding how the generation of tourism statistics is expected to evolve during next years and to practitioners pretending to improve the management of tourism destinations or enterprises.

Keywords: tracking, mobility, destination management, behaviour, points of interest

Introduction

Tracking refers to any kind of source of information allowing to gather data of the movement of an individual. In tourism and hospitality research, it is frequently used to understand the places visited by tourists, so public and private managers can target specific segments of visitors who are more likely to visit particular locations. While tracking has been widely used in other disciplines, such as biology; the use of tracking tools for tourism and hospitality management purposes began in the end of 1990s. However, it was not popularized until mid-2000s. Currently, the use of these techniques continues constantly growing. Despite their increasing popularity and the variety of existing tracking tools, all of them present certain issues that may prevent their application, such as the sample of tourists that can be tracked, the dependence of third parties to gather certain types of data or the legal and ethical problems linked to people's right to privacy and personal data protection laws. Nevertheless, previous research points that tracking can be a key element to improve the management of tourism destinations and to help industry managers making more prudent decisions.

Tracking technologies: Definition and Use

Tracking refers to any kind of technique, tool or source used to understand the movements of humans, animals or any other kind of elements in a certain time and space. Despite some scholars only link tracking with more recent Information and Communication Technologies (ICT), they can also refer to more traditional sources of information. Tracking can be applied to a whole population or to a sample of individuals. In certain occasions, it does not only record data regarding the places where certain individuals have been but also other information, such as demographic variables or motivations. Despite this, tracking's main purpose is understanding individuals' mobility patterns or, at least, recording the places visited by them.

Despite this book focuses on analysing the application and use of technologies and hospitality and tourism, it is relevant to explain the importance of tracking in other areas to understand the importance and implications of this type of technology. In biology, researchers usually track animals to understand how they move and their behaviour with other animals, spices and the environment in general. See, for example, Cooke et al. (2013) for more information. Tracking is also used with police and military purposes to monitor country borders or to identify the movements of certain people in the street through the recognition of their facial features to prevent terrorist attacks or to capture criminals. In Lowell (2011) you can find more information about this application of tracking. In other economic related areas, tracking is also frequently used. In marketing, for example, eye-tracking is commonly used by companies and scholars to gather data of eye movement of different people when deciding the product to buy, what helps business managers decide how to place their products in order to increase the purchase of certain items. Again, more information is available in the book written by Duchowski (2007). Thereby, tracking is not only relevant for tourism and hospitality researchers and practitioners, but it is also widely used in other disciplines due to its multiple applications.

In the case of hospitality and tourism, tracking is mainly used to gather data about the places visited by tourists and the routes taken by them to connect the places visited. However, it has other applications, such as helping public and private managers understand the profile of the tourist attending to the locations identified through tracking. Thus, usually not only the specific coordinates and places where tourists have been are recorded but also other information is gathered. Demographic variables, motivations to travel, expenditure, timing of the visits or the assessment of the places visited are variables commonly combined with data of those tourists tracked. On the one hand, destination managers tend to use this information to segment tourists depending on the points of interest visited to configure more personalized promotion campaigns or to distribute tourist flows. See Padrón-Ávila and Hernández-Martín (2019a) to get more information about an example of how destination managers can use these data. On the other hand, hospitality industry managers usually recur to tracking to gather data of the behaviour of their customers to improve their experience or to understand how potential customers behave to increase their market share. As an example of how hospitality businesses can use tracking tools, see Shoval, McKercher, Ng and Birenboim (2011).

Tourist tracking techniques: Past, Present and Future

Tracking techniques in tourism research have experienced three different stages during last decades. The first stage was developed at the end of the 1990s. During this first stage, very few contributions related to this topic were published, as tracking was not a popular topic for tourism researchers and industry. Some examples are the studies carried out by Keul and Kühberger (1997) or Thornton, Williams and Shaw (1997). The second stage was developed from early to mid-2000s, particularly until 2007. Tourist tracking was addressed again by tourism and hospitality researchers as the popularization of the internet, mobile phones and other ICT created a new paradigm for academia and industry. Thus, works such as Renenger (2001) or Shoval and Isaacson (2007) were published, linking ICT with tracking. Finally, the third and last stage started at the end of 2000s when there was a boom in the number of articles dealing with tourist tracking. This topic became a continuously growing field in tourism and hospitality research and the number of studies and reports dealing with this topic has not finished growing during these years. Moreover, it seems that the interest of academia and practitioners on data obtained through tracking is still increasing, so this third stage (the stage of popularization of tracking technologies) has not ended yet.

First studies dealing with tracking in tourism research focused on the use of surveys, interviews and spying the movement of tourists in the streets to understand their behaviour. In fact, the aforementioned studies use this kind of techniques to track tourists' movements (Keul and Kühberger, 1997; Thornton et al., 1997). However, as pointed by McKercher and Lau (2009), surveys may not be a good tool to track tourists as it is not possible to include all possible places that tourists can visit in a survey. Similarly, Shoval and Isaacson (2007) state that tourists can also forget some of the places visited or even not knowing their names, so they would not point to their visit in a survey or interview. Moreover, spying tourists has been proven to consume too much time and be able to gather data about a too small sample, so researcher applying it do not recommend this technique. See, for example, Keul and Kühberger (1997). Despite this, even knowing the problems linked to more traditional tracking tools, researchers continue using them as the application of surveys, for example, has been widely tested and facilitates the collection of data and interpretation of the results. Padrón-Ávila and Hernández-Martín (2019b), for instance, use survey data to establish the profile of tourists more likely to visit most relevant points of interest of the island of Lanzarote.

During the second phase of studies dealing with tourist tracking, researchers started focusing on other type of tools, primarily mobile and GPS devices data. These devices allow tracking tourists' position and they sent the exact coordinates and position of tourists to researchers. In addition, these tools allow recording the timing of tourists' localization. Despite all their advantages, these tools may present some issues as they cannot gather so many data regarding demographics or motivations, among others, as more traditional data sources. In fact, Raun, Ahas and Tiru (2016) point that there is not a single perfect tool to track tourists, so people willing to do so should combine different sources of tracking data. Nevertheless, the apparition of this kind of technologies completely changed the development of tracking studies as the precision of the data improved. However, many issues related to people's right to privacy and personal data protection started to arise among researchers. See more information about these issues in Renenger (2001).

In the current third stage of tourist tracking, the amount of studies using traditional and modern tools has increase, but other new data sources have also appeared. Currently, it seems that researchers are trying to figure out how to use Big Data for the generation of statistics that tourism and hospitality practitioners can use. Different ways to get these data have been pointed by researchers. Geotagged pictures uploaded by tourists to the internet have been frequently used, for example by Kádár (2014). Other sources of information used are all those contents uploaded to social media and opinion portals or even to other type of websites. See de Oliveira and Porto (2016) to check how TripAdvisor can be used to gather data of the places visited by tourists and Signorelli, Reis and Biffignandi (2016) if willing to expand the knowledge about the use of data from other type of websites (Wikipedia in their research). Other recent studies are also addressing this topic studying the application of other sources of data that allow recognizing tourists' mobility patterns, for example surveillance cameras or credit card spending. See Izquierdo Valverde, Prado Mascuñano and Velasco Gimeno (2016) or e Silva et al. (2018) for more information.

Despite analysing the past and present of tracking techniques is an easy task, the future of this type of sources is unknown. The number of papers and reports dealing with this topic increases every year, so it can be expected that these tools will become more and more popular to gather data from tourists. However, policy makers, researchers and general society are starting to get worried about how companies are dealing with all the personal data they possess and the way they are managing these data. Because of this, governments are starting to reinforce citizens' right to privacy and their personal data protection laws. For example, Fuster (2014) is a good reference explaining how and why personal data protection has become a key issue in European Union. Thereby, it is not possible to forecast if the reinforcement of these laws will prevent tracking tools to become a common source of data for destination and industry managers. Moreover, the rapid development of technology may affect the type of tracking techniques used as they could soon become obsolete and new tools could easily appear in coming years.

Problems linked to tourist tracking techniques

The existence of so many different types of tracking techniques is justified as all of them present problems that limit their application in all kind of studies. Thus, scholars must wisely choose the technique to apply based on the aim of their study or the problem they are trying to solve. It is even possible that a single tool might not be sufficient to gather the data required to address a certain topic, so researchers have to combine several techniques to obtain the results desired. However, Kádár (2014) points out that the possible combinations of tracking techniques have not been properly studied yet, so people combining data from two or more different data sources may find problems to correctly analyse and understand the results obtained.

In addition, it also seems to be difficult to analyse whether tourists modify their behaviour once they know they are being tracked and to what extent it varies. The analysis of the movements of visitors practicing domestic tourism also seems to represent a difficulty for researchers using tracking techniques such as mobile phone data, which only allows differentiating among national or international mobile phone users. The accuracy of the tracking tools has even been discussed, as they are not capable of indicating the position of tourists with total certainty, which could confuse researchers who analyse destinations with multiple nearby tourist attractions. Another element to consider is that certain segments of the population are more likely to use mobile phones and social media, for example, than others; so the sample of tourists reached with each technique varies.

It is relevant to indicate again that certain tracking techniques present certain moral, ethical and legal problems as these issues are constantly remarked in tourism and hospitality literature. See, for example, Curry (2000) and Renenger (2001) as both studies deal with the relation of tourist tracking with this kind of issues. Most of these problems are related to the way in which these tools may be contrary to people's right to privacy. Mobile phone companies, for example, can locate phone users and the movements they make to sell that information to third parties without needed users' approval. In fact, according to Renenger (2001), legal systems are not yet fully prepared to face this reality and the problems associated with it. Generally, it seems that legal systems usually require the consent of the tourists tracked to use their information to identify mobility patterns (but not specific individuals) in order for researchers and practitioners to be allowed to use tourists' personal data recorded through tracking. Furthermore, it seems that this limitation could prevent the use of the data collected to make comparisons between different destinations as each country, region or state may have different laws allowing to publish only certain types of information.

Through a review of the studies published dealing with the tracking of tourists, 6 main limitations regarding the applicability of tracking techniques have been found. The limitations found relate to the sample of tourists that can be analysed, the cost of applying tracking techniques, the dependence to third-parties to get certain data, the amount of variables that can be analysed, the quality and accuracy of the data gathered, and the legal and ethical issues previously mentioned. A summary explaining the limitations is explained below:

- Sample of tourists studied: The number of visitors that can be analysed is one of the main concerns for researchers using tracking techniques and, thus, it should be one of the aspects to be firstly assessed when choosing the techniques to be used. Certain tools allow a large amount of information to be obtained from a single individual, but it is possible that data collection cannot be done simultaneously to several tourists as found by those researchers spying tourists' movements in late 1990s. Moreover, as previously mentioned, certain segments of tourists are more likely to upload contents to social media or to use electronic devices, so the sample of tourists studied could primarily focus on certain individuals that could not even represent the average tourist.
- Cost of tracking techniques: Although certain techniques facilitate obtaining information from a larger sample than others, it is possible to use any of the mentioned techniques to obtain data of a certain sample size. The problem lies in the varying cost of getting the information depending on the technique chosen. Some researchers have bought data of mobile phone users to telephone companies, but the cost of doing so can be extremely high. See Ahas, Aasa, Mark, Pae and Kull (2007) for more information about how to use this type of data. Moreover, sometimes to cost to get the data is not economic but temporal as some techniques require of longer periods to be applied.
- Third-party dependence: Companies and other institutions may have information regarding the number of products, services or activities sold to their customers during a certain period of time. Researchers can use this information to carry out studies of tourists' preferences. However, for researchers, needing the support of an external institution to obtain data creates a series of problems and limitations when applying certain techniques. First, researchers must wait until receiving the information and once they have it, they might find methodological issues related to the database that may prevent them from using the data.

- Amount of information obtained: Although the general objective of this kind of studies is understanding the places visited by tourists during their trips, there is another series of data that are relevant for the analysis (demographics, motivations, among others as previously mentioned). Although all tracking tools allow identifying locations frequented by tourists, they can also provide other additional information that can improve the results reached. Therefore, when selecting the techniques to apply, researchers should consider the additional information they could need as this may condition the choice of a certain technique or another.
- Quality and accuracy of the information: Although a tool can provide information about a large number of indicators, the information obtained through certain tracking technologies may be inaccurate or even erroneous. Therefore, it is sometimes preferable to use a technique providing a smaller amount of information if the data provided are more reliable data.
- Ethical and legal issues: Certain tracking techniques present certain moral and ethical problems that must be taken into account if researchers intend to use them as research instruments. Most of these problems relate to the way in which certain procedures may be contrary to the right to privacy of visitors. In fact, legal systems are not yet fully prepared to face this reality and the problems associated with it, so that the information collected can be used for various purposes that could be considered unethical.

Tracking tourists to support policymaking

The implications derived from tourist tracking analysis depend on the technique used to carry out the study, since each of them provides different information. Other factors that also seem to influence these implications are the aim of the research and the place chosen to apply the analysis. The main implications indicated in tourism studies by researchers are usually linked to the improvement of the management of tourism destinations and hospitality enterprises. In addition, Shoval and Isaacson (2007) point out that this type of study is also able to expand the existing boundaries in tourism scientific research. Despite all this, researchers seem to agree that the main implications of this type of study are those related to the improvement of the management of tourism destinations.

Among others, tracking tools have a special impact on the capacity of promoting the improvement of the planning of the attractions to be developed at the destination, the development of accommodation establishments and the creation of transport connections. This type of study also has direct and indirect implications that would help reduce inequalities in the economic and social development of destinations, control the mobility patterns of the population and distributing income and wealth generated by tourism. It is even possible to identify the location of specific tourist attractions that were not known by the managers of different destinations. Understanding and measuring the daily movements of visitors is also an important task in other areas of management such as transport, taxation, public administration, among others.

Government tourism policies tend to encourage the dispersion of visitors and this type of study helps know where the tourism activity is concentrated. In addition, this helps to spatially distribute tourists through the use of promotion campaigns aimed to attracting those visitors more likely to visit secondary points of interest and attractions. Tracking techniques are also useful for setting the boundaries of destinations or tourist areas, as they allow quantifying the number of tourists visiting a place and the area visited by them. Some tracking tools also allow identifying the distance traveled to reach a certain place, what can help policy-makers prioritizing the improvement of certain infrastructures of the destination. In addition, tracking allows tourists to be segmented according to their travel patterns their possible future movements can be forecasted. This knowledge also enables destination managers to plan and manage tourist flows more efficiently.

The mobility patterns of visitors have an impact on the economic, social and environmental dimensions of a destination, so the use of tracking data to reduce visitor flows to specific areas has also been studied. Several studies point out that places with an excessive number of visitors lead to the unsustainable development of the destination. Therefore, this type of research can be used to initiate actions of concentration or dispersion of visitors in specific areas. The reduction of visitors in certain spaces helps minimize the impacts of tourism activity on them, reduces the conflicts generated and helps preserve the resources it contains. It is also possible to apply these measures only during the peak months or hours when tourists are more likely to visit certain spaces.

As pointed by Padrón-Ávila and Hernández-Martín (2019a), tracking research "has implications for public and private tourism managers particularly in the context of preventing the effects of overtourism". As mentioned before, tracking can be used to manage tourism flows to the main points of interest of the destination. This is particularly relevant as it helps solve overtourism issues, which represent a current frequent concern of destinations. In fact, the study of Padrón-Ávila and Hernández-Martín (2019a) states that "for destination management organizations, this research can be used to identify the characteristics of those tourists who are more prone to visit attractions and the effects that visiting attractions have on expenditure at the destination, on the assessment of the trip given by tourists, and on the characteristics of tourists that can be encouraged to change their behavior with the purpose of spreading tourist flows". This same study also points later that "for destination managers that may not be interested in attracting a huge number of tourists to specific places to avoid congestion, particularly in sensitive environments like national parks, this analysis may help identify if the current profile of visitors received fits with the sustainable development policy of the destination. Thus, it may help to know if a destination is receiving tourists interested in its natural and cultural preservation or who show a higher tendency to spend larger amounts of money during their trips. This may allow for an optimization of tourism flows in the sense of trying to attract tourist that not only spend more, but also have a lower impact on the environment". These statements clearly indicate the relevance of tracking to solve overtourism issues, which lead destinations to an unsustainable development as these issues negatively affect environmental preservation and reduce the support and participation of local communities with the activity.

In addition, tracking can also serve to improve the urban planning of regions, the tourism planning of destinations and the improvement of the sociological and economic aspects of the residents. Tracking data can be used to build the brand image of destinations and even the image of the locations identified through tracking techniques. These data can also be used to increase the competitive advantage of destinations and to reduce the intensity of market competition. Finally, tracking data represent also a new paradigm for researchers studying tourism and hospitality as they help generate statistical databases for areas such as demography or migration that may be later used to carry out different studies.

Industry implications of tourist tracking techniques

For business managers, tracking allows identifying the characteristics of their main target customers and even the characteristics of those customers more likely to spend more money when buying a product or to be more satisfied with the service provided. As this type of research encourages the segmentation of visitors, this allows enterprises to set up marketing and promotional campaigns aimed to potential customers fitting in the desired set of characteristics proposed by managers. In addition, knowing how certain elements of tourism activity are linked, such as facilities, routes and infrastructures, allows to better plan the destination and define marketing strategies. Zoltan & McKercher (2015) also analyze the possibility of grouping related places visited by tourists through tracking tools to generate regional cooperation networks in terms of promotion and to unify the points of sale of these related locations. Tracking can also help attraction managers understand which other services or products are appreciated by their targeted customers, so they can diversify their own services.

The monitoring of visitors also allows to know the seasonality not only of the destination, but of the attractions, points of interest and itineraries taken as it helps quantify the amount of tourists visiting a place depending on the timing of the visits. Thus, it can help tour guides understand the locations their customers are more likely to visit. Moreover, as tracking is frequently used by destination managers to disperse tourist flows, enterprises can use tracking data to sell their products and services in secondary and peripheral locations of the destination, what may be aligned with public administration dispersion policies. Tracking is also capable of understanding the type of customer received by competitors in order to differentiate the product or to apply benchmarking strategies.

Moreover, tracking data can be also used by other types of hospitality managers. For example, Shoval et al. (2011) use GPS tracking devices to establish which places tourists are most likely to visit based on the location of their accommodation, so the hotels analyzed could improve the service provided to their customers. This can also serve to foment the creation of deals between accommodation enterprises and service providers so both can increase their incomes. In addition, tracking data need to be contrasted with a variety of sources, so using them encourages the exchange of information between hospitality managers.

Conclusion

Tracking started to be studied by tourism and hospitality researchers in late 1990s, but it did not become popular among these researchers until late 2000s due to the extended use of mobile phones and other devices integrating GPS technologies. This created a boom in the number of studies dealing with this topic that has not ended yet because of the multiple applications that tourist tracking has for researchers, destination managers and enterprises. The use of tracking tools is expected to grow in the future, but the rapid and constantly changing technological and legal environment does not allow knowing which tools will be used in the future to track tourists or if laws will prevent tracking to be more deeply developed. As tracking allows understanding the mobility patterns of tourists, it can be used to solve certain issues such as congestion, overtourism or environmental degradation. Tracking can also serve to improve tourism and hospitality facilities and infrastructures, target tourist segments and create new tourism products. In spite of the importance and implications of using tourist tracking techniques, researchers should also consider the advantages and disadvantages of the possible tools to use. The issues related each of them must be known when starting a study as they may restrict the use of certain tools and make others more suitable to achieve specific results. In this chapter, six key aspects to consider before choosing a tracking technique have been indicated, so researchers pretending to use tracking tools can understand the limitations of these technologies.

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CHAPTER 4

Points of interest, visitor behavior and overtourism

Journal article 4. **Why do tourists differ in their likelihood to visit attractions? The case of Lanzarote**

Journal article 5. **Preventing overtourism by identifying the determinants of tourists' choice of attractions**

Book chapter 3. **Tourist tracking techniques as a tool to understand and manage tourism flows**

En este capítulo se utiliza la isla de Lanzarote como caso de estudio, estudiando cuáles son los determinantes que condicionan que se visiten 11 puntos de interés en Lanzarote. El fenómeno de la congestión de áreas turísticas, que ha atraído el foco del debate académico en los últimos años está estrechamente vinculado con la atracción de visitantes ejercida por determinados puntos de interés. Por ello, este capítulo aborda la relación existente entre el estudio de los puntos de interés y la mejora de la gestión de destinos turísticos para solucionar problemas de congestión y masificación en las áreas turísticas.

In this chapter, the island of Lanzarote is analyzed as a case study, studying what are the determinants that explain the visit of 11 points of interest in the island. Overtourism has been one of the main focuses of tourism research during last years. This phenomenon is highly linked to the analysis of the points of interest visited by tourists. Thereby, the chapter highlights the close relationship between the study of points of interest and the improvement of the management of tourism destinations to solve problems related to congestion and overtourism.

Journal article 4. **Why do tourists differ in their likelihood to visit attractions? The case of Lanzarote**

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Abstract

In this paper, more than 35,000 survey responses given by tourists from 2010 and 2016 are used to explain visits to tourism attractions in Lanzarote. In the survey, tourists are asked about a wide set of variables. Among these, there is a question regarding the attractions visited during their trip. With these data, it has been possible to carry out a discrete choice model analysis to establish the variables that explain why certain tourists are more prone to visit attractions than others. This study is relevant to understand tourists' mobility patterns and behavior. It also has implications for marketing managers and tourism product developers.

Keywords: attraction, behavior, Lanzarote, mobility

Introduction

Knowing how and where tourists travel has been of interest to researchers for many years (Shaw, Agarwal, & Bull, 2000). Despite this and the numerous implications that could result from this type of analysis (Asero, Gozzo, & Tomaselli, 2016; Kádár, 2014), few studies have analyzed how tourists behave in tourism destinations (McKercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011). According to McKercher and Lau (2008), this is because the collection and analysis of data related to the movements made by tourists are complicated tasks. However, this problem is currently being addressed in greater depth thanks to the possibility of accessing new information sources (Raun, Ahas, & Tiru, 2016). This has meant that an increasing amount of research is being published that analyzes the patterns of tourists' displacements in tourism destinations (Smallwood, Beckley, Moore, & Kobryn, 2011). In order to achieve a better understanding of tourists' behavior and mobility, a larger number of papers and studies in this field are required. This would enable clearer conclusions to be drawn from the results obtained by different studies to determine which characteristics of tourists affect their choice of certain destinations, attractions, or products.

In this study, discrete choice models are used to analyze how a set of variables influence visits to 11 attractions. The results show to what extent each variable increases or decreases the probabilities of visiting the attractions studied. The results of this study are supported by a larger set of variables than other studies. Indeed, it uses more than 35,000 survey responses and analyzes the effect of 83 independent variables for visiting attractions. Moreover, the results do not just identify which significant variables explain why tourists visit the attractions, they are also able to indicate the precise effect that each variable has on the probabilities of visiting the attractions studied, an aspect which has not been addressed until now. Therefore, this kind of study can be used to gain a better understanding of tourists' behavior, mobility, and expenditure patterns. In addition, this study is not just helping to fill the gap in the research regarding tourists' choices when traveling, it also has practical applications. In fact, several public institutions are currently interested in the methodology applied and results obtained to improve the data collection on tourists and the management of tourism activity in the Canary Islands.

The study of the typology of attractions and the tourism segments most likely to visit them is relevant to know how tourists move and consume within destinations. Analyzing their movements and consumption behavior is very relevant for public and private institutions. It can help in the implementation of marketing campaigns, the development of sustainable tourism destinations, and the creation of new tourism products and activities, among others (Lau & McKercher, 2006; Lew & McKercher, 2004; McKercher & Lau, 2008; McKercher & Lew, 2003; Scuderi & Dalle Nogare, 2018).

A complete analysis of the attractions of a destination requires not only the study of these places but also the analysis of the tourists who decide to visit them. To address this task, it is necessary to gather information about tourists and their movements within destinations. The difficulties associated with this task are that tourism statistics are mainly collected at national level. International bodies such as the UNWTO or the Statistical Office of the Commission of the European Communities (Eurostat) have published documents with recommendations and manuals on how national tourism statistics should be compiled (UNWTO, 2010). However, tourism is an activity that shows a highly concentrated pattern in certain regions and, particularly, in specific places (INRouTe & UNWTO, 2013). In fact, to analyze attractions, data at regional and local levels are required. This need for local information in tourism would help explain how tourism impacts on a regional and local scale and it is promoting international organizations to create guidelines on how to measure tourism at these scales (INRouTe & UNWTO, 2013).

Literature review

Tourists face several choices when traveling. They need to choose the destination, airline, accommodation, activities, and so forth. Consequently, several factors influence their probabilities of choosing a given place to visit instead of another. These choices seem to be conditioned by a set of variables that make certain segments more prone to visit certain places than others. In addition, the choices made by tourists have effects on destinations in several aspects such as on the economy or public decision-making. David-Negre, Hernández, and Moreno-Gil (2018) state that the relationships among activities, tourist segments, geographic localization of the activities, and their influence on the economy of destinations need to be analyzed to understand the cause–effect relationship between tourists and activities.

Different studies have been carried out to find out which tourists' characteristics motivate them to prefer to visit some sites instead of others. In these studies, different kinds of techniques have been employed (Zakrisson & Zillinger, 2012; Zoltan & Masiero, 2012). Scuderi and Dalle Nogare (2018) use destination cards to identify the most common sequences of activities recorded using them. Other researchers such as David-Negre et al. (2018) or Raun et al. (2016) have suggested using social media or mobile phones to track visitors' movements within destinations. However, according to Kádár (2014), there is no single technique capable of gathering all the information related to all the movements made by visitors in tourism destinations. Each technique obtains different information, and all of them have limitations. For this reason, a combination seems to be best to collect and analyze the greatest amount of information (Kádár, 2014).

The application and analysis of tracking techniques provide a set of advantages for researchers and public and private institutions. Alawwad et al. (2016) point out that one of the main advantages of the application of tracking techniques is the identification of tourist attractions that are not known by destination manager organizations. Lau, Koo, and Dwyer (2017) point to the possibility of characterizing tourist attractions based on visitors' profiles. Other researchers have stated that tracking techniques have several implications for marketing purposes and the development of new tourism products (David-Negre et al., 2018; McKercher, Shoval, Ng, & Birenboim, 2012; Raun & Ahas, 2016). However, this kind of analysis presents several problems, which lie in the complexity of the movements and the understanding of the relationships they generate (Xia, Zeephongsekul, & Packer, 2011). This complexity not only derives from the diversity of routes and attractions that visitors can choose from (Lew & McKercher, 2002) but is also influenced by the characteristics of the visitors and the visits themselves (Xia et al., 2010). Moreover, the spatial distribution of the elements of the destination such as resources, attractions, and accommodation also needs to be addressed to perform a complete analysis (Leung & Marion, 1999).

Despite all these difficulties, some studies of tourist mobility have been able to create itinerary models (Lew & McKercher, 2002). However, choosing a suitable technique or combination of them to carry out these studies continues to be problematic. Regarding this issue, Eurostat (2014) states that conducting surveys is the traditional source of data used to collect tourism statistics and holds that surveys can be used to determine the places visited by tourists. Moreover, there are different types of surveys that can be used for the collection of statistics at the regional and local level (border surveys, surveys made at home for domestic tourism data, or surveys conducted in accommodation establishments). In addition, INRouTe and UNWTO (2013) also support the use of surveys to identify itineraries, describe a trip, obtain specific information about short trips, and so forth.

The results of the research carried out on tourist mobility show that there are several factors that affect the preferences of certain tourists to visit certain attractions instead of others. Tourists' characteristics seem to be one of the relevant variables that explain their visiting patterns. For example, Flognfeldt (1999) found that internal tourism practitioners tend to move more and further within the destination than tourists coming from foreign countries. The trip's characteristics also seem to have some relevance for explaining these decisions. People who travel to visit friends and family tend to visit tourist attractions less and move less intensely within the destination (Zakrisson & Zillinger, 2012). This behavior is strongly akin to the behavior shown by tourists in all-inclusive accommodation complexes (Lew & McKercher, 2006). Despite tourist and trip characteristics being relevant variables to explain tourists' behavior, tourists' motivations and preferences seem to have a greater effect on conditioning their decisions. The study by Scuderi and Dalle Nogare (2018) showed that most tourists prefer practicing a variety of activities, except cultural tourists who were characterized for just choosing cultural activities. Masiero and Zoltan (2013) found that visitors attracted by culture were more likely to move within a destination. However, these authors also found that visitors interested in landscapes and nature tended to concentrate in certain areas. Despite these studies highlighting the results mentioned, there is still a need for more studies to analyze the same characteristics in different destinations. This would allow the results of different studies to be compared, and thus, it could be verified if tourists show similar behaviors in different destinations. This knowledge could help cover this particular gap in tourism research.

In order to analyze data regarding tourists' mobility and behavior, several techniques have been used. Scuderi and Dalle Nogare (2018) applied cluster analysis to identify specific patterns of tourist segments. Despite this being an appropriate technique to test the type of tourists most likely to visit certain places, it is not able to identify which variables are the ones that explain the behavior studied. Cluster analysis is also unable to determine to what extent a certain characteristic has an influence on the probabilities of visiting a place. Other studies, such as the one carried out by Lindblom, Lindblom, Lehtonen, and Wechtler (2018), have used data processed by structural equations modeling to establish the travel intentions of tourists within destinations. Although this technique can identify the variables that explain a certain event, it presents some limitations. For example, it requires a correctly-designed study and uses primary Likert scale data to estimate the results given by the model. Moreover, it can present several problems if the database has omitted variables or if binary variables are used (Tomarken & Waller, 2005). Other econometric tools, such as discrete choice models, have also been used to study the movements made by tourists within destinations (Masiero & Zoltan, 2013). This technique can also identify the variables that explain a certain event and combined with calculating the average partial effects of the results obtained. Moreover, it can indicate to what extent a change in a certain variable modifies the probabilities of the event happening. In fact, this has been the technique used to carry out this research. However, unlike Masiero and Zoltan (2013), it has also been combined with the calculation of the average partial effects of the results of the model to know how much each variable changes the probabilities of visiting the attractions studied.

In previous research carried out by Asero and Tomaselli (2015), a multinomial logistic model was used to study the effect of a set of variables in choosing three different types of holidays. Comparing that research with the current study, certain differences can be identified. First of all, the current paper analyzes the likelihood of tourists visiting 11 attractions, whereas Asero and Tomaselli (2015) analyzed the likelihood to choose a specific type of holiday. Moreover, the dataset used in the current research is much larger than the one used by Asero and Tomaselli (2015). They used just 17 variables in their logistic model, whereas in this paper, 84 variables have been used to study the likelihood of tourists visiting the most well-known attractions on the island of Lanzarote. In addition, Asero and Tomaselli (2015) gathered data regarding 1,834 tourists who visited Sicily during approximately 7 months. In the current study, the data have been collected over 7 years (from 2010 to 2016), and 37,055 tourists have been surveyed during that time. A larger amount of data collected during a longer time allows more accurate results and a better representation of different tourist segments to be obtained. Another factor to be noted is that Asero and Tomaselli (2015) used only a short set of binary variables to simplify the model used. In this way, they were able to establish if tourists under 44 years old are more likely to choose a specific kind of holiday than tourists over this age or if Italian tourists are more likely to do so than foreigners. In the current research, the results can identify the likelihood of tourists visiting an attraction and are modified by each extra year-old the tourists are. It was also possible to analyze the effect of living in 20 different countries on their likelihood of visiting these attractions. It should also be noted that though the multinomial logistic model used by Asero and Tomaselli (2015) is similar to the method used in the current paper, their method can only indicate if tourists with a certain characteristic are more likely to choose a type of holiday than tourists without that characteristic. The method used in the current paper does not just point out which characteristics increase the likelihood of tourists visiting attractions, but it is also able to identify the changes in the probabilities of visiting attractions for each extra unit added to all the variables analyzed.

Method

The data to carry out this research have been obtained from the responses provided by tourists to the Tourism Expenditure Survey conducted by the Canary Islands Statistics Institute (ISTAC). This survey is carried out at the airports of Canary Islands on those tourists returning home. It contains a question where tourists are asked about the visit to 11 attractions. The attractions analyzed have been identified by destination managers as they were selected by the Lanzarote tourist board in collaboration with ISTAC as the main attractions of the island. The list includes visit to Jameos del Agua (volcanic cave and art museum); visit to Timanfaya National Park (volcano); visit to Los Verdes Cave (volcanic cave); visit to Gazer del Río; visit to Monument to the Peasant (history museum); visit to San José Castle (modern art museum and castle); visit to the Cactus Garden; visit to the César Manrique Foundation (museum); visit to Arrecife

Town; visit to the markets of Teguise and Haría; and visit to La Graciosa (an island next to Lanzarote; ISTAC, 2009).

Regarding the variables analyzed, 83 independent variables have been initially chosen to carry out the analysis. The variables chosen have been gender, age, annual incomes, 20 countries of residence (Spain, Germany, Austria, Belgium, Denmark, Finland, France, Netherlands, Ireland, Italy, Norway, Poland, Portugal, United Kingdom, Czech Republic, Russia, Sweden, Switzerland, Luxembourg, and a variable for other countries), six main possible reasons for traveling (holidays, business, conferences, health, visiting family and a variable for "other main reasons"), 22 motives for choosing Canary Islands as destination (weather, beaches, landscapes, environmental quality, relax, safety, culture, rural tourism, active tourism, health tourism, theme parks, nautical activities, golf, other sports, nightlife, purchases, visiting new places, easy transport to the destination, price, destination suitable for children, natural safety, and other motives not specified), number of overnight stays, six possible travel groups (couple, children, relatives, friends, workmates, and others not mentioned), use of low-cost airlines, purchase of all-inclusive packages, repetition at the destination, total expenditure at origin, total expenditure at the destination, the decomposition of the expenditure at the destination divided into 19 items (accommodation, accommodation's extras, public transport, taxi, car renting, excursions, leisure activities, traveling to other islands, sport, culture, health, supermarket, discotheques, souvenirs, restaurants, personal services, inversions, pharmacies, and other expenses), and the global assessment of the trip made. Moreover, a binary variable regarding the visit to at least one of the 11 attractions contained in the survey has been used as depend variable to carry out the research. Table 1 contains a list of the variables used to carry out this research.

Table 1. List of the variables used to carry out the research

Variables		
Visit of attractions	Motivation: Family	Group: Workmates
Gender	Motivation: Others	Group: Others
Age	Motive: Weather	Repetition
Spain	Motive: Beaches	Overnights
Germany	Motive: Landscape	All-inclusive
Austria	Motive: Environment	Low-cost flight
Belgium	Motive: Relax	Expenditure: Origin
Denmark	Motive: Safety	Expenditure: Destination
Finland	Motive: Culture	Expenditure: Accommodation
France	Motive: Rural tourism	Expenditure: Extras
Netherlands	Motive: Active tourism	Expenditure: Public transport
Ireland	Motive: Health tourism	Expenditure: Taxi
Italy	Motive: Theme parks	Expenditure: Car renting
Norway	Motive: Sea activities	Expenditure: Excursions
Poland	Motive: Golf	Expenditure: Leisure
Portugal	Motive: Other sports	Expenditure: Other islands
United Kingdom	Motive: Nightlife	Expenditure: Sport
Czech Republic	Motive: Purchasing	Expenditure: Culture
Russia	Motive: Visit new place	Expenditure: Health
Sweden	Motive: Easy transport	Expenditure: Supermarket
Switzerland	Motive: Price	Expenditure: Discos
Luxembourg	Motive: Suitable children	Expenditure: Souvenirs
Other countries	Motive: Natural safety	Expenditure: Restaurants
Incomes	Motive: Other motive	Expenditure: Personal services
Motivation: Holidays	Group: Couple	Expenditure: Investments
Motivation: Business	Group: Children	Expenditure: Chemistry
Motivation: MICE	Group: Relatives	Expenditure: Others
Motivation: Health	Group: Friends	Trip assessment

Some of the mentioned variables contain a set of discrete values that have been converted into binary variables. The motives to travel studied include 22 binary variables that take the value 0 when the motivation was not pointed out by the tourist and the value 1 when it was. The same was made with the 20 countries of residence, the six kinds of travel group and the six main reasons to travel contained in the survey. In the case of the incomes of tourists, the responses are given by ranges. To process these data, the ranges were converted into discrete values. Thus, the value 1 was given to the lowest range (tourists with the lowest incomes), the value 2 to the second lowest range, and so on until covering all the ranges. This way, “incomes” variable can display seven different values. The other variables are continuous, so they have not been modified.

The complete database contains 257,687 responses of tourists that were surveyed from January 2010 to December 2016 at the airports of the Canary Islands. However, in this research, just Lanzarote Island has been used as a case study. This means that 43,301 responses to the survey have been used. These responses correspond to those tourists who were surveyed at the airport of Lanzarote and who indicated that Lanzarote Island was the main destination of their trip. However, a total of 6,246 surveyed tourists (14.42%) did not respond as to whether they had visited the attractions analyzed. Therefore, these responses were not considered. Among the 37,055 tourists that were finally surveyed, 67.23% of them had visited at least one of the 11 attractions studied.

In this paper, discrete choice models are used to analyze the available data and to identify the variables that determine tourists' behavior in the destination. Discrete choice models focus on analyzing the effect on the probability of a particular value of a discrete dependent variable with respect to changes in a set of independent variables that are established by the researcher. In this paper, the dependent variable is binary and takes value 1 when tourists declare to have visited at least one of the attractions and takes value 0 otherwise.

The model was first estimated for each year (from 2010 to 2016), but the results obtained were not significant for many variables due to lack of data. Fosgerau and Bierlaire (2007) stated that all samples in discrete choice models must have enough data to be able to produce statistically significant models. In the case of conducting the analysis for single years, given the huge number of variables being analyzed in this research, an even larger number of tourists should have been surveyed every year to perform seven different models showing a sufficient number of significant variables as a result. Therefore, the analysis has been carried out for the entire period for which the information is available. Moreover, it would have been possible to use discrete choice modeling to analyze the determinants of the visits to each attraction. However, in this study, just one model has been used to determine the propensity of the tourists surveyed to visit at least one of the 11 attractions analyzed. This simplification of the analysis allows the identification of those tourism segments that are, in general, more prone to visit all kinds of attractions in Lanzarote.

Once the model had been estimated, the analysis was done again omitting nonsignificant variables to check the results obtained. In the first analysis, 35 out of 83 variables studied were significant. Among the 48 nonsignificant variables, two of them were not analyzed due to contingency data errors (living in other countries and having other reasons to visit Lanzarote not included in the survey). In the second analysis, just the 35 significant variables were used. The results obtained for these variables were similar to the results of the previous analysis. However, three variables regarding tourists' motives to choose Canary Islands as destination showed not to be significant. These variables were: “Motive: Relax,” “Motive: Safety,” and “Motive: Nautical activities.” This means that these variables were related with ore or some of the omitted variables and that explains why they showed to be significant in a previous model. Due to this, a third model was carried out omitting also these three variables. The results of the model pointed out that the 32 variables were significant to explain why tourists visit attractions. Finally, this third model was the one chosen to carry out this research, because discrete choice models where all variables are significant tend to show more precise results than those models using one or more nonsignificant variables (Greene, 2009).

Discrete choice models do not show directly to what extent a variable influences the visit to a given place. To achieve this, it is necessary to calculate the average partial effects of results of these models (Greene, 2009). This indicates to what extent the presence of a given characteristic increases or decreases the probabilities of visiting an attraction. To carry out the analysis, the software Stata has been used. When analyzing the results, it must be considered that the interpretation of the model depends on the variables studied. The results regarding binary variables show the increase or decrease of the probabilities a tourist has of visiting an attraction when the tourist states to have a certain attribute. On the other hand, when analyzing continuous variables, the results given by the average partial effects of discrete choice models indicate the increase or decrease of the probabilities a tourist has of visiting an attraction for each extra unit added to the variable studied. This means that when the variable is binary, average partial effects show how probabilities are modified when tourists have the characteristic regarding the variable. However, when the variable can take several values (for example, the age of the tourists surveyed), average partial effects indicate to what extent the probabilities of visiting attractions increase or decrease per each extra unit added to the variable.

Results

Two discrete choice models have been used and compared, logit and probit models. The logit model showed a higher Pseudo R2 than the probit model. It means that the results given by this model are a better fit (Cameron & Windmeijer, 1997), so it was finally chosen to perform the study of the determinants. Table 2 contains the results given by the logit model. The model yields highly interesting results. This analysis allowed to determine the relevant variables that make tourists more prone to visit at least one of the attractions included in the survey according to the results extracted from the model.

Table 2. Logit model carried out to analyze tourists' visit patterns in Lanzarote

Variables	Coefficient	Std. Err.	Z	Avg. prtl. effects	Delta-method Std. Err.	Z
Repetition	-0.431203	0.032737	-13.17	-0.061328	0.004603	-13.32
Age	-0.002838	0.001175	-2.42	-0.000404	0.000167	-2.42
Overnights	0.022686	0.003623	6.26	0.003227	0.000514	6.28
Motive: Weather	-0.184758	0.063154	-2.93	-0.026277	0.008979	-2.93
Motive: Landscape	0.682050	0.040766	16.73	0.097005	0.005701	17.02
Motive: Environment	0.185157	0.052091	3.55	0.026334	0.007403	3.56
Motive: Culture	0.670716	0.085413	7.85	0.095393	0.012100	7.88
Motive: Rural	1.040894	0.191469	5.44	0.148042	0.027182	5.45
Motive: Active	0.452745	0.085475	5.3	0.064392	0.012134	5.31
Motive: Nightlife	-0.518006	0.087173	-5.94	-0.073674	0.012364	-5.96
Motive: Visit new places	0.613292	0.046947	13.06	0.087226	0.006608	13.2
Motive: Price	0.097438	0.040463	2.41	0.013858	0.005753	2.41
All included	-0.490567	0.038126	-12.87	-0.069771	0.005364	-13.01
Group: Couple	0.216169	0.041966	5.15	0.030745	0.005959	5.16
Group: Friends	0.196413	0.064507	3.04	0.027935	0.009169	3.05
Denmark	-1.155396	0.132348	-8.73	-0.164327	0.018735	-8.77
Netherlands	-0.526761	0.095468	-5.52	-0.074919	0.013557	-5.53
Ireland	-1.548560	0.056627	-27.35	-0.220245	0.007647	-28.8
Norway	-1.119021	0.122717	-9.12	-0.159154	0.017365	-9.17
United Kingdom	-1.453832	0.037168	-39.12	-0.206773	0.004746	-43.57
Sweden	-0.981304	0.123654	-7.94	-0.139567	0.017519	-7.97
Expenditure: Origin	-0.000088	1.34E-05	-6.53	-0.000013	0.000002	-6.55
Expenditure: Destination	0.000293	2.95E-05	9.95	0.000042	0.000004	10.02
Expenditure: Public transport	0.018153	0.003006	6.04	0.002582	0.000427	6.05
Expenditure: Taxi	-0.015417	0.002163	-7.13	-0.002193	0.000307	-7.15
Expenditure: Car renting	0.039618	0.001598	24.8	0.005635	0.000219	25.69
Expenditure: Excursions	0.052033	0.001621	32.11	0.007400	0.000217	34.06
Expenditure: Leisure	0.026060	0.002852	9.14	0.003706	0.000404	9.18
Expenditure: Other islands	0.021446	0.004474	4.79	0.003050	0.000635	4.8
Expenditure: Culture	0.121295	0.006527	18.58	0.017251	0.000915	18.86
Expenditure: Others	0.004217	0.001414	2.98	0.000600	0.000201	2.98
Trip assessment	0.150035	0.018791	7.98	0.021339	0.002662	8.02
_cons	0.288803	0.118626	2.43			

The analysis carried out emphasizes the high influence of motives for choosing Lanzarote as destination as one of the variables that explain tourists' behavior. Variables such as tourists' country of residence, travel group, number of overnight stays, purchase of all-inclusive packages, the repetition at the destination, and tourists' ages are also key factors that explain visits to attractions. It seems that the reasons for choosing

Lanzarote as destination are some of the main factors that increases the likelihood to visit at least one of the main attractions of the island. On the other hand, living in certain countries seem to be the most relevant factor that explains why these places are not visited by certain tourists. Other factors such as gender, the main motivation for traveling, purchase of low-cost flights or incomes levels are variables that have been shown as not relevant enough to explain tourists' behavior.

With respect to the reasons for choosing a destination, the analysis shows that those tourists interested in rural tourism, landscapes, culture, discovering new places, practicing active tourism and those who are interested in the destination's environmental quality are the most likely to visit attractions on the island of Lanzarote. Masiero and Zoltan (2013) have already pointed out that tourists interested in culture are more likely to visit attractions than other kinds of tourists. Indeed, choosing Lanzarote for its culture seems to be one of the reasons that explains why the attractions studied are visited. However, tourists interested in nightlife on the island, the weather and traveling to a suitable destination for children, tend to be less prone to make such visits. It is interesting to note that choosing the destination because of its climate is a factor that reduces the probabilities of visiting attractions. This motive for choosing a destination is the most frequently pointed out by tourists (88.6%). It implies that this common type of tourists is the one of the segments that shows a lower tendency to visit attractions in the destination. These results are similar to those found by Fennell (1996), who divided tourists in two groups: tourists with general motivations, and tourists with special interests. The research highlighted that tourists with special interests were more likely to visit a larger number of attractions.

When analyzing the influence of the travel group, it can be observed that tourists who travel with their partner or with friends are more likely to visit at least one of the attractions. The analysis performed by applying the logit model also shows that the number of overnight stays exerts a positive effect on visits to attractions. Therefore, as expected, the longer the stay, the more likely tourists are to visit at least one of the places studied. Past studies have reached similar conclusions, pointing out that longer stays at the destination are connected with doing more activities and visiting a larger number of places (McKercher & Zoltan, 2014; Opperman, 1997; Shoval & Raveh, 2004).

The model estimated also shows that living in some countries make tourists not very likely to visit attractions in the destination. In this case, the tourists that show this reduction in their probabilities of visiting attractions are those coming from Ireland, Norway, United Kingdom, Denmark, Sweden and the Netherlands. It is worth noting that, before carrying out the discrete choice model analysis, contingency tables were used to study tourist's behavior. On applying contingency tables, a set of nationalities were identified that show a high visiting rate to attractions. Tourists coming from Spain, Italy, and Poland, for example, showed a very high tendency to visit attractions. In fact, Flognfeldt (1999) stated that tourists visiting their own country are more likely to visit a larger number of attractions than other tourists. However, the model designed in this paper does not find that living in Spain is a key factor to explain why attractions are visited. This implies that tourists from the countries mentioned tend to possess a set of characteristics that really explain this tendency. In contrast to this, residents of Anglo-Saxon and Nordic countries do not tend to be interested in the attractions of the destination, but in this case, it is their origin that explains this.

In addition, the model showed that purchasing all-inclusive packages or having previously visited the destination are factors that help explain why attractions are visited. In this case, these factors have a negative effect on visits to attractions. Tourists who buy all-inclusive packages or who had previously visited the destination, are less likely to visit the attractions studied. Lew and McKercher (2006) also reached the same conclusion, when studying the behavior of tourists who buy all-inclusive packages. Moreover, other studies have also found that tourists who had already visited a destination are less likely to visit the most popular attractions and are more likely to focus their trips on certain areas (McKercher et al., 2012; McKercher & Lau, 2008; Smallwood, Beckley, & Moore, 2012). In addition, the analysis also shows that the age of the tourists has a negative effect. This means that older tourists are less prone to visit attractions at the destination than younger tourists.

Discrete choice models can also analyze if visits to attractions lead to an increase or decrease in tourists' expenditure and in the global assessment they give to the trip made. By observing the parameters obtained, it was possible to check that, certainly, these variables are conditioned by visits to attractions. Some of these variables showed to have a positive effect on the increase of the probabilities of visiting attractions, whereas others had a negative effect, decreasing the probabilities of visiting attractions.

The results of the logit model show that tourists who visit at least one of the attractions included in the survey are more likely to slightly reduce the expenditure made at origin but, in turn, to increase the expenditure they incur at the destination. In the survey, tourists are also asked about which items they have spent their money on. Several of these items are shown to be affected by whether the tourist has visited attractions or not. It is observed that tourists who visit attractions are less likely to use taxis than tourists who do not. Lew and McKercher (2006) have stated that the means of transport used to visit the destination influences the number of attractions visited. However, tourists visiting attractions show a greater tendency to use public transport and to rent vehicles. Moreover, the results shown in Table 2 indicate that tourists who rent vehicles are even more likely to visit attractions than those using public transport. Tideswell and Faulkner (1999) have already found that tourists renting private vehicles were more likely to move further within destinations than those using public transport. In addition, tourists who have visited at least one of Lanzarote's attractions also tend to spend more on other concepts such as practicing cultural activities, hiking, leisure activities, or traveling to other islands during the same trip and spending on other concepts not specified in the survey. The model also indicates that tourists who visit attractions are more likely to spend money in bars and restaurants. Finally, visiting attractions also make tourists assess the trip made to Lanzarote more positively.

Discrete choice models can indirectly estimate to what extent a variable influences the probabilities of visiting attractions. To do this, the average partial effects of the model have been calculated. They are shown in Table 2. The coefficients presented by the model indicate the effect that a variable has on increasing or decreasing the probabilities of visiting a given place. For example, those tourists who had already visited the destination in previous trips have approximately 6.13% less probability of visiting at least one of the attractions analyzed. By contrast, tourists interested in rural tourism are 14.80% more likely than others to visit the places studied. However, Irish tourists are 22.02% less prone to visit the places analyzed. These two variables are the most explanatory ones to justify visits to attractions. In addition, each extra day of stay increases the probabilities of visiting at least one of the attractions in 0.32%. Although many variables have shown to be relevant in the analysis, some of them do not have a great influence on tourists' behavior. For example, each extra year old tourists are make them 0.04% less prone to visit the attractions studied. The analysis also shows that visiting attractions only has a slight effect on the assessment of the trip and the expenditure in the destination. The model also shows that each extra point given in the assessment item by tourists makes them 2.13% more likely to visit attractions. In terms of expenditure, the most relevant result is that one extra euro of expenditure on doing cultural activities increase the probability of visiting attractions by 1.73%. However, the model points out that each extra euro spent on taxis make tourists 0.22% less likely to visit attractions. Along the same lines, visiting attractions has a direct relationship with a slight decrease in the expenditure at tourists' origin country on the trip and an increased expenditure at destination, but the effects are too low to be considered relevant (under 0.01% for each extra euro spent).

In the current research, variables such as “main motivation to travel” has not been found to be significant. However, previous studies have indicated that leisure tourists are more likely to visit attractions than business ones or those traveling to visit friends and family (Zakrisson & Zillinger, 2012). Decrop (2005) also indicated that traveling with children decreases the probabilities of visiting a large number of attractions, while this variable was not significant in the current research. A more in-depth analysis should be conducted to identify different studies that have led to different results while analyzing tourists' behavior. Moreover, past studies have highlighted variables such as the location of the accommodation (Zoltan & McKercher, 2015) or the price of the attractions (Timothy, 2014) as key variables to explain why a specific group of tourists is more likely to visit a certain set of attractions than others. Despite the large number of variables used in the current research, many other variables could have been used to understand why the attractions analyzed are visited. As the results of discrete choice models depend on the amount and typology of the variables used, the inclusion of new and different variables could lead to obtaining different results, and thus, a better understanding of why tourists behave the way they do.

Implications

It seems that among researchers, it is widely recognized that studying tourists' behavior during their trip is an important task. Scuderi and Dalle Nogare (2018) state it is also a precondition for the public management of tourism destinations and an important support for decision-making in the tourist industry. In this research, it has been possible to study this behavior through a discrete choice model analysis using a large sample of tourists during a long period. These data have several applications for tourism management purposes. In fact, Pratt and Tolkach (2018) claim that tourism statistics are a key tool for policymakers, as they help them make more prudent and effective decisions. Moreover, such data are also necessary to conduct rigorous research. In addition, other stakeholders can also use statistics during their decision-making processes to study the evolution of their destination. These studies also facilitate product development strategies of leisure activities to increase tourists' expenditure at the destination (David-Negre et al., 2018).

McKercher and Lau (2008) stated that studying tourists' behavior is especially useful for improving tourism management. The results obtained show that tourists who visit attractions in Lanzarote are more likely to spend larger amounts of money at the destination, to give better reviews of the trip made and to stay longer. The results also show which characteristics are shared by tourists who are more likely to visit attractions. The Lanzarote Tourism Board could use this information to focus its marketing campaigns on attracting tourists interested in these attractions, as these tourists are more prone to spend more in local businesses, to give better reviews of the trip made and, thus, to recommend the destination to friends and relatives. Tourists also seem more willing to purchase cultural and environmentally responsible products, as they are more likely to be interested in visiting the destination because of its culture, environment, landscapes, and rural activity. In fact, Lau et al. (2017) also stated that using these kinds of data can help reduce existing economic inequalities of locations, because tourism managers can also use this information to target tourists most likely to spend money on secondary attractions or smaller enterprises. However, the results also showed that tourists who visited the attractions studied are less likely to revisit the destination and to purchase all-inclusive packages. In the case that destination managers were interested in attracting frequent and loyal tourists to the destination or to reduce the visits made to certain attractions in order to preserve them, marketing strategies should be focused on those tourists interested in the weather of the destination, older tourists or people living in North European countries, as they are less likely to visit the attractions analyzed.

This paper has implications for the future research in tourism too. It shows the relevance of public statistics to extract variables that can explain the behavior shown by tourists within destinations. Moreover, the results obtained are compared with the results from other studies. This not only shows which characteristics make tourists more likely to visit attractions in Lanzarote, but to know if these characteristics have a similar effect in other destinations. This knowledge can be used to improve the understanding of tourists' behavior and to identify the segments most likely to consume certain products or services. Thus, the results obtained in this paper can be integrated with evidence obtained in other previous and similar studies. For example, it seems that tourists interested in culture or who stay longer at the destination are more likely to visit attractions than others (Masiero & Zoltan, 2013; McKercher & Zoltan, 2014). However, living in foreign countries or purchasing all-inclusive packages seems to reduce the probabilities of tourists of visiting attractions not only in Lanzarote but also in other destinations (Flognfeldt, 1999; Lew & McKercher, 2006). Despite these similarities, some differences with previous studies have also been found. For example, in the case of Lanzarote, the motivation to travel or traveling with children does not affect the probabilities tourists have of visiting the attractions studied (Decrop, 2005; Zakrisson & Zillinger, 2012). All these similarities and differences help explain why tourists behave the way they do and also help build a more profound knowledge of tourists' intentions while traveling depending on their characteristics.

This research is currently being used by certain public institutions interested in both, the methodology carried out and the results obtained. The Canary Islands Statistics Institute (ISTAC) and Lanzarote Data Center have given the data to carry out this study in order to expand the frontier on the use of the data collected by them. The Government of Canary Islands is interested in this kind of research as tourism management is one of its main priorities to ensure the economic development of the archipelago economic development. In the same lines, destination management organizations are also interested in these studies as they can help segmenting tourism markets and targeting those segments that adapt in a greater extend to their marketing strategy. Similar studies carried out in the past have also been able to point out to additional possible implications. Raun and Ahas (2016) stated that understanding and measuring the movements made by tourists help improve transport management, business fiscality, public administration, and so forth. Other studies have also pointed out other implications, such as evaluating the need for new infrastructures (Swett, Sidman, Fik, & Sargent, 2004) or the risk of creating certain types of businesses (Pelot & Wu, 2007), analyzing destination and attractions' accessibility models (Bruce & Eliot, 2006), and generating statistical data that can be used in certain areas such as demography or migration (Dattilo, Radini, & Sabato, 2016).

Despite the implications of this paper, this research does not study the propensity of tourists to visit each of the 11 individual attractions. In future studies, these attractions could be analyzed separately to establish different determinants that condition tourists' propensity to visit each of them. It would also be interesting to study the influence of other variables to explain visits to attractions. The use of new sources of data based in sensors and tracking tourist movements could also help explain mobility patterns, another key issue in destination management. For example, the location of the accommodation establishment could explain why certain places are visited instead of others. This fact had been previously studied by Shoval et al. (2011), who found that tourists staying closer to tourism attractions are more prone to visit them than those staying further away. Moreover, choosing other attractions to carry out the analysis can be useful to compare the different determinants that explain the visits to the most visited places and others that have a lower influx of visitors. In addition, the application of other econometric models, such as structural equations, could show the way the variables analyzed are linked.

Conclusions

Previous research has pointed out the importance of carrying out studies to analyze tourists' movements within destinations. In fact, in recent years, several studies regarding this subject have been undertaken. This has been possible thanks to the development of new technologies and the improvement in research techniques. In this paper, a large set of survey responses for a long period were used in combination with discrete choice models to determine which characteristics of tourists explain their higher or lower probabilities of visiting attractions on Lanzarote, in the Canary Island. The results show that tourists coming from northern European countries are less prone to visit the places analyzed than other tourists. Tourists who purchase all-inclusive packages and tourists interested in nightlife are also segments that show a low propensity to visit the attractions studied on the island. By contrast, younger tourists and tourists interested in culture, landscapes, or the environmental protection of the destination are more likely to visit these places. In addition, staying longer at the destination or traveling in couple or with friends increase the probabilities of visiting attractions. The results obtained also highlight that tourists who visit at least one of the places studied spend more money within the destination than those who do not visit any of them. In the same way, visiting attractions make tourists more prone to give better assessments of the trip they made.

This paper contributes to the development of tourism research because it addresses a field that has recently started to be studied thoroughly. The way tourists move and consume can be studied to explain why certain segments are more likely to visit certain destinations and attractions. This knowledge can be used to understand why tourists behave the way they do. In this paper, it is presented one of the possible techniques that can be used to analyze their mobility patterns. Moreover, it is also explained how public statistics can be used to analyze tourist behavior if proper and enough data are collected by statistical organizations. In fact, another contribution of this paper is the use of a large set of 37,055 survey responses to analyze and explain why certain segments are more likely to visit attractions with regard to a large set of explaining variables.

The implications of these studies are important for both, destination and business managers. They can be used during the decision-making process to develop marketing campaigns and new tourism products. Moreover, the results obtained are also useful for establishing methods to manage tourists' flows to given places and to increase visits to other areas (Lew & McKercher, 2004). This approach could be used to try to achieve a sustainable development of the destination and to increase the tourism expenditure in poorer or less developed areas (Koo, Lau, & Dwyer, 2017). In addition, these kinds of studies are important for researchers because they allow a better understanding of the attractions of a destination and the movements and profile of its tourists.

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Journal article 5. **Preventing overtourism by identifying the determinants of tourists' choice of attractions**

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Abstract

Popular tourism destinations based on specific attractions along with coastal and island destinations have been considered potential candidates to suffer from overtourism. In this context, in-depth knowledge of the determinants of tourists' choices of attractions can be used to improve policies against crowding. This paper analyzes why tourists decide to visit certain attractions instead of others in the context of an island destination with sustainability concerns. To do so, discrete choice models are used to determine if a set of 96 variables can explain why 11 attractions are visited on the island of Lanzarote. The results show that 86 variables are significant to explain visits to at least one of the attractions. The analysis also identifies both similarities and differences on the effects these variables have on the probability of visiting each of the 11 attractions. These results are useful to cluster attractions depending on the profile of those tourists most likely to visit them and to cluster variables regarding their effect on visiting attractions. Furthermore, the results provide useful information for public and private managers involved in evenly reallocating tourist flows in time and space to avoid the negative impacts of overtourism.

Keywords: attractions, overtourism, tourists' characteristics, destination management, discrete choice models

Introduction

Current media and academic debates have highlighted increasing concerns over the negative impact of the concentration of tourism flows in certain areas, particularly in cities, in a phenomenon that has been labeled as overtourism. Overtourism appears to be closely linked with the popularity of particular attractions and points of interest that have become 'hotspots' suffering from congestion (Peeters et al., 2018). However, effective attraction management can improve tourists' satisfaction and destination sustainability, avoiding the negative impacts of the growth of tourist flows. The effects of overtourism can also be often suffered on small tourism islands, where land availability is constrained (Peeters et al., 2018).

The island of Lanzarote has an area of 846 km² and is the easternmost island of the Canary Islands, an autonomous region in Spain. The mild climate of these islands allows tourist arrivals throughout the whole year without a marked seasonality pattern. Lanzarote is the third main tourism island of the Canary Islands, which is the region with the highest figures of overnight stays in tourism accommodation in Europe (Eurostat, 2019). Using data published by the Canary Islands Institute of Statistics for 2018, Lanzarote has a population of just 149,000 inhabitants and yet received 2.9 million tourists from outside the archipelago with an average length of stay of 7.8 days (ISTAC, 2019). Lanzarote was declared a UNESCO Biosphere Reserve in 1993. Two years after this, the island hosted the World Conference on Sustainable Tourism (Holden, 1995), as part of its commitment to responsible tourism. However, the island has experienced tensions since the early economic growth of the 1960s between tourism development and the island's natural and cultural preservation (Santana-Talavera & Fernández-Betancort, 2014). In fact, the debate on the limits of growth and sustainability began in the Canary Islands four decades ago, and especially in Lanzarote, this debate has been part of its strategy for tourism development for a long time. These concerns resulted in the implementation of a moratorium on new hotels in the Canary Islands in 2001 (Bianchi, 2004). Despite these restrictions on the growth of the accommodation supply, tourism arrivals continued to increase in Lanzarote along with population figures (55% increase in inhabitants from 2000 to 2018) (ISTAC, 2019). Therefore, public concerns with congestion and the negative impacts of rapid growth have been recurrent in the Canary Islands long before the recent renewed interest in tourism impacts under the concept of overtourism (Perkumienė & Pranskūnienė, 2019). The interest of Lanzarote in sustainable tourism has been recognized widely and highlighted recently by research on sustainable tourism mobility on the island (Martín, María, Guaita Martínez, Molina Moreno, & Sartal Rodríguez, 2019). Furthermore, Eckert and Pechlaner (2019) recognized the conflict between sustainability and tourism growth in Lanzarote and made a proposal for product and target group market diversification. These kinds of policies are closely related to the segmentation of tourists to improve destination management and, consequently, to the aims of this research.

The tourism model of Lanzarote is somewhat particular within the Canary Islands. Besides sun and sand facilities, the destination management organization is involved in providing a set of outstanding natural and cultural attractions to be visited by tourists. These attractions are mainly managed by a public-owned firm (Centros de Arte, Cultura y Turismo de Lanzarote—Arts, Culture, and Tourism Centers of Lanzarote), which depends on the Lanzarote Island Council. This set of attractions, including a volcanic national park, volcanic caves, cultural heritage attractions, etc., received 3 million visits in 2018, with a moderate 9.2% increase in visits to the main attractions between 2000 and 2018. Arts, Culture, and Tourism Centers of Lanzarote obtained a €30 million turnover in 2018, of which 67.3% came from selling tickets, 20.7% from restaurant sales, and 11.1% from sales made in the shops of the attractions (Cabildo de Lanzarote, 2019).

As mentioned, concerns about congestion arose in Lanzarote at least four decades ago, long before the recently renewed academic interest in the negative effects of rapid tourism growth, fostered by low-cost airlines, the sharing economy, new booking platforms, social networks, etc., put the topic in the media and the academic spotlight (Koens, Postma, & Papp, 2018). However, the island of Lanzarote can be an example of successful public management of a destination and its attractions. In fact, a survey on 'Island Affairs' conducted in December 2017 for the UNESCO Biosphere Reserve shows a remarkable improvement from 2006 to 2017 in inhabitants' perceptions about the environmental situation of the island (Cabildo de Lanzarote, 2017).

Researchers have tried to understand tourists' mobility patterns for a long time (Shaw, Agarwal, & Bull, 2000), particularly those tourist tracks connecting accommodation and the main attractions of the destinations. Despite this being a tough task, Shoval and Isaacson (2007) point out that simply identifying a destination's attractions and locating them on a map provides an analysis of how tourists may move between these attractions. These kinds of studies can have great relevance for both destination managers and tourism attraction firms. In fact, Liu, Huang, and Fu (2017) stated that tourism movements and flows are some of the most important factors in creating connections between tourism attractions. In spite of the relevance of these studies for destination competitiveness and sustainability, Shoval, McKercher, Ng, & Birenboim (2011) pointed out that there has been little research on this subject. The problem of these analyses lies in the complexity of these movements and the relationships they generate (Xia, Zeephongsekul, & Packer, 2011). This difficulty derives not only from the variety of itineraries and places to visit that tourists can choose from Lew & McKercher (2002), but is also influenced by tourists and trip characteristics (Xia et al., 2010) and by the location of the key elements that make up the destination, such as facilities, attractions, tourist accommodation, etc. (Leung & Marion, 1999).

In this paper, the aim is to determine which tourist characteristics make them more likely to visit certain attractions instead of others. This information is crucial for the management of attractions to prevent overtourism. To do so, several binomial discrete choice logit models have been used. These provide an understanding of how a set of 96 different variables impacts the probabilities of visiting 11 different attractions.

First, a literature review was carried out to discover which variables were pointed out by other researchers as determinants to explain tourists' visits to attractions, methods used to analyze these data, and the relevance of the concept of overtourism in the context of a mass tourism destination based on attractions. After this, the data and the method chosen to carry out the study are explained. Afterwards, the results of the research are presented in a table that contains data regarding the extent that the variables used change the probabilities of visiting each of the 11 attractions studied. The data shown in the table are discussed to establish which variables explain why each of the attractions is visited or not. Finally, the conclusions of the research are presented and the results obtained are compared with previous research. Knowing which variables explain visits to attractions is useful for destination managers aiming to prevent overtourism and to design revitalization policies.

Literature review

Overtourism is not a recent phenomenon (Benner, 2019; Koens et al., 2018; Perkumienė & Pranskūnienė, 2019). Nevertheless, the debate on overtourism has only attracted the interests of academics in recent years. Although this debate has often been located in cities and urban tourism, Koens et al. (2018), Oklevik et al. (2019), or Capocchi, Vallone, Pierotti, & Amaduzzi (2019) clarified that overtourism impacts are not necessarily limited to urban settings. Thus, while reports on overtourism by UNWTO (2018, 2019) focused on urban contexts, Peeters et al. (2018) applied the concept to four types of destinations: urban; coastal and islands; rural; and heritage and attractions. The relevance for island destinations was also stated by Koens et al. (2018). Indeed, overtourism can be relevant to analyze the dynamics and management of places such as Lanzarote, an island destination with problems of congestion where the tourist experience is based on visits to specific attractions related to nature and heritage. Nevertheless, in their exhaustive revision of the literature, Capocchi et al. (2019) show that the concept of overtourism is neither a new phenomenon nor one that is well defined.

Koens et al. (2018) showed that the issues related to overtourism had already been discussed in earlier studies. They provided seven aspects related to overtourism to allow a better understanding of this phenomenon. Among the issues they highlighted, there was one with particular relevance for this research: its impacts are not city-wide because they can be concentrated in any area with special tourist attractiveness. As analyzed by Oklevik et al. (2019) for the case of Fjord Norway, the problems associated with increasing tourist flows are related to the tourist activities at certain points of interest. This is why authors such as Neuts and Nijkamp (2012) or the UNWTO (2018) call for policies aimed at spreading tourist flows in time and space. This spreading of flows has as a starting point a segmentation of tourists based on their characteristics, as proposed in the current research.

Recent studies have identified certain factors that explain the places visited by tourists according to tourists' characteristics. Lew, Hall, and Williams (2014) suggested that the most relevant variables to explain visitors' behavior are motivational factors. Lew et al. (2014) also pointed out that these factors affect the choice of the destination and the attractions visited. This hypothesis was supported by carrying out a bibliographic review and an empirical study that showed that the elements that explain the attractiveness of an attraction depend on the thoughts and expectations tourists have before visiting the attraction. In fact, McKercher and Koh (2017) noted that many tourists are not attracted to a tourist attraction in itself, but rather because some attractions can help them eliminate stress, spend quality time with their families, keep up with friends, or to have an adventure. Winter (Winter, 2014) also analyzed the influence of motivations and concluded, for example, that tourists who stated an interest in culture were more likely to enjoy the cultural resources of a destination. In addition, Dai, Hein, and Zhang (2019) also pointed to tourists being interested in local culture as a key element to explain tourists' behavior, as these type of tourists have particular and different interests.

However, some studies have shown that there are other variables that directly affect tourists' visiting patterns. In particular, it seems that a trip's characteristics affect the probabilities of visiting certain places instead of others. Müller (2014) observed that those visitors who travel to destinations where they have second homes do not show much interest in traveling widely throughout the destination, but visit places near their accommodation. Getz (2014) analyzed, for example, the places MICE tourists tend to visit in comparison to the places visited by other kinds of visitors. The conclusion of the study was that MICE tourists are more likely to visit exclusively places linked to the purpose of their trip, while other segments visit a wider set of attractions. Similarly, Ormond (2014) pointed out that visitors who travel for health tourism purposes do not tend to visit places that are not linked to the main purpose of their trip, so this segment bases its trips on going to hospitals, health and welfare centers, clinics, etc.

Other studies have shown that visitors' motivations and trip characteristics are not the only factors that condition their visits to attractions. Certain studies have highlighted the relevance of the socio-economic characteristics of visitors and attractions when it comes to explaining the type of places visited by tourists (Leones, Colby, & Crandall, 1998; Marrocu, Paci, & Zara, 2015; Svajda et al., 2018). Timothy (2014) stated that price is one of the factors that influences visitors' movements. His study analyzed the link between luxury destinations and their attractiveness for the segment of tourists with the greatest purchasing power. Other socioeconomic variables, such as gender or age, were also proven to have an influence on tourists' choices (Han, Yu, & Kim, 2019). Visser (2014) and Waitt and Markwell (2006) also studied the effect of sexual orientation as one of the factors that influences the interests and motivations of visitors and its influence on visits to certain places during their trips. Bo, Bi, Hengyun, & Hailin (2017) and Park et al. (2019) analyzed the effect of tourists' country of origin to study how this factor influences movements. The results of these studies show that foreign visitors seem to have a greater tendency to visit the most well-known tourist attractions of a destination, whereas national and regional visitors are more likely to move more actively within the destination and to spend larger amounts of money at more distant and less known attractions. In fact, Molinillo and Japutra (2017) analyzed the variables conditioning domestic tourists' visits to cultural attractions in Andalusia, as these tourists have different reasons to choose the attractions and destinations to visit (McKercher & Mak, 2019; Molinillo & Japutra, 2017). Moreover, Shoval et al. (2011) stated that the location of the accommodation also conditions the places visited, since tourists have greater probabilities of visiting attractions located near their accommodation establishment. In addition, the characteristics of attractions and visits themselves are also key factors that could be analyzed to explain why some tourists are more interested in certain attractions than in others (Lau, Koo, & Dwyer, 2017; Sanz-

Blas, Buzova, & Carvajal-Trujillo, 2019). As a conclusion, it seems that a large number of variables have an influence on the willingness of tourists to visit attractions and recent studies are just starting to figure out some of these variables, but future research will probably enhance this list of determinants. In Table 1, the main findings of the literature review carried out are summarized.

Table 1. List of variables explaining tourists' choices.

Variable	Reference
Socio-economic characteristics	Leones et al. (1998), Marrocu et al. (2015), Svajda et al. (2018)
Age	Han et al. (2019)
Gender	Han et al. (2019)
Country of residence	Bo et al. (2017), McKercher & Mak (2019), Molinillo & Japutra (2017), Park et al. (2019)
Sexual orientation	Visser (2014), Waitt & Markwell (2006)
Motivations	Lew et al. (2014), McKercher & Koh (2017)
Relaxation	McKercher & Koh (2017)
Culture	Dai et al. (2019), Winter (2014)
MICE tourism	Getz (2014)
Health	Ormond (2014)
Characteristics of attractions	Lau et al. (2017), Sanz-Blas et al. (2019)
Price	Timothy (2014)
Second homes	Müller (2014)
Accommodation location	Shoval et al. (2011)

There are several techniques that can be used to determine which variables explain the choice of attractions by tourists. In fact, the research carried out by Wang, Li, Zhen, & Zhang (2016) established numerous measures that can be used to identify the variables that encourage tourists to go to a specific place during their trip. In addition, it seems to be possible to use both qualitative and quantitative variables for this type of analysis (Dwyer, Gill, & Seetaram, 2012; Pizam, Chon, & Mansfeld, 1999). However, despite qualitative data being used to carry out wider research, the process of compiling and analyzing this kind of data is more complicated. The reason is that the data gathered by qualitative techniques may differ from one visitor to another, making it difficult to compare and obtain conclusive results. Having quantitative variables, on the other hand, makes it possible to carry out econometric models, which Kanji (2006) stated to be a more suitable way to measure phenomena.

Among others, cluster analysis, structural equation modeling, linear regression, and discrete choice models were used to explain which variables impact tourists' behavior. Cluster analysis is a suitable technique for grouping tourists' characteristics in order to segment tourism demand, as it is possible to analyze which activities are more likely to be done by each segment, as shown by Scuderi and Dalle Nogare (Scuderi & Dalle Nogare, 2018). However, this technique does not identify the variables explaining the behavior studied or specify the relevance of each variable. By contrast, the use of structural equation modeling can be used to find out which variables explain why tourists behave the way they do. Despite this, it can only be applied in studies using primary Likert scale data to estimate the results (Alcántara-Pilar, Armenski, Blanco-Encomienda, & Del Barrio-García, 2018; Rasoolimanesh, Ali, & Jaafar, 2018), and these models have problems to show results when there are omitted data or where dichotomic variables are used (Tomarken & Waller, 2005). Regarding linear regression, studies like the one carried out by Marrocu et al., (2015) used this technique to understand tourists' behavior, consumption, or intentions. Although linear regression can determine the variables explaining behavior, it can only be used to analyze linear relationships. Moreover, it requires a mean error of zero, a constant variance of the error, and that there is no autocorrelation between errors (Gordon, 1968; Sarstedt & Mooi, 2014). In the case of discrete choice models, they cannot indicate to what extent the variables analyzed determine the behavior studied when data contain non-binary variables (Ben-Akiva, Lerman, & Lerman, 1985; Berry, 1994; Greene, 2009; Train, 2009). Nevertheless, several studies, such as the ones carried out by Masiero and Zoltan (2013); Li, Yang, Shen, and Wu (2019); and Asero and Tomaselli (2015), used this technique to study the variables explaining why tourists chose to visit certain places. However, they do not identify to what extent the behavior is explained by the variables analyzed. To do so, average marginal effects must also be calculated (Graham & Powell, 2012; Greene, 2009; Wooldridge, 2005).

Method

The purpose of this research is to identify which tourist characteristics condition visits to different attractions in order to provide useful information for destination management and the prevention of problems linked to overtourism. The data to carry out this research were obtained from the responses provided by tourists in the Tourism Expenditure Survey conducted by the Canary Islands Institute of Statistics (ISTAC). This survey was carried out at Canary Island airports on tourists' returning home. The survey conducted on the island of Lanzarote contains a question regarding visits to 11 tourist attractions on the island that were selected by the destination management organization. The list of attractions includes: Jameos del Agua (volcanic cave and art museum), Timanfaya National Park (volcanic area), Los Verdes Cave (volcanic cave), Gazer del Río, Monument to the Peasant (history museum), San José Castle (modern art museum and castle), Cactus Garden, César Manrique Foundation (museum), Arrecife Town, the markets of Teguise and Haría, and La Graciosa (a small island close to Lanzarote) (ISTAC, 2009). Of these 11 points of interest, the first seven were attractions managed by the Arts, Culture, and Tourism Centers of Lanzarote, while the rest included a private foundation displaying the legacy of César Manrique (the renowned artist and environmental activist of the island), who supported a sustainable tourism model for the island (César Manrique Foundation, 2019). The other places of interest were the island's capital, the public markets of two municipalities, and the small island of La Graciosa, which is 7 km from the northern village of Órzola and accessible by ferry. Of the seven attractions analyzed and managed by Arts, Culture, and Tourism Centers of Lanzarote, six charge entrance fees from €4 to €10.

In previous research by Padrón-Ávila and Hernández-Martín (2019), a study was carried out to understand which variables made tourists more likely to visit at least one of the attractions included in the list of attractions in the survey. However, in this study the analysis was conducted to determine which variables determine the visit to each of the 11 attractions analyzed. This analysis is relevant for the management of tourism flows to the main points of interest of the island and to optimize tourism from an economic, social, and environmental point of view, as proposed by Oklevik et al. (2019).

First, a pilot study using contingency tables was applied to know which variables could explain whether the attractions analyzed were visited or not. Afterwards, 96 variables were chosen to carry out the analysis based on the results obtained and the literature review presented in the previous section. The choice of the variables was based on the research by Padrón-Ávila and Hernández-Martín (2019). The variables chosen were: tourists' gender, age, annual incomes, country of residence, main reasons for travelling, motives for choosing Lanzarote as a destination, overnight stays, travel group, purchase of low-cost flights, purchase of all-inclusive packages, repetition at the destination, total expenditure at origin, total expenditure at the destination, practice of diving, and overall assessment of the trip. Moreover, the 11 variables regarding visits to tourist attractions in Lanzarote were used to determine if the visit to a given attraction is linked with a visit to others. Most variables used in the analysis were binary variables (take the values 0 or 1). In the case of tourists' country of residence, 20 binary variables attached to different countries were used. In the case of main reasons for travelling, six binary variables were used to indicate if tourists were travelling for holidays, business, attending conferences, health, visiting friends and relatives, or other motives. In the case of motives to choose Lanzarote as a destination, 23 different motives were considered and tourists could indicate up to three in the survey. In the case of travel group, six different groups were considered, as tourists could indicate if they were travelling with their partner, with children, with other relatives, with friends, or with other companions. Variables regarding tourists' age, overnight stays, and expenditure were continuous. In the case of expenditure at the destination, this variable was divided into 19 items regarding different services and products typically bought by tourists. Moreover, tourists were divided into seven discrete ranges according to their annual incomes, so a lower value in this variable implies a lower income perceived by the respondent. In addition, a Likert scale of five items was used to measure the variable regarding the assessment of the trip made.

The complete database given by ISTAC contains 257,687 survey responses gathered from tourists visiting any of the Canary Islands. As this research focuses on 11 attractions located on the island of Lanzarote, a total of 43,301 responses of tourists that were surveyed from January 2010 to December 2016 at the airport of Lanzarote were considered. However, 14.42% of tourists surveyed in Lanzarote did not respond to the question regarding the attractions visited or not visited on the island. Therefore, these responses were not considered when analyzing an attraction for which the corresponding data had not been provided. Regarding the attractions analyzed, four of them were visited by more than a quarter of tourists surveyed. There were 48% of tourists who visited the Timanfaya National Park, 37% visited Jameos del Agua, 31% went to Gazer del Río, and 29% went to Los Verdes Cave. Five attractions were visited by 10%–25% of tourists: these attractions were the Cactus Garden, Arrecife Town, the traditional markets (these ones were visited by 21% of tourists), the Monument to the Peasant (14%), and the César Manrique Foundation (13%). San José Castle and La Graciosa were visited by just 5% of tourists surveyed.

The Survey on Tourism Expenditure of the Canary Islands included 43,301 responses to the survey in the island of Lanzarote from January 2010 to December 2016. The survey was conducted in the departure hall of the airport following international recommendations for tourism expenditure statistics (UNWTO, 1995), and it used non-probability stratified sampling in three stages. This method does not allow for obtaining sample errors. In the first stage of the sampling process, the week with the most air traffic was chosen in each month of the year. In a second stage, stratified sampling allowed to choose the countries and airports of origin of tourists and the timetables. In the third stage, tourists from mainland Spain and foreign countries were selected (ISTAC, 2018).

Literature on sampling states that biases and sample variance are the two possible errors when using non-probability sampling. To prevent these errors from affecting the results, the methodology applied in the Survey on Tourism Expenditure of the Canary Islands included elements of control and correction. To avoid biases, a post-stratification weighting was conducted with the help of auxiliary information to correct biases in age, gender, country of residence, and type of accommodation; thus reliability of estimates and inferences was increased (Smith, 1983). To control for sampling variance, a minimum of 20 observations was required for each variable. This threshold settled a maximum admissible error under assumptions of probabilistic sampling and maximum population variance. In this study with a sample of 43,301, this threshold was exceeded by far in the responses.

Binomial discrete choice logit models and average marginal effects were used to analyze data. Discrete choice models identify which variables are significant to explain why a certain attraction is visited (Ben-Akiva et al., 1985; Greene, 2009; Train, 2009), while average marginal effects show to what extent a given characteristic increases or decreases the probabilities of visiting an attraction (Graham & Powell, 2012; Greene, 2009; Wooldridge, 2005). Once the logit models for each attraction had been carried out, the analyses were repeated omitting non-significant variables and variables not analyzed due to contingency errors to check the results obtained. When repeating the analysis for the first time, all variables with a Z statistic over 1.50 were used, even though a minimum 1.96 Z statistic is needed to be considered significant. The reason to do so was that the results of these models depend on the independent variables selected by the researcher (Ben-Akiva et al., 1985; Berry, 1994; Greene, 2009; Train, 2009). Therefore, not using independent variables with a Z statistic under 1.50 could increase the significance of other variables. Thus, a second model was carried out for each attraction with those independent variables that had a Z statistic over 1.50 in the results of the first model. In this second analysis, some variables did not show to be significant in the case of all the attractions. For this reason, non-significant variables were removed, and a third analysis was carried out. In the case of some attractions, this third model also showed non-significant variables; hence, they were removed, and the model was repeated until it was possible to carry out a model where all variables were significant. The analyses of San José Castle and Cactus Garden were carried out four times to achieve a model where all independent variables were significant, whereas the analyses of César Manrique Foundation and the town of Arrecife were performed five times. The others were run just three times.

Once the discrete choice models were calculated and the significant variables to explain tourists' behavior had been identified, average marginal effects of these variables were calculated for each attraction. Calculating the average marginal effects of these models, the results showed the increase or decrease in the probability a tourist has of visiting an attraction when the tourist shows a value of 1 for one of the binary variables analyzed (Graham & Powell, 2012; Greene, 2009; Wooldridge, 2005). In addition, when analyzing other kinds of variables (continuous, Likert scale, or divided by ranges), the results indicated how the average probabilities of visiting an attraction were modified by each unit added to the variables studied. For example, in the case of age, results of average marginal effects showed to what extent probabilities of visiting an attraction are modified by each extra year of a tourist's age, taking 16 years of age as the starting point, as this was the age of youngest tourists surveyed. If the coefficient resulting from average marginal effects was positive, it meant that each extra unit added to the variable increased the probabilities of visiting the attraction analyzed, while the probabilities would be reduced by each extra unit added to the variable if the result was negative. To carry out both analyses (discrete choice models and average marginal effects), the software Stata version 12 was used. As the results of average marginal effects are coefficients, these coefficients were converted into percentages in this paper to facilitate the interpretation of the results.

Results

In Table 2, it is possible to observe the results obtained for the average marginal effects of the discrete choice models used. Of the 96 original independent variables, nine were not significant for explaining whether any of the attractions studied were visited or not. For this reason, these variables were omitted and do not appear in Table 2. The variables deleted were: resident in Czech Republic, resident in Luxembourg, resident in another country not specified in the survey, having a motivation to travel not specified in the survey, choosing the destination for reasons not specified in the survey, leaving the choice of destination to another person, travelling with workmates, spending on personal services, and spending on investments. The other 86 independent variables were significant to explain at least why one of the eleven attractions was visited. In addition, four variables had a positive effect on the visit to all the attractions studied. These variables were: visiting the Cactus Garden, César Manrique Foundation, Arrecife, and the markets of Teguise and Haría. They are all variables used to find out if visiting an attraction increases the probabilities of visiting another attraction.

Table 2. Average marginal effects of binomial discrete choice logit models applied to the determinant variables that explain the visit to 11 tourism attractions in the island of Lanzarote.

Variables	**Jameos del Agua**	**Timanfaya**	**Los Verdes Cave**	**Gazer del Río**	**Monument to the Peasant**	**San José Castle**	**Cactus Garden**	**César Manrique Foundation**	**Arrecife**	**Teguise and Haría markets**	**La Graciosa**
Gender					1.00			−1.44	1.49		
Age	−0.10	−0.11	−0.04		0.04		0.08	0.26		0.13	−0.04
Spain	8.57		10.28		6.80	−0.78	−5.74				4.86
Germany		−4.77	1.49		4.79	−2.53		11.30		5.74	
Austria		−8.30		8.15	6.63	−2.28		8.32			
Belgium				−7.43	7.42		−4.24	4.56	−5.49		
Denmark		−7.64							−9.36		
Finland		−12.03					−11.59	5.56			
France			2.51				4.94		−4.81		5.11
Netherlands			2.24	−17.02	13.66		−5.10				−3.28
Ireland	−4.50	−9.78		−7.88			−7.29		−6.50		−2.78
Italy			2.37		5.88	−1.87				6.22	5.62
Norway	−5.77	−9.92					−4.62				
Poland							11.84				
Portugal				−7.77	8.94						9.24
United Kingdom	−3.87	−6.89		−5.95			−6.60		−9.09		−2.62
Russia			14.37				−6.04				
Sweden	−4.59	−9.32						4.66			
Switzerland								6.33			
Incomes	−0.25	0.51		0.45				0.48		−0.85	
Jameos del Agua		13.47	15.84	12.35	4.77		9.44	8.33	3.34		1.51
Timanfaya	11.69		12.60	9.76	5.74		6.26	5.29	5.86	6.15	1.48

Los Verdes Cave	12.74	11.96		10.24		1.95	7.29	2.14	2.64	3.25	1.08
Gazer del Río	10.60	9.95			4.28	2.83	2.43	3.91	6.24	6.29	
Monument to Peasant	5.01	7.86		5.48		2.98	3.45	6.74	4.60	3.35	1.54
San José Castle			6.76	7.95	6.53		10.60	6.19	18.74	3.86	2.07
Cactus Garden	8.82	6.47	8.07	1.65	3.03	3.87		7.86	3.59	2.55	1.09
César Manrique Foundation	7.47	3.54	3.51	4.77	5.35	2.23	7.51		2.89	8.24	2.23
Arrecife	1.74	3.56	2.66	4.61	2.70	4.18	2.94	2.59		15.53	1.47
Teguise and Haría Markets	1.35	3.84	3.62	4.52	1.97	0.97	2.11	4.90	14.97		2.74
La Graciosa	1.81		2.10		2.42	0.91	1.78	3.56	3.75	7.04	
Diving			2.93		2.60	1.46			5.35	5.81	5.57
Motivation: Holidays				−6.69		−2.16					
Motivation: Business		−10.60		−10.17							−4.99
Motivation: MICE				−14.46							
Motivation: Health							8.69				
Motivation: Family		−9.37		−8.08							
Motive: Weather											−1.23
Motive: Beaches								−1.26		1.78	1.67
Motive: Landscapes	1.77	5.40	2.37	3.07	1.28	0.64	1.22			2.04	
Motive: Environment				2.04							
Motive: Relaxation	0.87								−1.09	1.57	
Motive: Safety					−1.44						
Motive: Culture	4.00	4.93				1.42	2.23	5.42		2.85	
Motive: Rural tourism				4.13			2.98			6.19	
Motive: Active tourism		3.20		2.36							4.56
Motive: Health tourism									7.14		
Motive: Theme parks				7.70							
Motive: Sea activities	3.29				−2.82%				−4.05		2.03
Motive: Golf											−10.66
Motive: Other sports	−3.88			3.99					−4.65		
Motive: Nightlife				−5.34	−4.91			−4.05	−4.04	−3.98	
Motive: Purchasing				−4.32				−7.58		5.42	
Motive: Visit new place	2.06	4.35	2.43	1.35				−1.23		3.15	
Motive: Easy transport											−1.44
Motive: Price		2.41								2.61	
Motive: Suitable children									−3.37		−2.15
Motive: Natural safety	−8.66										
Group: Couple		2.01									−1.44
Group: Children		3.93		−1.46	−1.66		−0.86		−3.59		−1.90
Group: Relatives								2.71		2.26	−1.84
Group: Friends		3.14		1.86							
Group: Others		−21.71									
Repetition	−1.11	−8.01	−1.36								1.13
Overnights		−0.15							0.37	0.28	0.10
All-inclusive		−3.39		−2.52	−1.35			−3.04	−4.20		−1.38
Low-cost flight							0.89		3.50	1.30	
Expenditure: Origin						−0.00			−0.00		
Expenditure: Destination	0.00	0.00	0.00					0.00	0.00	0.00	0.00

Expenditure: Hotel	−0.03										−0.06
Expenditure: Extras			−0.06								−0.09
Expenditure: Bus	−0.17						−0.07		0.45	0.23	
Expenditure: Taxi	−0.11	−0.19	−0.15	−0.21			−0.12			−0.15	−0.07
Expenditure: Car renting		0.17	0.08	0.17			0.07		0.10	0.04	−0.05
Expenditure: Excursions	0.11	0.38						0.08	−0.10		
Expenditure: Leisure		0.13	0.12						0.08		−0.09
Expenditure: Other islands											0.35
Expenditure: Sport	−0.08										−0.12
Expenditure: Culture	0.13	0.34	0.19					0.26			−0.08
Expenditure: Health			−0.10						0.10		
Expenditure: Supermarket	−0.06	−0.05	−0.02					−0.02			−0.05
Expenditure: Discos	−0.10	−0.11	−0.08								−0.09
Expenditure: Souvenirs	−0.04									0.07	−0.08
Expenditure: Restaurants	−0.04										−0.06
Expenditure: Pharmacies	−0.17										−0.18
Expenditure: Others	−0.07								0.05		−0.08
Trip assessment		1.74				−0.42		0.76	−0.94		0.89

The results obtained show that the attractions studied were affected in the same way by several variables. This means that when a variable was significant to explain why two or more attractions are visited, the effect of that variable will be positive for all the attractions or negative for all of them. For example, tourists living in Denmark, Ireland, Norway, or the United Kingdom are less likely to visit the attractions studied in the survey. The same happened with tourists who travel for a holiday, who travel for business, and those who travel to visit relatives. However, tourists choosing the destination for its nightlife or because it is suitable for children showed a high propensity to visit the attractions contained in the survey. Purchasing all-inclusive packages for travelling to Lanzarote reduced the probabilities of visiting almost all the attractions included in the survey. In fact, Lew and McKercher (2002) already pointed out that tourists purchasing all-inclusive packages are less likely to visit attractions. Moreover, each extra euro spent on booking the trip at the origin, at the accommodation establishment, buying extras in hotels, paying taxis, sport activities, supermarkets, night clubs, restaurants, and pharmacies also decreased the odds of visiting attractions on the island. By contrast, visiting any of the 11 attractions contained in the survey increased the probabilities of visiting the other attractions analyzed. In addition, choosing the destination for its landscapes, environment, culture, rural tourism products, active tourism activities, or for its price also increased the probabilities of visiting these attractions. Travelling with friends, travelling with low-cost flight companies, and each extra euro spent at the destination also had a positive effect on the increase of the probabilities of visiting attractions in Lanzarote.

Despite most variables showing an effect on explaining the visit to two or more attractions, 13 of them just explained why one of the attractions studied was visited. Of these 13 variables, six had a positive effect on the visit to the attraction and seven of them reduced the probabilities of visiting the attraction. Tourists coming from Poland had an 11.84% higher probability of visiting the Cactus Garden. Moreover, tourists who travelled for health purposes were also 8.69% more likely to visit this attraction. Tourists coming from Switzerland showed a 6.33% higher tendency of visiting the César Manrique Foundation. Choosing the destination for health tourism activities or due to its theme parks increased the odds of visiting Arrecife and Gazer del Río, respectively, by just over 7%. Each extra euro spent visiting other islands of the archipelago also increased the probabilities of visiting the island of La Graciosa by 0.35%. However, traveling to attend congresses or meetings reduced the odds of visiting Gazer del Río by 14.46%. In addition, choosing Lanzarote as a destination for its weather or due to the ease of going to Lanzarote reduced the probabilities of visiting La Graciosa by just over 1%. Choosing the destination for the possibility of playing golf also reduced the probabilities of visiting this attraction by 10.66%. If the motive for choosing Lanzarote as destination was its security, the probabilities of visiting the Monument to the Peasant were reduced by 1.44%. But if the motive was its safety against natural disasters, the odds of visiting Jameos del Agua decreased by 8.66%. Finally, if the tourist travelled with types of companions not included in the survey, the probabilities the tourist had of visiting Timanfaya National Park were reduced by 21.71%. In fact, previous studies already indicated that the company during a trip is key to determine which attractions will be visited (Zhao, Lu, Liu, Lin, & An, 2018).

The other 33 variables pointed out as significant by the discrete choice models influenced the probabilities of visiting at least two of the eleven attractions studied. However, they had a positive effect on some attractions and a negative one on others. Likewise, some of these variables did not show a very significant effect on the modification of the probabilities, while others had a higher relevance. For example, gender seems to be a variable with only a slight effect on visits to attractions in Lanzarote. Male tourists were 1% more likely to visit the Monument to the Peasant and 1.49% more likely to visit Arrecife than female ones, whereas female tourists only had a 1.44% higher probability of visiting the César Manrique Foundation. Age showed a more significant effect. Each extra year of a tourist’s age, made that tourist less likely to visit attractions linked with nature and sport, such as Jameos del Agua, Timanfaya, Los Verdes Cave, or La Graciosa. However, older tourists had greater odds of visiting cultural attractions such as the Monument to the Peasant, Cactus Garden, César Manrique Foundation, and the traditional markets of Teguise and Haría. Another example is tourists’ annual incomes, which also seem to be a relevant variable to explain why certain attractions were visited. On the one hand, tourists with higher salaries were over 0.4% more likely to visit Gazer del Río and the César Manrique Foundation per each higher income range used in the survey (there were six possible ranges; more information in the Methodology Section). On the other hand, tourists with lower incomes were more likely to visit Jameos del Agua and the markets of Teguise and Haría, with

0.25% and 0.85% increases, respectively, and visits to these attractions were less likely per each extra income range.

Throughout this paper, the analysis of Table 2 allows for the effect of a variable on different attractions to be studied and for the effects of two or more variables on a specific attraction to be compared. Moreover, checking the results displayed in Table 2, it is also possible to analyze the effects of all the variables on just one attraction to characterize the profile of the tourists it receives. For instance, in the case of Jameos del Agua, older and richer tourists were less prone to visit the attraction, as already mentioned. It can also be noted that tourists' country of residence was important. Tourists living in Spain had greater odds of visiting this attraction, while tourists coming from Ireland, Norway, the United Kingdom, and Sweden were less likely to do so. Moreover, visits to all attractions included in the survey, except visits to San José Castle, had a positive effect on visits to Jameos del Agua. The motivations tourists had for travelling (holidays, business, etc.) did not seem to be significant to explain why Jameos del Agua was visited. However, the reasons why tourists had chosen Lanzarote as destination had a direct effect on the probabilities of visiting this attraction. For example, tourists who choose Lanzarote for its landscapes, relaxation, its culture, the possibility of practicing nautical activities or visiting new places were more likely to visit Jameos del Agua. However, choosing Lanzarote for its safety against natural disasters or because it offers the chance of doing sports not included in the survey (only golf and nautical activities were included) made it less likely to visit this attraction. Moreover, tourists who had previously visited the island were 1.11% less likely to visit Jameos del Agua. Finally, each extra euro spent at the destination increased the probabilities of visiting this attraction, even though the effect was relatively small, under 0.01%. Indeed, spending on excursions and on cultural products increased the odds of going to Jameos del Agua by 0.11% and 0.13%, respectively, for each euro spent. However, each extra euro spent on paying for hotels, buses, taxis, sports activities, supermarkets, discos, souvenirs, restaurants, pharmacies, or other items not specified in the survey reduced the probabilities of visiting Jameos del Agua.

The analysis of Table 2 also allowed for the comparison of all the variables involved in visiting two or more attractions or even analyzing the effect of multiple variables on all the attractions studied. The case of country of residence is a good example to apply this, because very different behaviors can be seen in tourists' visiting patterns depending on the country they came from. Spanish tourists who travelled to Lanzarote were the only segment that had more probabilities of visiting Jameos del Agua. They were also more likely to visit Los Verdes Cave, Monument to the Peasant, and La Graciosa than other tourists, while they had fewer probabilities of visiting San José Castle and Cactus Garden.

McKercher and Mak (2019) and Bi and Lehto (2018), among others, already pointed to differences in tourists' behavior depending on their provenance. In fact, their findings indicated that domestic tourists have different mobility patterns to international visitors. However, behavioral differences were also found among international tourists in this research. Tourists from Germany and Austria showed similar results. They were more likely to visit the Monument to the Peasant and the César Manrique Foundation than other segments, but they had fewer probabilities of going to Timanfaya and San José Castle. However, there were some differences because German tourists were more likely to visit Los Verdes Cave and the markets of Teguise and Haría, while coming from Austria was not a significant variable to explain this. Conversely, Austrian tourists were more likely to go to Gazer del Río, but coming from Germany was not a significant variable to explain this behavior. The most similar behavior can be seen when analyzing the likelihood to visit attractions of tourists coming from Ireland and the United Kingdom, both being less likely than others to visit Jameos del Agua, Timanfaya, Gazer del Río, Cactus Garden, Arrecife, and La Graciosa. By analyzing the effect that country of residence has on visits to attractions, it was possible to see that this variable was more relevant for some attractions than for others. For example, in the case of the Cactus Garden, ten countries of residence could explain why this attraction is visited, but just two of them were significant to explain the visits made to the markets of Teguise and Haría. Moreover, for some attractions, the effect of the country of residence was a variable that just explained why the attraction was visited by certain segments, such as the Monument to the Peasant. In other cases, country of residence effects on probabilities were only negative for some attractions, such as Timanfaya. This means that tourists' residence can explain why places were not visited, but not the reasons why attractions were being visited. It is, therefore, necessary to consider other variables.

From the results obtained, it is possible to identify the most relevant variables that explain why the complete set of attractions was visited. While some variables, such as gender or motivation for travel, affected just a few attractions, others modified the probabilities of visiting several attractions. In particular, tourists' age, visits to other attractions, some countries of residence, certain motives to choose Lanzarote as a destination, purchasing all-inclusive packages, and specific expenditure items had an influence on the probabilities of visiting most of the attractions. Moreover, some variables had a higher effect on changing the probabilities of visiting certain attractions, while other variables had a much lower effect. For example, the variable regarding tourists who were motivated to travel to attend congresses and meetings shows that these tourists were 14.46% more likely to visit Gazer de Río. However, the variable regarding expenditure at destination shows that tourists were less than 0.01% more likely to visit several attractions per each extra euro spent. This indicates that given variables, despite being identified as significant by the analysis, are not very relevant to explain tourists' behavior. Some of the results obtained have similarities with previous studies, such as the ones carried out by Molinillo and Japutra (2017) and Masiero and Zoltan (2013), which identified being attracted by a destination's culture as a key variable to explain tourists' behavior. However, other results present differences with previous literature, such as the study of Zakrisson and Zillinger

(2012), which indicated that travelling to visit friends and family is key to explaining why tourists do not visit attractions, while this variable was just significant in the current study to explain why just two out of 11 attractions were less likely to be visited.

In addition, the analysis also shows that the choice of certain attractions can be explained with a fewer number of variables, while others depend on a larger number of them. For example, visits made to San José Castle were explained by just 19 of the 86 possible explanatory variables. However, the visits made to La Graciosa were explained by 49 of the 86 variables that were found to be significant for the analysis. In spite of this, other variables that were not included in this study could increase the number of variables explaining why attractions were visited. Liu et al. (2017) pointed out that attractions included in collaboration networks are more visited than attractions that are not included. Other elements, such as the spatial distribution of resources, attractions, and tourist establishments were also proven to have an influence on tourists' mobility patterns and visits. With this analysis, it was possible to analyze the attractions having an influence on the final assessment given by tourists of the trip. Timanfaya National Park was the most visited attraction analyzed and the models show that tourists who visited this attraction were more likely to give better assessments of their trips. It indicates that Timanfaya is a key tourism attraction for destination managers that must be carefully managed and preserved in order to continue attracting tourists to the destination (Oviedo-García, Vega-Vázquez, Castellanos-Verdugo, & Orgaz-Agüera, 2019). It was also possible to confirm that La Graciosa and San José Castle, being the least visited attractions analyzed, are also key elements which tourism managers should focus on to increase tourists' satisfaction. In the case of San José Castle, visiting this attraction decreased the assessment given by tourists to their trips. This could explain why this attraction was just visited by 5% of tourists. Destination managers should improve the services offered at this attraction in order to increase the satisfaction of tourists visiting it and to increase the number of tourists willing to do so. In the case of La Graciosa, despite being one of the least visited attractions, tourists who visit it were more likely to give better assessments of their trips to Lanzarote. Nevertheless, La Graciosa is suffering from overtourism during the summer season, particularly because of the visits made by residents in the Canary Islands and the very limited capacity of absorption of its infrastructures given that the island is only 29 km² in size and has around 800 inhabitants. Recent research highlights the abundance of microplastics at an isolated beach in La Graciosa, an issue to be considered by tourism managers, even if this study does not attribute it to the tourist pressure (Edo et al., 2019).

The results of the analysis provide a segmentation of tourists based on their characteristics and their use of attractions and, at the same time, a segmentation of attractions based on the characteristics of tourists that visit them. This segmentation of the attraction market is crucial for designing policies to prevent overtourism. In fact, spreading tourism flows in time and space constitutes the first two strategies mentioned by the reports of UNWTO (2018, 2019). As suggested by Neuts and Nijkamp (2012) and Oklevik et al. (2019), the basis for this policy is the segmentation of tourists by their attributes and behavior.

Conclusion

In this paper, 37,055 tourist survey responses were analyzed to determine if the 96 variables selected from the survey could explain the visits made to 11 different tourist attractions on the island of Lanzarote. The use of discrete choice models to analyze the effects of all the variables on the attractions allow researchers to determine which variables are relevant to tourists' visits to each attraction. They also indicate how each variable modifies the probabilities of visiting the attractions. The results obtained through these models highlight that nine of the 96 variables were not significant to explain tourists' visits to the attractions studied. There were 13 variables that were significant to explain why just one of the attractions was visited. The analysis shows that several motives to choose the island as a destination (weather, environment, health tourism, theme parks, golf, easy transport, natural safety, and other motives) were only able to explain why one of the attractions studied was visited. Another 33 variables were significant to explain why at least two attractions were visited, though they had different effects on the probabilities of visiting those attractions. One of these variables was tourists' age, which showed that older tourists had greater probabilities than younger ones of visiting cultural attractions or those attractions linked with Canary traditions. By contrast, each extra year of a tourist's age decreased their probabilities of visiting the most visited attractions of the destination. The other 40 variables were able to explain why at least two attractions were visited, and these variables had the same kind of effect on all these attractions. For example, Nordic and Anglo-Saxon tourists were usually less likely to visit the attractions analyzed, while variables regarding visits to other attractions commonly explained why a different attraction was visited. The existence of this high number of shared explanatory variables seems to highlight that there exists a general profile of a visitor who is more likely to visit all the attractions studied. Despite this, the 13 variables that were relevant to explain the visit to just one of the attractions and the 33 variables that showed to have different effects on the 11 attractions also point to the existence of certain features that make visitors likely to choose the attractions they prefer to visit.

Through the use of discrete choice models, it was also possible to establish which variables had a higher or lower effect on changing the probabilities of visiting attractions. This study also identified variables that had a similar effect on a set of attractions or even attractions that had more probabilities of being visited by tourists with certain characteristics. By doing so, this study allows segments to be identified in tourism demand and clustering the supply of attractions on the island of Lanzarote. This analysis also makes it possible to check the relationship between visiting an attraction and the increase in the amount of money spent during the trip or the assessment given by tourists of the trip. Moreover, it helped to identify the products which tourists who were interested in visiting an attraction were more likely to spend a larger amount of money on. The study of the relationship between visiting the main tourism attractions of the island and the assessment given to the trip by tourists can also help identify challenges faced by the destination (Oviedo-García et al., 2019). Despite the results obtained in this study, more research on this topic is needed, as some results may differ from findings in previous studies. For example, the study of Zakrisson and Zillinger (2012) pointed out that knowing if tourists are travelling to visit relatives can explain why tourists do not tend to visit attractions, while in this analysis, this variable showed to be significant for just two out of 11 attractions studied. Other studies have only pointed to behavioral differences between domestic and international tourists but, in this study, it was possible to identify differences depending on the country of residence (Bi & Lehto, 2018; McKercher & Mak, 2019).

Despite these implications and the large number of variables used, other variables not considered could have been analyzed to explain the behavior shown by tourists during their trips to Lanzarote. Using the hotel location, attraction prices, or the attractions included in packages sold by travel agencies and tour operators are examples of variables that could also have high importance in explaining why these 11 attractions were visited. Moreover, limiting the research to the 11 most visited attractions of the island omits analyzing why secondary attractions are visited or even knowing the characteristics of tourists who visit other frequented places, such as beaches. In addition, tourism attractions are not the only element of a destination that needs to be analyzed. The likelihood of tourists to choose accommodation, restaurants, or even their daily itineraries are factors that should be considered in future research. They can explain why certain attractions are visited and this can help destination management organizations in their decision-making processes. Additionally, it should be noted that only survey data was used during this research. Currently, data collection tools such as tracking devices or social media posts are being employed to gather information on tourists. The use of these tools could help analyze a larger number of attractions and explanatory variables that may provide more detailed information for improving decision-making by public and private tourism managers.

This research has implications for public and private tourism managers particularly in the context of preventing the effects of overtourism (Pratt & Tolkach, 2018). For destination management organizations, this research can be used to identify the characteristics of those tourists who are more prone to visit attractions and the effects that visiting attractions have on expenditure at the destination, on the assessment of the trip given by tourists (McKercher & Lau, 2008), and on the characteristics of tourists that can be encouraged to change their behavior with the purpose of spreading tourist flows throughout the island to prevent congestion in certain periods and places. These data can be used to identify a destination's weaknesses and strengths, which can then be used during decision-making processes to invest in certain infrastructures or to offer a wider set of services at certain locations. For tourism attraction managers, this analysis helps identify the characteristics of their main target segments, even when these segments do not represent the largest number of visitors received by the attraction. This allows marketing and promotional campaigns to focus on potential tourists with these characteristics or to change the management of the attraction's services to offer new products oriented to different segments. This kind of study is also useful to manage congestion within destinations or attractions, as they provide information on which tourists are more likely to visit certain attractions (Leones et al., 1998; Sandbrook & Semple, 2006). For destination managers that may not be interested in attracting a huge number of tourists to specific places to avoid congestion, particularly in sensitive environments like national parks, this analysis may help identify if the current profile of visitors received fits with the sustainable development policy of the destination. Thus, it may help to know if a destination is receiving tourists interested in its natural and cultural preservation or who show a higher tendency to spend larger amounts of money during their trips. This may allow for an optimization of tourism flows in the sense of trying to attract tourist that not only spend more, but also have a lower impact on the environment (Oklevik et al., 2019). For other attractions or companies not included in this study, the results can point to the places visited by their main target segments. It can also help identify the characteristics of those tourists more likely to visit nearby attractions.

The results presented for each specific attraction are raw material for policy design to manage congestion and prevent overtourism. The recommendations of UNWTO (2019) are to manage the negative impacts of tourist concentration, the relevance of diversifying demand in time and space and, at the same time, attracting the adequate tourist segments. The island of Lanzarote has been an international reference for tourism management. To take this management to the next level, a thorough analysis of tourists' characteristics who visit attractions based on survey information can be used as a basis for improvement in the design of a sustainability policy for tourism on this island for the coming years.

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Book chapter 3. **Tourist tracking techniques as a tool to understand and manage tourism flows**

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Abstract

The aim of this chapter is discussing the importance of using tourist tracking techniques to gather data that tourism managers can use to address overtourism issues. To do so, a wide literature review has been carried out to establish the importance of analysing tourism at local scale and to revise previous studies using tracking techniques in order to summarize most frequent ways to detect overtourism and to indicate how tracking techniques may help detecting overtourism-related issues and improve destination management. Our findings suggest that overtourism issues should be analysed at local scale as it is not a problem of the whole destination but a problem that only affects certain locations. The literature review carried out points to previous studies detecting overtourism through the analysis of perceptions or carrying capacities, despite these methodologies present several lacks when identifying the reasons why certain locations are congested. However, recent studies have been able to analyse tourist flows and their characteristics using tracking techniques, and this could help policy makers to understand overtourism. This chapter has implications for destination managers pretending to gather data regarding tourists' behaviour. It can also help future research aimed to solving overtourism and congestion issues. Thus, this chapter contributes to existing literature as it points to a new approach to gather data that may help manage the aforementioned issues.

Keywords: tracking, mobility, congestion, tourist behaviour, local scale

Introduction: Linking Overtourism and Tracking

Tourism activity has a strong link with the territory due to the characteristics of the activity itself (INRouTe, 2017). Thus, when analysing the tourism industry at local scale, very different realities can be observed within a single destination. Even in destinations facing overtourism issues, only few areas of the destination suffer from congestion issues, while most parts of the territory are mainly used by local population. Moreover, tourists usually visit attractions and points of interest at very specific timings and this causes these spaces to be congested only during particular times, while they usually are less frequented most part of the day. However, the high presence of tourists in certain spaces and times (overtourism) can cause degradation of natural and cultural spaces and the rejection of local population to visit these places (Goodwin, 2017). In order to identify locations suffering from overtourism, tourist tracking techniques can be used to gather information regarding this issue to make prudent decisions for avoiding an unsustainable development of the destination or making residents feel displaced (Goodwin, 2017).

Data points that tourism has continuously grown during last years (UNWTO, 2019). However, this growth has been mainly focused in emerging regions that have not achieved an outstanding tourism industry yet. In the case of Europe, for example, current data and future previsions indicate that tourist arrivals will grow slightly (UNWTO, 2019), as this continent has already experienced a significant tourism development. However, despite this growth may be smaller than in other places, it has taken place in already consolidated tourism destinations where a small growth of tourism arrivals may lead to overtourism and congestion. This fast-changing environment explains why tourism destinations' competitiveness must be based on the incorporation of new and better tools to improve destinations' decision-making process. Thus, improvements in technology, tourism governance, education and data analysis are decisive in this new environment (Sheehan et al., 2016). This situation has led World Tourism Organisation (UNWTO) to recognise that a proper management of tourism destinations and firms is a key strategic element to help them overcome overtourism and congestion (Duignan, 2019).

In order to properly manage tourism-related issues such as overtourism, data capable of making an adequate analysis of the current situation are needed. As more precise data are, a better analysis will be possible and, thus, better decisions will be made allowing a more effective later evaluation of the destination (INRouTe, 2017; INRouTe & UNWTO, 2013). In this regard, the current chapter focuses on explaining the possible applications of using tourist tracking techniques to gather data on tourists' mobility patterns and behaviour. These data can be used to know why some places are visited, the timing of the visits and the profile of tourists visiting these places (Getz, 2014). Having this information may be useful to understand overtourism and congestion issues taking place within the destination and help decide the actions and policies to carry out (Smallwood et al., 2012).

The Importance of Analysing Tourism at Local Scale

The need of gathering tourism statistics at local scale is related to the high relationship connecting tourism with territory. This explains why this activity shows a very different distribution within continents, countries, regions and even municipalities (INRouTe & UNWTO, 2013). These differences are caused by the nature of tourism industry itself, as in other industries the production and consumption take place in different locations and moments. However, in tourism industry, these processes usually occur in the same place and time. This obliges tourists to move to destinations in order to enjoy its resources and attractions. In addition, as certain places of destinations are more likely to attract a larger number of tourists, this also explains why tourism activity tends to concentrate in certain spaces while most areas of the destination are not usually frequented by tourists. Thus, when geotagged information is gathered, a very unequal distribution of tourism flows can be identified. These inequalities justify the importance of gathering information of tourist activities at local scale (INRouTe, 2017; INRouTe & UNWTO, 2013). In addition, this type of analysis facilitates setting up policies to re-invent mature destinations and attractions or start actions to reduce tourism flows to congested spaces (Padrón-Ávila & Hernández-Martín, 2019a; 2019b).

In fact, previous studies have proven that the scale of analysis show the relevance of tourism activity in very specific spots (e.g. e Silva et al., 2018; Hernández-Martín et al., 2016; Lew & McKercher, 2006). E Silva et al. (2018) gathered data of monthly overnight stays of tourists visiting the European Union (EU) countries at NUTS3 level. It allowed to identify which places of the EU had a greater amount of overnight stays and, thus, a bigger conglomeration of tourists. This study clearly showed that tourism activity is not equally distributed within countries and regions and that this distribution constantly changes depending on the time of the year. One of the principal contributions of this study was pointing out those most vulnerable NUTS3 due to their economic dependence to tourism activity, based on the number of tourists received and their seasonality.

Tracking Techniques in Tourism Research

The needs of tourism data have evolved over the years due to the increasing needs of destination managers (INRouTe & UNWTO, 2013). These changes occur because the behaviour of tourists varies and this determines, to a large extent, that certain types of information are relevant to decision-making process (INRouTe, 2017). These changes in the behaviour of tourists are relevant in determining why tourist arrivals to certain destinations or places are increased or reduced, in order to create new tourism products that meet the demand for specific segments or to identify the needs for infrastructure in certain spaces of the territory (Padrón-Ávila & Hernández-Martín, 2019a; 2019b). In addition, given that destinations compete with each other to attract visitors, it is essential to have updated information about them to be able to know the characteristics of the destination that attract them, improve the quality of those products that differentiate their competitors or manage tourism flows so that current tourism activity does not adversely affect the sustainable development of the destination (Goodwin, 2017).

At the end of the last century, certain techniques that allow to know how tourists move at local scale began to be used. Murphy and Keller (1990) conducted face-to-face interviews with tourists at departure and entry points to the destination to gather information regarding the places visited and the time spent in these places. Another technique was the direct observation of tourists in urban spaces while a researcher is following them, observing their behaviour and locating the places visited on a map (Thornton, Williams, & Shaw, 1997). In fact, Hartmann (1988) used both techniques (interview and direct observation) to study the movements of American tourists in Munich. However, he concluded that none of these techniques was efficient enough to be used in future research due to consuming a large amount of time. In addition, these techniques presented certain problems as they were unable to determine the purpose and meaning of the decisions and activities carried out by tourists (Hartmann, 1988).

In more recent years, several tracking techniques have been developed to study tourists' movements. These include the analysis of mobile positioning data, global positioning system data (GPS), Bluetooth data, user-generated data and geo-referenced photos uploaded to the Internet (Raun et al. 2016). Dattilo et al. (2016) point out that the use of Big Data represents a source of original and objective information about the spatial movements of individuals and tourist flows. The use of these data for statistical purposes could present various advantages in terms of efficiency, promptness, completeness and cost reduction (Dattilo et al., 2016). Tracking techniques seem to be based on the Big Data analysis available at the destination. Among the main advantages of using Big Data are the potential to predict future phenomena, behaviours, expectations and needs of tourist consumers (Invat.tur, 2015).

Among the existing techniques, tracking of tourists using different kinds of GPS devices at a local scale has been the most commonly used approach (Xia et al., 2008), as well as the analysis of mobile phone data to cover studies of movements in larger areas (Roose, 2010). Raun et al. (2016) argue that using GPS and mobile phones data allows for studying tourism more precisely and efficiently because these data have better spatial and temporal accuracy, the follow-up periods are longer, they allow to follow tourists during their whole visit and the collection and processing of big amounts of digital data are easier than with conventional data. However, the use of space-time information always raises moral and legal issues related to the protection of personal data and the privacy of the subjects being tracked (Raun et al., 2016).

It has to be recognised the use of mobile positioning data as a source of information to generate tourism statistics at local scale is still at an early stage (Alawwad et al., 2016). Therefore, it requires more detailed analytical models and calculations to improve the common data collection and processing methods. GPS data, for example, need a constant Internet connection so that the areas through which tourists have travelled can be registered (Shoval & Isaacson, 2007). According to Zoltan and Masiero (2012), the use of mobile devices is lower among older people, so the sample of this segment of tourists would be much smaller and, thus, the analysis of the information would be severely conditioned by the size of the sample. Raun and Ahas (2016) also point out that these techniques do not reflect the motivations of tourists or their preferences, while this information can be collected through surveys or other traditional data-gathering techniques. In fact, during the study of Ahas et al. (2007), data gathered through new techniques had to be compared with data obtained through surveys to complete and verify their findings. Pettersson and Zillinger (2011) found a similar problem and also had to combine GPS tracking data with surveys. Raun et al. (2016)

have indicated that these techniques are not convenient for distinguishing large-scale destinations, but that they are appropriate for identifying the places visited in specific locations.

In the last decade, other sources of information based on the use of Big Data have also been used to know how tourists behave. De Oliveira and Porto (2016) extracted quantitative information from TripAdvisor to perform a data processing analysis that allowed developing a series of indicators of tourist attractions located in Minas Gerais. Signorelli et al. (2016), on the other hand, used Wikidata, the linked data source of the Wikimedia Foundation, to identify the tourist attractions of three European cities and to obtain the monthly views received on these pages in order to estimate the visits made to these attractions. The application programming interface (API) of social networks also facilitates analysing all the geotagged images and contents uploaded to them to know which places of the destination are visited (Popescu & Grefenstette, 2009). Another technique that has been employed is the implementation of control mechanisms on access roads to certain resources and attractions of tourism destinations (Smallwood et al., 2012). In addition, the Spanish National Institute of Statistics used traffic controls in national borders to obtain information on the access of foreign vehicles and tourists to Spain (Izquierdo Valverde et al., 2016). For this study, Izquierdo Valverde et al. (2016) used traffic cameras and records collected at borders to know the type of vehicle accessing the country, the nationality of the occupants according to the registration number and the number of occupants per vehicle.

However, it should be also considered that certain tourist tracking techniques present certain moral, ethical and legal problems (Curry, 2000; Renenger, 2001). Most of these problems are related to people's right to privacy and laws limiting personal data processing (Shoval & Isaacson, 2007). Some techniques such as the tracking of tourists through GPS devices carried during their trips, survey responses or the installation of tracking apps in tourists' mobile phones require tourists' consent to be applied. However, mobile phone and social media companies, for example, can locate their users and the movements they make and transfer that information to third parties (Curry, 2000), without obtaining tourists' permission to do so. In fact, according to Renenger (2001), legal systems are not yet fully prepared to face this reality and the problems associated with it. In general, it seems that the legal limits regarding the use of personal data are focussed around the consent of the users and the use of their information to identify tourist segment patterns, but not specific individuals' personal data. In addition, it seems that this impediment could limit the use of the data collected by these techniques to make comparisons between countries, since each country has a different legislation and, thus, it would be only possible to gather different types of data in each of them (Eurostat, 2014).

Previous Approaches to Detect Overtourism

Due to the nature of overtourism, controlling tourists' arrivals to destinations and attractions becomes fundamental (Goodwin, 2017). Thus, in the study of Khoshnevis Yazdi and Khanalizadeh (2017), data of tourists' arrivals over time are gathered to apply gravity models in order to establish which characteristics make tourists more likely to visit the destination. The objective of this kind of studies is regulating tourism flows as it can help avoiding congestion issues, among others (McKercher, 1999). In the case of trying to identify overtourism issues, researchers have proposed several methods to detect locations suffering from congestion and similar problems (e.g. Benner, 2019; Duignan, 2019; Goodwin, 2017). The different approaches most frequently used to detect and analyse overtourism are related to studying environmental damages, residents' perceptions and tourist satisfaction with different features of their trips (Goodwin, 2017).

Perceptions of local population are the data most usually employed to support the existence of overtourism and congestion issues (Goodwin, 2017). Thus, in the studies of Muler et al. (2018) and Jurado et al. (2012), authors adapt the traditional concept of carrying capacity (used when analysing environmental issues) to residents' social carrying capacity. This concept refers to the capacity of residents to assume the arrival of tourists and integrate it into their societies without feeling displaced from destinations (Jurado et al., 2012; Muler Gonzalez et al., 2018). For these authors, this capacity is exceeded when destinations suffer from overtourism and congestion (Jurado et al., 2012; Muler Gonzalez et al., 2018). Perkumienė and Pranskūnienė (2019) have also supported the use of residents' perceptions as key indicator to detect these issues, as residents have the right to be able to enjoy the place where they live. Kuščer and Mihalič (2019) have even pointed that attitudes of residents are not only a tool to identify overtourism, but a good way to solve these problems if residents cooperate to achieve a solution.

Controlling the number of tourists arrived have also been a frequent tool used to establish when places are receiving too many tourists (Goodwin, 2017; Khoshnevis Yazdi & Khanalizadeh, 2017). Frequently, carrying capacity has been the most employed indicator pointing to possible environmental damages (Goodwin, 2017). However, Milano et al. (2018) also proposed identifying overtourism through the evolution of the degradation of natural spaces, loss of species, damage to landscapes or overuse of land for tourism purposes. A link could be established between tourism and natural spaces suffering from these problems if the number of tourists is increasing in these locations when these issues start appearing (Milano et al., 2018). However, despite the effects of overtourism may be severe for the environment, it only affects local environments (Koens et al., 2018). Its effect on global nature and environment is almost imperceptible, so detecting these kind of issues becomes more complicated as very specific locations must be studied (Koens et al., 2018).

The perceptions of tourists has been also pointed as a mean to detect overtourism as tourist satisfaction could be lowered if tourists perceive the destination as crowded, polluted or dirty (Goodwin, 2017). However, the problem of using tourists and residents' perception to detect overtourism is that perceptions are based on subjective criteria, so both segments could not perceive issues related to overtourism when they actually exist (Kuščer & Mihalič, 2019). Carrying capacity can be a good tool to detect overtourism, but it presents problems when researchers intend to apply it on non-natural spaces. To avoid this, Padrón-Ávila and Hernández Martín (2019a) consider that analysing the characteristics of tourists who visit main tourist attractions is fundamental for understanding overtourism issues. Knowing the characteristics of certain segments may help understanding what they do when visiting certain locations and how they behave (Scuderi & Dalle Nogare, 2018). In fact, the importance of studying the behaviour of tourists to identify wrong demeanours and create campaigns to educate them has already been pointed out as a key source to solve overtourism (Seraphin et al., 2018). However, the problem lies in identifying this behaviour and tracking techniques may help in this task (Shoval & Isaacson, 2007).

Improving Overtourism Management Through the Use of Tourist Tracking Techniques

Despite the plurality of techniques that could be used, Lau et al. (2017) affirm that the implications derived from tourist tracking analysis depend on the technique used to carry out the study, since each of them provides different information. Raun et al. (2016) used mobile phone data provided by phone companies to identify which places were more frequently visited depending on tourists' nationality, so they could segment tourism demand of the destination. Shoval et al. (2011) used GPS tracking devices to establish which places tourists were most likely to visit based on the location of their hotel, which can help company managers with offering activities in which their guests would be highly interested. Moreover, the results of analysing tourist tracking data not only depend on the technique chosen, but on the aim of the research and the places where the study is carried out (Lau et al., 2017). The main implications pointed out in tourism studies are usually linked to the improvement of the management of tourism destinations and companies (Shoval & Isaacson, 2007). In addition, Shoval and Isaacson (2007) also pointed out that this type of study is also able to expand the existing boundaries existing in tourism research.

However, McKercher and Lau (2008) suggest that the main implications of this type of study are those related to the improvement of the management of tourism destinations. Among others, they have a special impact on promoting the improvement of the planning of the attractions to be developed at the destination, the development of housing centres and the increase of transport connections (McKercher & Lau, 2008). This type of study has direct and indirect implications that would help reduce the inequalities in the economic development of the region, in addition to controlling residents' migration patterns and distributing incomes and wealth generated by tourism (Lau et al., 2017). The monitoring of visitors also allows to evaluate the seasonality not only of the destination, but of its attractions, points of interest and itineraries (Raun et al., 2016). It is even possible to identify the location of specific tourist attractions that were not known by the managers of the tourism destinations (Alawwad et al., 2016). Understanding and measuring the daily movements of visitors is also an important task in other areas of management such as transport, taxation, public administrations, among others (Raun & Ahas, 2016). Moreover, tracking tourists can have several implications for overtourism and congestion management. Knowing why some places are visited, the timing of the visits and the profile of tourists visiting these places is key to understand why certain places present a higher presence of tourists at specific timings (Getz, 2014).

Destination managers can analyse tourist tracking data to identify elements to reduce tourism flows to certain places or timings. As these data allow knowing the characteristics of tourists less likely to visit certain locations, it also allows destination managers setting up strategies or marketing campaigns oriented to attract tourists not interested in visiting most congested attractions but others. This allows distributing tourism flows from most visited locations to secondary attractions. Moreover, identifying those timings in which tourists are more likely to visit certain locations also allows setting up policies aiming to redistribute tourism flows through different hours of the day (Getz, 2014; Pettersson & Zillinger, 2011). Tracking techniques can be also used to promote the visits of certain places among those tourists that show a greater interest in visiting them (Zoltan & McKercher, 2015). These data are also useful for increasing the expenditure on tourists who visit more popular places (maximizing incomes generated by tourism and reducing the number of visits to these places) and, at the same time, to increase the number of visits to other spaces (David-Negre et al., 2018). This can be used to promote secondary attractions (Lau & McKercher, 2006) and, thereby, reduce the presence of tourists in specific locations of the destination while increase the amount of visits of other attractions. Koo et al. (2017) even indicate that these studies are relevant for the generation of new secondary and peripheral tourism destinations and not just attractions. Koo et al. (2017) point out that generating peripheral destinations is essential for the continuous development of mature tourism destinations that have a large influx of visitors. In addition, these studies also help to know the itineraries made by tourists, so they can be useful to manage road networks to facilitate the access to certain tourist attractions and, thus, distribute tourists' flows (Smallwood et al., 2012).

Analysing these data is relevant because tourists' mobility patterns have an impact on the economic, social and environmental dimensions of the sustainable development of destinations (Ros Chaos et al., 2018). Thus, techniques capable of reducing tourist flows to specific areas or attractions have been already studied (McKercher & Lew, 2003). Lew and McKercher (2004) stated that studies based on the direct observation of tourists reflect where an estimated number of tourists are concentrated, which can cause an unsustainable development of the destination in some areas. For this reason, this type of research can be used to initiate actions of concentration or dispersion of visitors in specific locations (McVetty, 2002). The reduction of visitors in certain spaces helps to minimize the effect of tourism activity on the tourism destinations reduces the conflicts generated by tourism and preserves the resources that the destination contains (McVetty, 2002; Swett et al., 2004). It is also possible to apply management policies and measures only during certain peak months or hours (Smallwood et al., 2012), as seasonality within destinations may cause some places to show overtourism issues only during specific timings. Moreover, tracking techniques also allow knowing how tourist attractions are linked and help establish a cooperation relationship between these attractions, which represents a crucial element for the sustainable development of the destination (Liu et al., 2017).

Conclusion

The continuous growth of tourists' arrival during last years has led destinations to develop overtourism and congestion issues (UNWTO, 2019). However, these problems do not usually affect the whole destination, but particular attractions and points of interest. In this new environment, destinations have to understand and manage tourism flows in order to try to avoid this sort of problems (Milano et al., 2018). Despite traditional analyses of overtourism have been based on studying residents' perceptions, carrying capacities and tourist satisfaction (Goodwin, 2017), these approaches cannot gather information regarding tourists' characteristics and behaviour. However, the use of tourist tracking techniques allow researchers and destination managers understand these features (Renenger, 2001; Shoval & Isaacson, 2007; Shoval et al., 2011). In spite of this, the application of tracking techniques is still at an early stage (Alawwad et al., 2016), so more studies are needed to help researchers know how to combine these techniques to gather larger amounts of data capable of helping destinations in their decision-making process (Kádár, 2014; Raun et al., 2016). Moreover, tracking techniques also present some legal, moral and ethical issues that policy makers and researchers must address in order not to violate people's right to privacy (Renenger, 2001). Even so, tracking techniques may allow understanding which places of the destination are more frequently visited and which tourist segments are more likely to visit certain locations (McKercher et al., 2012; Pettersson & Zillinger, 2011), what can be used by destination managers and researcher to set up policies to distribute tourism flows (McVetty, 2002) or educating tourists (Seraphin et al., 2018).

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RESUMEN DE LA INVESTIGACIÓN

Objetivos de la investigación

El objetivo principal de esta tesis es estudiar los puntos de interés turístico y su vinculación con la investigación científica en turismo. Para ello, este estudio ha pretendido establecer el marco conceptual en el que encajan los puntos de interés, poner de manifiesto la relevancia del estudio de los puntos de interés turístico, establecer cómo pueden ser identificados de cara a que futuros investigadores puedan estudiarlos, y realizar una aplicación práctica del estudio de puntos de interés a través de un caso de estudio. Para lograr estos objetivos, se han establecido diversos objetivos secundarios que ayudan a alcanzarlos. Así, estos objetivos secundarios son: la clarificación de la definición de diversos conceptos utilizados en la investigación turística, la definición del concepto de *punto de interés turístico*, el análisis de diferentes herramientas de rastreo de los turistas que permitan identificarlos, la aplicación práctica de estas herramientas para verificar su utilidad como mecanismos de rastreo e identificación de puntos de interés, el estudio de los determinantes que condicionan la visita a puntos de interés por parte de los turistas, y la exposición de diferentes mejoras para la gestión de los destinos turísticos que podría conllevar su estudio.

En el Capítulo 1 se abordan todos los objetivos planteados, que son profundizados en el resto de capítulos. Concretamente, el Capítulo 1 sirve como estudio piloto en el que se definen conceptos ampliamente empleados en investigación turística y se crea una definición para el concepto de punto de interés que encaja dentro de este marco conceptual. Este marco conceptual y la definición de punto de interés elaborada son justificados posteriormente en el Capítulo 2 al comparar este concepto con otros conceptos con los que podría ser confundido. El Capítulo 1 también hace una breve referencia al uso de técnicas de rastreo para localizar los lugares visitados por los turistas del destino. Sin embargo, es en el Capítulo 3 donde se profundiza en esta cuestión al establecer cuáles son las técnicas existentes, cómo ha evolucionado el uso de técnicas de rastreo en la investigación turística y las principales ventajas e inconvenientes que entraña su aplicación. En el Capítulo 3, además, se profundiza en las implicaciones del uso de técnicas de rastreo y del estudio de puntos de interés. En el Capítulo 1 también se realiza un análisis de los determinantes de la visita a 11 puntos de interés de Lanzarote. Este análisis es posteriormente ampliado en el Capítulo 4, al analizar las características de las personas que visitan al menos uno de los puntos de interés estudiados y las características diferenciadoras de los turistas que acuden a cada uno de los lugares estudiados. Por último, a pesar de que en todos los capítulos se hace referencia a las implicaciones que conllevaría el estudio de los puntos de interés, el Capítulo 4 hace especial referencia a las mismas al profundizar en la relación existente entre el empleado de técnicas de rastreo para resolver problemas vinculados a la congestión de destinos y áreas turísticas.

Metodología aplicada

A lo largo de esta tesis, se han empleado diversos métodos para alcanzar los resultados obtenidos. En todas las publicaciones se ha comenzado realizando una revisión de la literatura para conocer cuál es el estado de la cuestión, contextualizar el estudio realizado en cada uno de ellos y justificar la laguna existente que pretendía cubrirse. A pesar de ello, dado la diversidad de objetivos perseguidos, cada capítulo se ha centrado en el uso de otros métodos para resolver la laguna que pretendía estudiarse. La excepción a esto son los tres capítulos de libros presentados que, al tratarse de un estudio realizado con la intención de formar parte de un libro, se basan únicamente en la realización de una revisión de la literatura para establecer la definición de punto de interés (Capítulo de libro 1) y la relación existente entre el rastreo de los turistas y la mejora de problemas de congestión en los destinos (Capítulo de libro 2 y 3).

En el caso del Capítulo 1 de la tesis, la revisión de la literatura se ha empleado para desarrollar el marco conceptual en el que se ha insertado el concepto de *punto de interés* y discutir definiciones previas de otros términos. También se ha empleado la revisión de la literatura como base para crear una taxonomía de puntos de interés turístico. Además, en este capítulo se utilizan diversas fuentes para buscar información que permita identificar la ubicación de puntos de interés en la isla de Lanzarote. Entre las fuentes utilizadas pueden citarse la web oficial de turismo de la isla, las fotos subidas a internet por los usuarios de Instagram y los lugares de la isla que cuentan con perfil en TripAdvisor. Tras ello, se emplean tablas de contingencia elaboradas a partir de datos de los turistas recogidos por el Instituto Canario de Estadística para comparar el perfil de los visitantes que visitan 11 puntos de interés de la isla.

El Capítulo 2 se basa en la utilización de un análisis bibliométrico para analizar cómo definen los investigadores en turismo distintos términos vinculados con el territorio, entre los que incluye el concepto de punto de interés (Artículo 2). Lo mismo sucede con parte del Capítulo 3, en el que se estudian qué técnicas de rastreo han sido empleadas en estudios previos, cómo ha evolucionado el uso de las mismas y cómo tienden a combinarlas los investigadores para maximizar la información obtenida (Artículo 3).

En el Capítulo 4, el estudio emplea modelos de elección discreta binomiales para establecer qué características de los turistas son las que explican sus patrones de visita a al menos uno de los lugares estudiados (Artículo 4) y las características diferenciadoras de los visitantes de cada uno de los lugares estudiados (Artículo 5). Además, estos dos estudios se combinan con el cálculo de los efectos parciales promedios para establecer en qué medida se modifica el comportamiento de los turistas en función del valor de cada una de las variables independientes empleadas en ambos estudios.

Resultados obtenidos

La revisión de la literatura hecha en el Capítulo 1 y el Capítulo 2 ha permitido establecer que un punto de interés es "un lugar concreto, dentro de un destino turístico, en el que se ubican uno o varios recursos turísticos y se realizan actividades turísticas a partir de los mismos. El recurso que atrae a los visitantes puede tratarse, en ocasiones, del propio punto de interés". Además, la revisión de la literatura y el análisis bibliométrico han posibilitado diferenciar este concepto de otros términos frecuentemente empleados en la investigación turística.

El estudio realizado durante el Capítulo 3 ha permitido establecer que existen 31 técnicas utilizadas o sugeridas por los investigadores para rastrear turistas e identificar puntos de interés. El estudio también ha permitido clasificarlas en seis categorías diferentes: encuestas, análisis web, geolocalización, publicidad, ventas y lugares específicos. Además, este análisis permite estimar que las técnicas basadas en la geolocalización de los turistas son actualmente las más frecuentemente empleadas para rastrearlos, seguidas de las encuestas. La tendencia parece indicar que estos dos tipos de técnicas serán los que más continuarán empleándose en el futuro. El estudio realizado permite explicar esto debido a que parece que las técnicas basadas en la geolocalización son útiles para identificar los lugares visitados, pero aún son necesarias las encuestas para extraer datos relativos a características sociodemográficas y motivacionales de los visitantes. En el Capítulo 1 se aplican de manera práctica algunas de las técnicas mencionadas en el Capítulo 3, logrando identificarse los puntos de interés de la isla de Lanzarote como puede ser en la Imagen 1 del Artículo 1.

Los resultados del análisis de los determinantes explicativos de la visita en el Capítulo 1 apuntan a que la nacionalidad del turista y la ubicación del establecimiento alojativo son factores relevantes a la hora de poder prever qué lugares se visitarán. Así, los resultados muestran que las personas de ciertas nacionalidades (como españoles, italianos o franceses) son más propensas a visitar los puntos de interés en la isla. Sin embargo, existen otras nacionalidades (como británicos o irlandeses) que muestran una baja tendencia a visitar estos lugares. Además, la ubicación del establecimiento alojativo influye a la hora de motivar a los turistas a visitar unos puntos de interés u otros. De ello se concluye que conocer la nacionalidad del visitante permite estimar su propensión a visitar puntos de interés del destino y, de conocerse también dónde se alojará, se puede saber qué lugares es más probable que visite. Sin embargo, parece que las motivaciones no ejercen un papel tan significativo como se esperaba. La relevancia de la nacionalidad es nuevamente apoyada por el Capítulo 4, pero este estudio también apunta a que la compra de paquetes todo incluido reduce la probabilidad de visitar los lugares estudiados, así como el hecho de que los turistas sean de mayor edad. Sin embargo, el estudio apunta a que las motivaciones de los visitantes sí son relevantes para explicar su comportamiento, así como el número de días de estancia en el destino y el tipo de acompañantes. Este capítulo también muestra que un mayor número de lugares visitados incrementa el gasto y valoración del viaje de los turistas. A pesar de ello, el segundo artículo del Capítulo 4 indica que las variables explicativas de la visita a cada uno de los lugares estudiados son diferentes, por lo que el estudio individual de cada uno de los puntos de interés es necesario para poder tomar decisiones más acertadas relativas a su gestión.

Por último, el Capítulo 4 también muestra que los problemas de congestión y masificación turística no suelen afectar a la totalidad del destino, sino a lugares específicos del mismo. Por ello, es importante conocer y controlar los flujos turísticos para intentar solventar este tipo de problemas. La revisión de la literatura realizada pone de manifiesto las limitaciones de las metodologías tradicionales para detectar problemas de masificación y apunta al uso de técnicas de rastreo como herramienta que permite identificar los lugares visitados y estimar si la cantidad de turistas recibidos supera la capacidad de carga de estos lugares. A pesar de sus implicaciones, el capítulo también señala que estas técnicas se encuentran en una fase temprana y, por ende, presentan varias limitaciones.

Discusión de los resultados

En el caso del Capítulo 1, la aplicación práctica de la investigación es parcial ya que se identifican los lugares visitados, pero no los movimientos e itinerarios de los turistas, al no haber información relativa al orden de visita de los puntos recopilados. Además, la utilización de otros métodos de rastreo (GPS, telefonía móvil, etc.) hubiese aportado otro tipo de información y hubiese ayudado a cuantificar las llegadas a cada uno de los lugares estudiados. Al solo aplicarse el estudio al caso de Lanzarote, la taxonomía elaborada se basa únicamente en los resultados de este análisis. El Capítulo 2 y el Capítulo 3, al utilizar únicamente Scopus como fuente de la que obtener la información, puede estar omitiendo datos relevantes que podrían haberse hallado de emplear oras fuentes, como Google Scholar o Web of Science. Además, en el caso del Capítulo 2, solo se han considerado las 50 publicaciones más citadas de cada uno de los conceptos estudiados. De haber considerado la totalidad de las publicaciones, podrían haberse hallado resultados diversos. Además, en el Artículo 3 no se realiza un estudio empírico que pueda confirmar las afirmaciones realizadas, a pesar de que las mismas se basan en los resultados obtenidos durante el mismo.

En el caso del Capítulo 4, los resultados obtenidos apuntan a diversas similitudes con estudios previos. Sin embargo, ciertos resultados son contrarios a los hallados por otros investigadores. Como apuntan Masiero y Zoltan (2013), los turistas culturales tienen más probabilidades de visitar atracciones, así como los turistas que no se adaptan al tipo habitual de turista del destino (Fennell, 1996). Estudios previos también acuerdan que, a mayor estancia, mayores son las probabilidades de visitar diferentes lugares (McKercher & Zoltan, 2014b; Opperman, 1997; Shoval & Raveh, 2004), así como cuando los turistas viajan dentro de su propio país (Flognfeldt, 1999) o alquila vehículo para transportarse (Tideswell & Faulkner, 1999). Por el contrario, contratar paquetes de todo incluido (Lew & McKercher, 2006) o repetir la visita al destino (McKercher & Lau, 2008; McKercher, Shoval, Ng, & Birenboim, 2012; Smallwood et al., 2012) reducen las probabilidades de visita. A pesar de estas similitudes, el estudio también presenta ciertas diferencias con investigaciones previas. Por ejemplo, viajar por negocios o visitar familiares no mostró ser relevante para reducir las probabilidades de visita de puntos de interés (Zakrisson & Zillinger, 2012), al igual que tampoco mostró ser significativo el viajar con niños (Decrop, 2005).

El Capítulo 4 también indica como parte de sus resultados que, si bien las técnicas de rastreo permiten mejorar de manera significativa la gestión de destinos turísticos, presentan una pluralidad de limitaciones que están impidiendo que se extienda su uso. Al encontrarse este tipo de estudios en una fase temprana de desarrollo, los investigadores no han podido profundizar aún en estas limitaciones adecuadamente (Alawwad et al., 2016). Sin embargo, parece que las mayores preocupaciones se centran en la falta de estudios relativos a la vulneración del derecho a la intimidad de las personas y las leyes de protección de datos de carácter personal (Renenger, 2001).

SUMMARY OF THE RESEARCH

Objectives of the research

The aim of this dissertation is to study points of interest and their link with tourism research. To do so, this study establishes a conceptual framework in which points of interest fit, to show the relevance of the study of points of tourist interest, to establish how they can be identified and to perform a practical application of points of interest through a case study. To achieve these objectives, various secondary objectives have been established. These secondary objectives are: the clarification of the definition of various concepts used in tourism research, the definition of the concept of ‘point of interest’, the analysis of different tourist tracking tools to identify them, the practical application of these tools to verify their usefulness as mechanisms to identify points of interest, the study of the determinants that condition visits to points of interest by tourists, suggestions for improving destination management that could derive from this study, and the elaboration of a list of limitations of the study.

In Chapter 1, all the proposed objectives are addressed, but they are also addressed in the rest of the chapters. Particularly, Chapter 1 serves as a pilot study in which definitions to frequent concepts widely used in tourism research are established, allowing the creation of a definition for the concept of point of interest that fits within this conceptual framework. This conceptual framework and the definition elaborated for point of interest is later justified in Chapter 2 by comparing this concept with other concepts with which it could be confused. Chapter 1 also makes a brief reference to the use of tracking techniques to locate places visited by tourists. However, in Chapter 3 a deeper analysis is carried out by establishing what the existing techniques are, how the use of tracking techniques in tourism research has evolved and the main advantages and disadvantages of their application. In addition, Chapter 3 indicates the implications of the use of tracking techniques and the study of points of interest are deepened. Chapter 1 also analyzes the determinants of visits to 11 points of interest in Lanzarote. This analysis is later expanded in Chapter 4, thus analyzing the characteristics of people who visit at least one of the points of interest studied and the differentiating characteristics of tourists who go to each of the places studied. Finally, although all the chapters refer to the implications that the study of points of interest would entail, Chapter 4 makes a special reference to them when deepening the relationship of using tracking techniques to solve problems related to congestion and overtourism.

Methodology applied

In this dissertation, various methods have been used to achieve the results obtained. In all the chapters, a literature review has been made to establish the current state of the topic studied, contextualize the study in each chapter and justify the existing gaps that are intended to be covered. Moreover, given the diversity of objectives pursued, each chapter focuses on the use of additional methods to achieve the objectives proposed. The exceptions to this are those publications related to book chapters which, being studies conducted with the intention of being theoretical book chapters, are based solely on conducting a literature review to define what a point of interest is (Book Chapter 1) and to highlight the relationship between tracking tourists and solving congestion problems within destinations (Book Chapter 2 and 3).

In the case of Chapter 1, a literature review has been used to develop a conceptual framework to insert the concept of 'point of interest' and to discuss previous definitions of similar terms. The literature review has also been used to create a taxonomy of points of interest. In addition, in this chapter, various sources are used to identify the location of points of interest on the island of Lanzarote. Among the sources used, we can find the official tourism promotion website of the island, photographs uploaded to the Internet by Instagram users and places with a profile on TripAdvisor. After that, contingency tables based on data from tourists collected by the Canary Islands Statistics Institute are used to compare the profile of visitors visiting 11 different points of interest on the island.

Chapter 2 and the first paper of Chapter 3 are based on the use of a bibliometric analysis to analyze how tourism researchers define different terms related to the territory. Chapter 2 includes the concept of point of interest. Whereas an analysis of what tracking techniques have been used in previous studies, how their use has evolved and how researchers tend to combine them to maximize the information gathered are included in Chapter 3.

Chapter 4 uses binomial discrete choice models to establish which characteristics of tourists explain their visiting patterns to at least one of the places studied (Journal article 4) and the differentiating characteristics of tourists to each place studied (Journal article 5). In addition, these two studies are combined with the calculation of the average marginal effects to establish to what extent the behavior of tourists is modified based on the value of each of the independent variables used in both studies.

Findings

The literature reviews made in Chapter 1 and Chapter 2 establish that a point of interest is "a specific place, within a tourism destination, in which one or several tourism resources are located and tourism activities are carried out at them. The resource that attracts visitors can sometimes be a point of interest itself". In addition, both the literature review and the bibliometric analysis differentiate this concept from other terms frequently used in tourism research.

The studies conducted in Chapter 3 conclude that there are 31 techniques that have been used or suggested by researchers to track tourists and identify points of interest. The study classifies them into six different categories: surveys, web analysis, geolocation, advertising, sales and specific spots. In addition, this analysis estimates that techniques based on the geolocation of tourists are currently the most frequently used to track them, followed by surveys. The trend seems to indicate that these two types of techniques will be the ones that will continue to be used in the future. The study also helps to explain that geolocation-based techniques are useful to identify the places visited, but surveys are still necessary to extract data related to sociodemographic and motivational characteristics of tourists. In Chapter 1, some techniques mentioned in Chapter 3 are applied, identifying the points of interest on the island of Lanzarote, as can be seen in Image 1 of Journal article 1.

The results of the analysis of the explanatory determinants of visits in Chapter 1 suggest that tourists' nationality and the location of their accommodation are relevant factors to estimate which places will be visited. Thus, results show that people of certain nationalities (such as Spanish, Italian or French) are more likely to visit points of interest on the island. By contrast, there are other nationalities (such as British or Irish) that show a lower tendency to visit these places. In addition, the location of their accommodation influences tourists to visit some points of interest or others. The study concludes that knowing tourists' nationality allows to estimate their propensity to visit points of interest and, if their accommodation is also known, researchers can indicate which places tourists are more likely to be visited. However, this study highlights that motivations do not play such a significant role in this regard. The relevance of nationality is again supported by Chapter 4, although this study also suggests that the purchase of all-inclusive packages reduces the likelihood of visiting points of interest, as well as a higher age. However, the study suggests that visitors' motivations are relevant to explain their behavior, as well as the number of days of stay at the destination and the type of companions. This chapter also shows that visiting a greater number of places increases the expenditure during the trip and improves the assessment given to the destination. Despite this, the second paper of Chapter 4 indicates that the explanatory variables of visits to each of the places studied are different, so an individual study of each point of interest is necessary to make more accurate management decisions.

Finally, Chapter 4 also shows that the problems of congestion and overtourism do not usually affect the entire destination, but rather specific places. Therefore, it is important to know and control tourist flows to try to solve these problems. The literature review carried out highlights the limitations of traditional methodologies to detect problems of overtourism and the chapter points to the use of tracking techniques as tools that can identify the places visited and estimate if the number of tourists received exceeds the carrying capacity of these places. Despite these implications, the chapter also indicates that these techniques are at an early stage and, therefore, have several limitations.

Discussion of the results

In the case of Chapter 1, the practical application of the research is limited because though the points of interest are identified, the movements and itineraries of the tourists are not as there is no information regarding the order of the visits to the places. Indeed, the use of other tracking techniques (GPS, mobile telephony, among others) would have provided more information that could have helped quantify the arrivals at each point of interest. Moreover, as the study is only applied to the case of Lanzarote, the taxonomy prepared is based solely on the results of the analysis of a single destination. Chapter 2 and Chapter 3 use Scopus as the data source to carry out the bibliometric analyses, so other relevant data sources, such as Google Scholar or Web of Science were not included. In the case of Chapter 2, only the 50 most cited publications of each of the concepts studied have been considered. If all publications were analyzed, different results could have been found. Chapter 2 did not carry out an empirical study that can confirm the statements made, although, these are based on results obtained in Journal article 3.

In the case of Chapter 4, the results show various similarities with previous studies. However, certain results are contrary to those found by other researchers. As Masiero and Zoltan (2013) point out, cultural tourists are more likely to visit attractions, as well as tourists who do not fit into the usual type of tourists of the destination (Fennell, 1996). Previous studies also agree that, the longer tourists stay, the more likely they are to visit different places (McKercher & Zoltan, 2014b; Opperman, 1997; Shoval & Raveh, 2004), as well as those conducting domestic tourism (Flognfeldt, 1999) or renting cars during the trip (Tideswell & Faulkner, 1999). On the contrary, hiring all-inclusive packages (Lew & McKercher, 2006) or repeating a visit to the destination (McKercher & Lau, 2008; McKercher, Shoval, Ng, & Birenboim, 2012; Smallwood et al., 2012) make visits to points of interest less likely. Despite these similarities, the study also presents certain differences with previous research. For example, traveling for business or visiting for family purposes did not seem to be relevant in reducing the likelihood of visiting points of interest (Zakrisson & Zillinger, 2012). Along the same lines, traveling with children was not significant either to explain probability of visits (Decrop, 2005).

Chapter 4 also indicates, as part of its results that although tracking techniques significantly improve the management of tourism destinations, they present a plurality of limitations that may prevent the spread of their use. Being at an early stage of development, researchers have not yet been able to analyze these limitations adequately (Alawwad et al., 2016). However, it seems that the main concerns focus on the lack of studies related to people's right to privacy and data protection laws (Renenger, 2001).

CONCLUSIÓN

En esta tesis se ha clarificado la definición de términos como *recurso turístico*, *punto de interés* o *producto turístico*; que pueden ser empleados como referencia en investigaciones futuras. La revisión de la literatura llevada a cabo durante este estudio muestra el escaso acuerdo sobre el significado de los conceptos de turismo de uso frecuente entre los investigadores y los problemas que cada una de las definiciones creadas presenta. Este bajo nivel de acuerdo también se ha demostrado a través del análisis bibliométrico realizado en este estudio. Sin embargo, los resultados del estudio realizado muestran cuáles son las principales definiciones utilizadas por investigadores para los términos estudiados. En este sentido, *destino* generalmente se refiere a las ciudades visitadas por los turistas, *atracción turística* tiende a ser cualquier tipo de elemento (no necesariamente ubicaciones) que motivan a los turistas a visitar el destino, *alojamiento* se utiliza para referirse a las empresas turísticas que alojan a los turistas, y *punto de interés* hace referencia a aquellos lugares visitados por los turistas durante sus viajes.

Con el objetivo de que la investigación pueda ser de utilidad en Canarias, se ha elaborado una taxonomía de puntos de interés aplicable al archipiélago. Además, se ha utilizado la isla de Lanzarote como caso práctico para la identificación y clasificación de los puntos de interés de la misma. Tras ello, se han señalado los puntos de interés identificados en una imagen de la isla, con lo que se ha podido analizar de manera visual y sencilla dónde se ubican los mismos. Además, se realiza una revisión de las posibles técnicas de rastreo que pueden ser empleadas para identificar los lugares visitados por los turistas. Para hacerlo, este estudio ha intentado resumir las características de las técnicas actuales de rastreo turístico utilizadas por los investigadores en estudios sobre movilidad y comportamiento turístico. Para ello, se realizó una revisión de la literatura para comprender qué técnicas se han utilizado y cómo funcionan. Después de esto, un análisis bibliométrico ha resaltado la evolución del uso de estas técnicas, lo que también ha permitido predecir su evolución futura. El análisis también se ha complementado con otra revisión de la literatura para analizar las ventajas e inconvenientes de las diferentes técnicas de rastreo de los turistas.

El análisis realizado ha identificado la existencia de 31 técnicas para rastrear los movimientos de los turistas. Estas técnicas se centran en dos elementos diferentes, ya que algunas analizan los movimientos realizados por los turistas para identificar qué lugares se visitan (técnicas con un enfoque basado en la demanda), mientras que otras estudian ciertos lugares en el destino para determinar las características de los turistas que los visitan (técnicas desde un enfoque del lado de la oferta). Además, como diversas técnicas comparten características comunes entre sí, se han agrupado en seis categorías diferentes. Estas categorías se han clasificado entre aquellas que se basan en un enfoque de demanda y las que se basan en un enfoque de oferta. Las técnicas identificadas se basan en encuestar a los turistas, analizar el contenido online publicado por los turistas, utilizar dispositivos de geolocalización para rastrear los movimientos de los turistas, analizar las campañas publicitarias para saber qué lugares son promocionados, estudiar los registros de ventas de atracciones turísticas y analizar el comportamiento de los visitantes en lugares específicos del destino.

La utilización de tablas de contingencia con los datos del Instituto Canario de Estadística ha permitido conocer cuáles son las características y motivaciones de los turistas que influyen en mayor medida en la visita de puntos de interés. Tras el análisis realizado, se ha podido concluir que la nacionalidad del turista y la ubicación del establecimiento alojativo son factores relevantes a la hora de poder estimar qué lugares se visitarán. Estos resultados son ratificados por los modelos de elección discreta que muestran que los turistas procedentes de países del norte de Europa son menos propensos a visitar los lugares analizados que otros turistas. Los turistas que compran paquetes con todo incluido y los turistas interesados en la vida nocturna del destino también son segmentos que muestran una baja propensión a visitar los puntos de interés estudiados de la isla. Por el contrario, los turistas más jóvenes y los turistas interesados en la cultura, los paisajes o la protección ambiental del destino tienen más probabilidades de visitar estos lugares. Además, permanecer más tiempo en el destino o viajar en pareja o con amigos aumenta las probabilidades de visitar las atracciones. Los resultados obtenidos también destacan que los turistas que visitan al menos uno de los lugares estudiados gastan más dinero dentro del destino que aquellos que no visitan ninguno de ellos. Del mismo modo, las atracciones que visitan hacen que los turistas sean más propensos a dar mejores evaluaciones del viaje que hicieron.

Mediante el uso de modelos de elección discreta, también fue posible establecer qué variables tenían un efecto mayor o menor en cambiar las probabilidades de visitar las atracciones. Este estudio también identificó variables que tuvieron un efecto similar en un conjunto de atracciones o incluso atracciones que tenían más probabilidades de ser visitadas por turistas con ciertas características. Al hacerlo, este estudio permite identificar segmentos en la demanda turística y agrupar la oferta de atracciones para el caso de la isla de Lanzarote. Este análisis también permite verificar la relación entre visitar una atracción y el aumento en la cantidad de dinero gastado durante el viaje o la evaluación dada por los turistas del viaje. Además, ayudó a identificar los productos en los que los turistas interesados en visitar una atracción tenían más probabilidades de gastar una mayor cantidad de dinero. El estudio de la relación entre visitar las principales atracciones turísticas de la isla y la evaluación dada al viaje por los turistas también puede ayudar a identificar los desafíos que enfrenta el destino.

El crecimiento continuo de la llegada de turistas durante los últimos años ha llevado a los destinos a desarrollar problemas de congestión y turismo excesivo (UNWTO, 2019). Sin embargo, estos problemas no suelen afectar a todo el destino, sino a atracciones y puntos de interés particulares. En este nuevo entorno, los destinos deben comprender y gestionar los flujos turísticos para tratar de evitar este tipo de problemas (Milano et al., 2018). A pesar de que los análisis tradicionales de la congestión turística se han basado en el estudio de las percepciones de los residentes, la capacidad de carga y la satisfacción del turista (Goodwin, 2017), estos enfoques no pueden recopilar información sobre las características y el comportamiento de los turistas. Sin embargo, el uso de técnicas de rastreo turístico permite a los investigadores y gerentes de destino comprender estas características (Renenger, 2001; Shoval e Isaacson, 2007; Shoval et al., 2011). A pesar de esto, la aplicación de técnicas de seguimiento todavía se encuentra en una etapa temprana (Alawwad et al., 2016), por lo que se necesitan más estudios para ayudar a los investigadores a saber cómo combinar estas técnicas para reunir mayores cantidades de datos capaces de ayudar a los destinos en su proceso de toma de decisiones (Kádár, 2014; Raun et al., 2016). Además, las técnicas de seguimiento también presentan algunos problemas legales, morales y éticos que los responsables políticos y los investigadores deben abordar para no violar el derecho de las personas a la privacidad (Renenger, 2001). Aun así, las técnicas de rastreo pueden permitir comprender qué lugares del destino se visitan con mayor frecuencia y qué segmentos turísticos tienen más probabilidades de visitar ciertos lugares (McKercher et al., 2012; Pettersson y Zillinger, 2011), qué medidas pueden implementar tanto gerentes de destino como investigadores para establecer políticas para distribuir los flujos turísticos (McVetty, 2002) o educar a los turistas (Seraphin et al., 2018).

El conocimiento de los puntos de interés visitados genera una serie de beneficios para la gestión turística de los destinos a escala local. A pesar de ello, llevar a cabo acciones encaminadas a identificarlos es una tarea compleja debido a la dificultad de obtener información en este ámbito. Las técnicas de obtención de información tradicionales, como las encuestas, no son herramientas capaces de recopilar datos sobre los puntos de interés que conforman un destino. Es por todo ello que la recopilación de la información ha de llevarse a cabo mediante técnicas diferentes a las convencionales.

Estas técnicas permitirían a los gestores de los destinos identificar cuáles son las áreas turísticas del destino y cómo llegan los visitantes a las mismas. Sabiendo esto, se pueden poner en marcha medidas que tengan la finalidad de incrementar o reducir la afluencia de visitantes a un área determinada. De igual modo, permiten conocer qué impacto supondría para el destino el aumento de la oferta alojativa en una zona determinada y cómo influiría en la visita de ciertos puntos de interés. Además, ayuda a estimar qué lugares son dependientes de otros, es decir, qué puntos de interés son visitados debido a su cercanía con respecto a otro punto de interés.

Para las empresas, este tipo de información puede servir para crear nuevos productos turísticos o mejorar la gestión de las actividades desarrolladas. Si un establecimiento alojativo conoce a qué lugares suelen ir sus clientes al alojarse en el mismo, puede mejorar sus servicios ofreciendo a su clientela aquellos servicios en los que suela tener un mayor interés. El conocimiento de los itinerarios realizados puede ser usado por las empresas para saber en qué lugares deben promocionarse para que el mensaje sea captado por un público concreto. Además, si las empresas oferentes de actividades turísticas tienen conocimiento de cómo los visitantes enlazan los servicios que cada una de ellas ofrece, pueden coordinarse con el fin de que su unión mejore la experiencia de sus clientes o reduzca costes. Para agencias de viajes y turoperadores suponen un modo de conocer lugares visitados por los turistas que fuesen desconocidos debido a la dificultad de identificarlos, de tal modo que podrían incluirlos en sus paquetes.

Otra de las implicaciones de la tesis realizada es que puede ayudar a aclarar la definición de diversos términos utilizados en turismo, de tal modo que los investigadores puedan usarlos adecuadamente en sus estudios. Esto podría conducir a una interpretación única de estos términos en futuros estudios, derivando en investigaciones que analicen los mismos elementos para poder comparar los resultados de diferentes estudios. Además, este estudio también puede orientar a futuros investigadores interesados en analizar la definición de otros conceptos utilizados en la investigación turística u otros campos. La investigación también ayuda a los investigadores a decidir cuál es la técnica de rastreo más apropiada para poder realizar el estudio en el que estén trabajando. De hecho, se trata del primer estudio recopilando información sobre técnicas de rastreo de turistas y estableciendo las ventajas y desventajas de las mismas.

Estudiar el comportamiento de los turistas es especialmente útil para mejorar la gestión de la actividad turística. Los resultados obtenidos muestran que los turistas que visitan atracciones en Lanzarote tienen más probabilidades de gastar más dinero en el destino, dar mejores críticas del viaje realizado y quedarse más tiempo en la isla. Los resultados también muestran qué características comparten los turistas que tienen más probabilidades de visitar las atracciones. Los gestores turísticos de Lanzarote podrían utilizar esta información para enfocar sus campañas de marketing y atraer turistas interesados en estas atracciones. Los turistas que visitan diferentes puntos de interés de la isla también parecen estar más dispuestos a comprar productos culturales y a ser más responsables con el medio ambiente, ya que es más probable que estén interesados en visitar el destino por su cultura, ambiente, paisajes y actividad rural. Además, el uso de datos de puntos de interés visitados puede ayudar a reducir las desigualdades económicas existentes en los destinos, ya que los gerentes de turismo también pueden usar esta información para identificar a los turistas que tienen más probabilidades de gastar más dinero en atracciones secundarias o pequeñas empresas. Sin embargo, los resultados también mostraron que los turistas que visitaron los lugares estudiados tienen menos probabilidades de volver a visitar el destino y comprar paquetes con todo incluido. En el caso de que los gerentes de destino estuvieran interesados en atraer turistas repetidores y leales al destino o a buscar un perfil de turista menos propenso a visitar ciertos espacios con el fin de fomentar su conservación, las estrategias de comercialización deberían centrarse en aquellos turistas interesados en el clima del destino, los turistas mayores o personas que viven en países del norte de Europa, ya que es menos probable que visiten los lugares analizados.

Esta investigación también tiene implicaciones para la futura investigación en turismo. Se muestra la relevancia de las estadísticas públicas para extraer variables que pueden explicar el comportamiento mostrado por los turistas dentro de los destinos. Además, los resultados obtenidos se comparan con los resultados de otros estudios. Esto no solo muestra qué características hacen que los turistas sean más propensos a visitar atracciones en Lanzarote, sino también a saber si estas características tienen un efecto similar en otros destinos. Este conocimiento se puede utilizar para mejorar la comprensión del comportamiento de los turistas e identificar los segmentos con mayor probabilidad de consumir ciertos productos o servicios. Por lo tanto, los resultados obtenidos en esta tesis doctoral pueden integrarse con las evidencias obtenidas en estudios similares anteriores. A pesar de estas similitudes, también se han encontrado algunas diferencias con estudios anteriores. Por ejemplo, en el caso de Lanzarote, la motivación para viajar o viajar con niños no afecta las probabilidades que tienen los turistas de visitar las atracciones estudiadas. Todo ello ayuda a explicar por qué los turistas se comportan de la manera que lo hacen y también ayuda a profundizar y obtener un conocimiento más profundo de las intenciones de los turistas al viajar, en función de sus características.

Esta investigación también tiene implicaciones para la prevención de los efectos negativos de la congestión y masificación turística. La metodología utilizada se puede emplear para identificar las características de aquellos turistas que son más propensos a visitar puntos de interés y los efectos que los mismos tienen en el gasto en el destino, en la evaluación del viaje realizado por los turistas, y sobre las características de los turistas que pueden ser alentados a cambiar su comportamiento con el fin de repartir los flujos turísticos para evitar la congestión en ciertos períodos y lugares. Estos datos se pueden usar para identificar las debilidades y fortalezas de un destino y, así, tomar decisiones relativas a la inversión en ciertas infraestructuras u ampliar la oferta de servicios en ciertas áreas. Este tipo de estudio también es útil para controlar la congestión dentro de aquellas atracciones en las que los turistas se concentren en espacios reducidos, ya que proporcionan información sobre qué turistas tienen más probabilidades de visitar los mismos. Para los administradores de destinos que pueden no estar interesados en atraer a una gran cantidad de turistas a lugares específicos para evitar la congestión, particularmente en entornos sensibles como parques nacionales, este análisis puede ayudar a identificar si el perfil actual del visitante recibido se ajusta a la política de desarrollo sostenible de destino. Por lo tanto, puede ser útil saber si un destino recibe turistas interesados en su preservación natural y cultural o si muestran una mayor tendencia a gastar grandes cantidades de dinero durante sus viajes. Esto puede permitir una optimización de los flujos turísticos para tratar de atraer turistas que no solo gasten más, sino que también tengan un menor impacto en el medio ambiente. Para empresas competidoras, el estudio puede ayudar a identificar las características de aquellos turistas con mayor probabilidad de visitar a sus competidores directos, de cara a establecer estrategias de especialización o diversificación.

En definitiva, durante esta investigación se ha definido el concepto de punto de interés, diferenciándolo de otros conceptos comúnmente empleados en la investigación turística. También se ha estudiado cómo pueden los investigadores conocer qué lugares son visitados por los turistas y se han analizado las variables que explican la visita a puntos de interés por parte de los turistas que visitan la isla Lanzarote, que ha sido empleada como caso de estudio. La tesis realizada es relevante para resolver problemas relacionados con la congestión de áreas turísticas y la mejora de la gestión de los destinos. Además puede ser usada como referente para estudios futuros que pretendan identificar los puntos turísticos de otros destinos y estudiar qué tipo de turistas son los que visitan estos lugares.

CONCLUSION

In this dissertation, the definitions of concepts such as a *tourism resource*, *point of interest* or *tourist itinerary* have been clarified and can be used by future researchers. The literature reviews carried out during this research shows the lack of agreement on the meaning of frequently used tourism concepts among researchers and some of the problems that different definitions have created. This low level of agreement has also been demonstrated through the bibliometric analyses performed. However, the results show the main definitions used by researchers for the terms studied. In this sense, *destination* generally refers to the cities visited by tourists, *attraction* tends to be any type of element (not necessarily locations) that motivate tourists to visit the destination, *accommodation* is used to refer to lodging establishments housing tourists and *point of interest* refers to the specific locations visited by tourists during their trips.

With the aim that this research can serve as a basis to be applied in the Canary Islands, a taxonomy of points of interest applicable to the case of the archipelago has been developed. In addition, the island of Lanzarote has been used as a case study for the identification and classification of points of interest in the taxonomy developed. Subsequently, the points of interest identified have been indicated on an image of the island, so it is possible to analyze in a visual and simple way where they are located. Furthermore, a review of the possible tracking techniques that can be used to identify the places visited by tourists was carried out. This study has attempted to summarize the characteristics of current tourism tracking techniques used by researchers in studies on tourist mobility and behavior. For this, a literature review was conducted to understand what techniques have been used and how they work. After this, a bibliometric analysis has highlighted the evolution of the use of these techniques, which has also helped to predict their future evolution. The analysis has also been complemented with another literature review to analyze the advantages and disadvantages of the tourist tracking techniques identified.

The analysis has identified the existence of 31 techniques to track tourists' movements. These techniques focus on two different elements, as some analyze the movements made by tourists to identify which places are visited (techniques from a demand-side approach), while others study certain places of the destination to determine the characteristics of the tourists who visit them (techniques from a supply-side approach). In addition, as various techniques share common characteristics, they have been grouped into six different categories. These categories have also been divided into those that are based on a demand-side approach and those that are based on a supply-side approach. The techniques identified involve surveying tourists, analyzing online contents published by tourists, using geolocation devices to track tourists' movements, analyzing advertisement campaigns to know which places are promoted, studying companies' tourist sales records and analyzing the behavior of visitors in specific places of the destination.

The use of contingency tables with data from the Canary Islands Statistics Institute has helped identify tourists' characteristics and motivations that have the most influence on their visit to points of interest. After the analysis, it was concluded that their nationality and the location of their accommodation are relevant to determine which places will be visited. These results are confirmed by discrete choice models that show that tourists from northern European countries are less likely to visit the places analyzed than other tourists. Tourists who buy all-inclusive packages and those interested in nightlife of the destination are also segments that show a lower propensity to visit the points of interest studied on the island. To the contrary, younger tourists and tourists interested in culture, landscapes or the environmental preservation of the destination are more likely to visit these places. In addition, staying longer at the destination and traveling in a couple or with friends increase the chances of visiting these places. The results obtained also highlight that tourists who visit at least one of the places studied spend more money within the destination than those who do not visit any of them. Similarly, visiting points of interest make tourists more likely to give better evaluations of the trip they made.

Through the use of discrete choice models, it has also been possible to establish which variables have a greater or lesser effect on changing the chances of visiting points of interest. This research has also identified variables that have a similar effect on a set of points of interest or even places that were more likely to be visited by tourists with certain characteristics. By doing so, it has enabled the identification of tourist segments and creation of groups of attractions on the island of Lanzarote. This analysis also verifies the relationship between visiting an attraction and the increase in the amount of money spent during the trip or the evaluation of the trip given by the tourists. Furthermore, it has helped identify the products in which tourists interested in visiting a certain place are more likely to spend a greater amount of money. The study of the relationship between visiting the main tourist attractions of the island and the evaluation given to the trip by tourists can also help identify certain challenges facing the destination.

This dissertation has also focused in analyzing the continuous growth of tourist arrivals in recent years that has led destinations to develop problems related to congestion and overtourism (UNWTO, 2019). However, these problems do not usually affect the entire destination but specific attractions and points of interest. In this new environment, destinations must understand and manage tourist flows to try to avoid these problems (Milano et al., 2018). Although traditional analyses of overtourism have been based on analyzing residents' perceptions, carrying capacity and tourist satisfaction (Goodwin, 2017), these approaches cannot collect information on the characteristics and behavior of tourists. However, the use of tourism tracking techniques allows researchers and destination managers to understand these characteristics

(Renenger, 2001; Shoval and Isaacson, 2007; Shoval et al., 2011). Despite this, the application of tracking is still at an early stage (Alawwad et al., 2016), so more studies are needed to help researchers know how to combine these techniques to gather larger amounts of data capable of helping destinations in their decision-making process (Kádár, 2014; Raun et al., 2016). In addition, tracking also present some legal, moral and ethical problems that policy makers and researchers must address in order not to violate people's right to privacy (Renenger, 2001). Even so, tracking techniques can help researchers understand which places in a destination are most frequently visited and which tourist segments are more likely to visit certain places (McKercher et al., 2012; Pettersson and Zillinger, 2011). This can be useful for destination managers and researchers to implement policies aimed at distributing tourist flows more evenly (McVetty, 2002) or to educate tourists (Seraphin et al., 2018).

Knowledge about visits to points of interest generates a series of benefits for the tourist management of destinations at the local level. Despite this, carrying out actions aimed at identifying them is a challenging task due to the difficulty of obtaining information about them. Traditional information gathering techniques, such as surveys, are not capable of collecting data on all the points of interest in a destination, which is why data collection must be carried out using techniques other than conventional ones.

These new techniques would allow destination managers to identify the tourist areas of the destination and how visitors reach them. Knowing this, measures can then be implemented that have the purpose of increasing or reducing the flow of visitors to a given area. Likewise, such information would allow us to know what impact an increase in the housing offer in an area would have on the destination and how it would influence visits to certain points of interest. In addition, it would show which places are dependent on others, that is, which points of interest are visited due to their proximity to another point of interest.

For companies, this type of information can be used to create new tourism products or improve the management of tourism activities. If an accommodation establishment knows where their clients usually go when they stay there, they can improve their services by offering their clients those services in which they have a greater interest. Knowledge of itineraries can also be used by companies to identify which places they should promote themselves so that the message is captured by a specific audience. In addition, if companies offering tourism activities have knowledge of how visitors link the services that each of them offers, they can partner with the goal of improving customer experience or reducing costs. For travel agencies and tour operators, these techniques can even reveal places visited by tourists that were unknown due to the difficulty of identifying them, so that they could be included in packages.

Another of the implications of this research is that it can help clarify the definition of various terms used in tourism, so that researchers can use them properly in their studies. This could lead to a unique interpretation of these terms in future studies, leading to research that analyzes the same elements in order to compare the results of different studies. This can also guide future researchers interested in analyzing the definition of other concepts used in tourism research or other fields. Moreover, the results from this dissertation may help researchers decide on the most appropriate tracking technique to perform the study they are working on. In fact, this is the first work that has gathered detailed information on tourist tracking techniques and established the advantages and disadvantages of them.

Studying the behavior of tourists is especially useful for improving the management of tourism activity. The results obtained show that tourists visiting points of interest on Lanzarote are more likely to spend more money in the destination, give better reviews of the trip made and stay longer on the island. The results also show which characteristics tourists who are most likely to visit these places share. Lanzarote tourism managers could use this information to focus their marketing campaigns and attract tourists interested in these attractions. Tourists visiting different points of interest on the island also seem to be more willing to buy cultural products and be more responsible for the environment, since they are more likely to be interested in visiting the destination for its culture, environment, landscapes and activities. In addition, the use of data from visited points of interest can help reduce economic inequalities in destinations, as tourism managers can use this information to identify tourists who are more likely to spend more money on secondary attractions or small businesses However, the results also showed that tourists who visited the places studied are less likely to revisit the destination and buy all-inclusive packages. In the event that destination managers were interested in attracting repeat tourists and those loyal to the destination or in reducing visits made to certain spaces to preserve them, marketing strategies should focus on those tourists interested in the destination's climate, older tourists or people living in northern European countries, since they are less likely to visit the places analyzed.

This research also has implications for future tourism studies. It shows the relevance of public statistics to extract variables that can explain the behavior shown by tourists within destinations. In addition, the results obtained can be compared with those of other studies. Such comparisons would not only show which characteristics make tourists more likely to visit attractions in Lanzarote, but also if these characteristics have similar effects in other destinations. This knowledge can be used to improve understanding of tourist behavior and identify segments most likely to consume certain products or services. Therefore, the results obtained in this study can be integrated with the evidence obtained in similar studies.

Despite similarities, some differences have also been found with previous studies. For example, in the case of Lanzarote, the motivation to travel or travelling with children does not affect the likelihood that tourists have of visiting the points of interest studied. All this helps explain why tourists behave in the way they do and helps to gain a deeper understanding of tourists' intentions when traveling, depending on their characteristics.

This research also has implications for the prevention of the negative effects of congestion and tourist overcrowding. The methodology employed can be used to identify the characteristics of tourists who are more likely to visit points of interest, and the effects they have on spending at the destination, as well as on the evaluation of the trip made by tourists. It can also identify certain characteristics of tourists who may then be encouraged to change their behavior in order to distribute tourist flows to avoid congestion in certain periods and places. These data can be used to identify the weaknesses and strengths of a destination and, thus, help make decisions regarding investment in infrastructures or expand the supply of services in certain areas. This type of study would also be useful to control congestion within those attractions where tourists are concentrated in small spaces, as it can provide information on which tourists are more likely to visit them. For destination managers who may not be interested in attracting large numbers of tourists to specific places to avoid congestion, particularly in sensitive environments such as national parks, this analysis can help identify whether the current profile of the received visitor conforms to the destination’s sustainable development policy. Therefore, it may be useful to know if a destination receives tourists interested in its natural and cultural heritage or if they show a greater tendency to spend large amounts of money during their trip. This can allow an optimization of tourist flows to try to attract tourists who not only spend more, but who also have a lower impact on the environment. For competing companies, the research in this dissertation can help identify the characteristics of those tourists most likely to visit their direct competitors in order to establish specialization or diversification strategies.

In short, during this research the concept of point of interest has been defined, differentiating it from other concepts commonly used in tourism research. It has also been studied how researchers can know which places are visited by tourists and the variables that explain the visit to points of interest by tourists visiting the island of Lanzarote have been analyzed, which has been used as a case study. The research carried out is relevant to solve problems related to the congestion of tourist areas and the improvement of the management of destinations. It can also be used as a reference for future studies that seek to identify the tourist spots in other destinations and study what type of tourists visit these places.

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Esta lista contiene únicamente las referencias utilizadas en introducción, resumen de la investigación y conclusiones. Las referencias empleadas en cada artículo científico o capítulo de libro aparecen reflejadas dentro de los mismos.

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ANEXO – ANNEX

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Los puntos de interés turístico: Relevancia analítica, propuesta metodológica y caso de estudio

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Resumen: Los puntos de interés turístico son aquellos lugares que cuentan con una serie de recursos que motivan la atracción de visitantes hacia los mismos. El conocimiento de los puntos de interés turístico de un destino ayuda a analizar las actividades que realizan los turistas en el mismo y los patrones de movilidad llevados a cabo para ello. Los objetivos del trabajo son elaborar una serie de conceptos relacionados con los puntos de interés y crear una clasificación de dichos puntos que sea aplicable a Canarias. Además, se identifican los puntos de interés de un caso de estudio, la isla de Lanzarote. Se han empleado datos del ISTAC para saber cómo influyen las características de los visitantes en la creación de itinerarios. Los resultados alcanzados tienen interés desde la perspectiva del desarrollo de ciertas zonas, la movilidad de los turistas y la creación de productos turísticos.

Palabras clave: puntos de interés turístico, movilidad, itinerario turístico, rastreo de turistas, Canarias

Tourist points of interest: Analytical relevance, methodological proposal and study case

Abstract: Tourist interest points are places that have a set of resources which attract visitors towards them. The knowledge of the tourist attractions of a destination helps analyzing the activities carried out by the tourists and the mobility patterns carried out for it. The objectives of the paper are developing a set of concepts and definitions related to the points of interest and creating a classification of them applicable to the Canary Islands. In addition, tourist interest points of Lanzarote have been identified and classified. ISTAC data have been used to know how the characteristics of visitors influence in creating itineraries. The results obtained are interesting from the perspective of the development of certain areas, the mobility of tourists and the creation of tourist products.

Keywords: tourist points of interest, mobility, tourist itinerary, tracking tourists, Canary Islands

1. Introducción

Los puntos de interés turístico son aquellos lugares de un destino turístico a los que se dirigen los visitantes para poder realizar ciertas actividades o disfrutar de unos recursos determinados. Ello genera una serie de desplazamientos por parte de los visitantes dentro del destino. El conocimiento de estos desplazamientos posibilita el análisis de los movimientos que realizan los turistas dentro del destino por parte de los gestores del mismo. A pesar de ello, no se trata de un ámbito de estudio recurrente en la investigación científica del turismo, por lo que no se han elaborado estudios variados en la materia. Además, las investigaciones realizadas se han centrado en el análisis de los recursos que motivan la visita y no en los lugares a los que se dirigen los visitantes.

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Point of Interest

Wall (1997) defined the concept as those small spaces in which a large number of visitors are concentrated. The definition is interesting as a first approximation to the definition of the concept, but it has some conceptual limitations. There are places where numerous visitors converge but not because they generate interest – for example, airports or accommodation establishments. For others, however, the plane trip and the chosen hotel might be key in their choice of the trip. According to the definition created by Wall (1997), the concept of point of interest is similar to that of tourist attraction. However, previous definitions of the concept of tourist attraction serve to establish differences between the two concepts (e.g., Benckendorff, 2016). A point of interest is a specific place within a tourism destination where a significant number of tourists stop. The reason for stopping must be their interest in enjoying one or more elements that can be found within that place. This means that places where visits to them are obligatory or necessary are not points of interest. A point of interest must be all of the following:

- Locatable. It must be a geographical space and, therefore, it must be possible to locate it through coordinates on a map.
- Geographically limitable. It is possible to establish the space it occupies and define the limits it covers.
- Accessible. The space can be enjoyed by tourists and residents, so they must be capable of accessing it.
- Visited by tourists. Allowing the access to the place is not enough. There must be a significant number of people who access the place. In addition, it is essential that a significant part of the visit is made for tourism purposes. If the place is visited by residents of the area and not by visitors, it will not be a point of interest (at least not for tourism and hospitality research). On the other hand, if it is visited only by visitors and not by locals, it can be considered as such.
- Attractive. The place must generate interest in visitors. In other words, the influx of visitors to the place must be because visitors are attracted to the place itself or because in that place they can enjoy activity. This implies that sites visited for necessity, obligation or en route to the main place of interest are not points of interest.

The element that attracts visitors can sometimes be the place or point of interest itself. For example, visiting a church may be of interest to some visitors, which makes the church a point of interest. The church itself is the element that generates interest. In other cases, the element that attracts tourists can be enjoyed from a distance. For example, in the case of viewpoints, people converge in these places to enjoy the views or other elements that can be seen from a distance. However, the point of interest is the viewpoint, as it is the place where tourists concentrate.

There are also intangible elements that attract tourists. In the case of festivals, the interest is not intrinsic to the place itself (point of interest), but in some of the elements that can be enjoyed in these places (the festival). In this case, the festival is the element attracting tourists. However, the points of interest would be those places within the destination where tourists are concentrated to enjoy the festival. In the case of wider areas attracting tourists, such as natural parks, points of interest are those places where tourists concentrate – for example, viewpoints, information centres or trails. As noted above, places such as airports or hotels concentrate a lot of tourists, but they are not usually points of interest. However, points of interest are a 'personalized' element because they differ from one person to another. For some tourists, their stay at the hotel could play an important role in their trip, making the hotel a key point of interest to visit. The same applies to restaurants for tourists interested in gastronomy, even if restaurants are not so important for other tourists.

Various researchers have established that tourist attractions are those key elements attracting tourists to the destination. They do not have to necessarily correspond to geographical spaces, since elements such as climate, events or gastronomy can also be tourist attractions (e.g., Benckendorff, 2016; Lohmann and Netto, 2016). Points of interest are always geographical spaces, so intangible elements cannot be points of interest. Wall (1997) stated that points of interest are those places where visitors stop because they feel interested in them. This includes stops made

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How can researchers track tourists? A bibliometric content analysis of tourist tracking techniques

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Abstract
In this study, an identification of tourist tracking techniques, their evolution, advantages and disadvantages is made to help researchers decide which techniques to use. First, a literature review is carried out to explain how current tracking techniques work and what information can be obtained through their use. A total of 31 different tracking techniques were found. Afterwards, a bibliometric analysis was conducted to gather data regarding studies published on tourist tracking, the evolution of these studies and the most used techniques. To do so, all empirical contributions using tourist tracking techniques found in Scopus were considered for the analysis. Results point that geolocation-based techniques currently are the most frequently used ones to track tourists. Techniques such as the direct observation of tourists were the first techniques used in tourism research but are currently in disuse. Finally, based on a further literature review, the main advantages and disadvantages of the techniques found are highlighted. The study has implications for researchers interested in tracking tourists to study their behaviour and mobility patterns. It can be also used by destination managers willing to gather data of tourists to better understand tourism activity and industry.

Keywords: tracking techniques, tourist, mobility, bibliometric analysis, behaviour

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Dear Prof. Hugo Padrón-Ávila,

This letter is to confirm that your submission" **Application of Tracking Tools in Tourism and Hospitality Management**"has been accepted for publication in the forthcoming book"*The Emerald Handbook of ICT in Tourism and Hospitality*".This title is currently scheduled to be published via Emerald in November 2020.
I would like to thank you for your contribution to the volume, on behalf of Emerald Publishing and the editorial team of The Emerald Handbook of ICT in Tourism and Hospitality.

Best regards,

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RESEARCH ARTICLE

WILEY

Why do tourists differ in their likelihood to visit attractions? The case of Lanzarote

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Abstract
In this paper, more than 35,000 survey responses given by tourists from 2010 and 2016 are used to explain visits to tourism attractions in Lanzarote. In the survey, tourists are asked about a wide set of variables. Among these, there is a question regarding the attractions visited during their trip. With these data, it has been possible to carry out a discrete choice model analysis to establish the variables that explain why certain tourists are more prone to visit attractions than others. This study is relevant to understand tourists' mobility patterns and behavior. It also has implications for marketing managers and tourism product developers.

KEYWORDS
attraction, behavior, Lanzarote, mobility

1 | INTRODUCTION

Knowing how and where tourists travel has been of interest to researchers for many years (Shaw, Agarwal, & Bull, 2000). Despite this and the numerous implications that could result from this type of analysis (Asero, Gozzo, & Tomaselli, 2016; Kádár, 2014), few studies have analyzed how tourists behave in tourism destinations (McKercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011). According to McKercher and Lau (2008), this is because the collection and analysis of data related to the movements made by tourists are complicated tasks. However, this problem is currently being addressed in greater depth thanks to the possibility of accessing new information sources (Raun, Ahas, & Tiru, 2016). This has meant that an increasing amount of research is being published that analyzes the patterns of tourists' displacements in tourism destinations (Smallwood, Beckley, Moore, & Kobryn, 2011). In order to achieve a better understanding of tourists' behavior and mobility, a larger number of papers and studies in this field are required. This would enable clearer conclusions to be drawn from the results obtained by different studies to determine which characteristics of tourists affect their choice of certain destinations, attractions, or products.

In this study, discrete choice models are used to analyze how a set of variables influence visits to 11 attractions. The results show to what extent each variable increases or decreases the probabilities of visiting the attractions studied. The results of this study are supported by a larger set of variables than other studies. Indeed, it uses more than 35,000 survey responses and analyzes the effect of 83 independent variables for visiting attractions. Moreover, the results do not just identify which significant variables explain why tourists visit the attractions, they are also able to indicate the precise effect that each variable has on the probabilities of visiting the attractions studied, an aspect which has not been addressed until now. Therefore, this kind of study can be used to gain a better understanding of tourists' behavior, mobility, and expenditure patterns. In addition, this study is not just helping to fill the gap in the research regarding tourists' choices when traveling, it also has practical applications. In fact, several public institutions are currently interested in the methodology applied and results obtained to improve the data collection on tourists and the management of tourism activity in the Canary Islands.

The study of the typology of attractions and the tourism segments most likely to visit them is relevant to know how tourists move and consume within destinations. Analyzing their movements and consumption behavior is very relevant for public and private institutions. It can help in the implementation of marketing campaigns, the development of sustainable tourism destinations, and the creation of new tourism products and activities, among others (Lau & McKercher, 2006; Lew & McKercher, 2004; McKercher & Lau, 2008; McKercher & Lew, 2003; Scuderi & Dalle Nogare, 2018).

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Article

Preventing Overtourism by Identifying the Determinants of Tourists' Choice of Attractions

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Abstract: Popular tourism destinations based on specific attractions along with coastal and island destinations have been considered potential candidates to suffer from overtourism. In this context, in-depth knowledge of the determinants of tourists' choices of attractions can be used to improve policies against crowding. This paper analyzes why tourists decide to visit certain attractions instead of others in the context of an island destination with sustainability concerns. To do so, discrete choice models are used to determine if a set of 96 variables can explain why 11 attractions are visited on the island of Lanzarote. The results show that 86 variables are significant to explain visits to at least one of the attractions. The analysis also identifies both similarities and differences on the effects these variables have on the probability of visiting each of the 11 attractions. These results are useful to cluster attractions depending on the profile of those tourists most likely to visit them and to cluster variables regarding their effect on visiting attractions. Furthermore, the results provide useful information for public and private managers involved in evenly reallocating tourist flows in time and space to avoid the negative impacts of overtourism.

Keywords: attractions; overtourism; tourists' characteristics; destination management; discrete choice models

1. Introduction

Current media and academic debates have highlighted increasing concerns over the negative impact of the concentration of tourism flows in certain areas, particularly in cities, in a phenomenon that has been labeled as overtourism. Overtourism appears to be closely linked with the popularity of particular attractions and points of interest that have become 'hotspots' suffering from congestion [1]. However, effective attraction management can improve tourists' satisfaction and destination sustainability, avoiding the negative impacts of the growth of tourist flows. The effects of overtourism can also be often suffered on small tourism islands, where land availability is constrained [1].

The island of Lanzarote has an area of 846 km^2 and is the easternmost island of the Canary Islands, an autonomous region in Spain. The mild climate of these islands allows tourist arrivals throughout the whole year without a marked seasonality pattern. Lanzarote is the third main tourism island of the Canary Islands, which is the region with the highest figures of overnight stays in tourism accommodation in Europe [2]. Using data published by the Canary Islands Institute of Statistics for 2018, Lanzarote has a population of just 149,000 inhabitants and yet received 2.9 million tourists from outside the archipelago with an average length of stay of 7.8 days [3]. Lanzarote was declared a UNESCO Biosphere Reserve in 1993. Two years after this, the island hosted the World Conference on Sustainable Tourism [4], as part of its commitment to responsible tourism. However, the island has experienced tensions since the early economic growth of the 1960s between tourism development and the island's natural and cultural preservation [5]. In fact, the debate on the limits of growth and

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Tourist Tracking Techniques as a Tool to Understand and Manage Tourism Flows

Hugo Padrón-Ávila and Raúl Hernández-Martín

Introduction: Linking Overtourism and Tracking

Tourism activity has a strong link with the territory due to the characteristics of the activity itself (INRouTe 2017). Thus, when analysing the tourism industry at local scale, very different realities can be observed within a single destination. Even in destinations facing overtourism issues, only few areas of the destination suffer from congestion issues, while most parts of the territory are mainly used by local population. Moreover, tourists usually visit attractions and points of interest at very specific timings and this causes these spaces to be congested only during particular times, while they usually are less frequented most part of the day. However, the high presence of tourists in certain spaces and times (overtourism) can cause degradation of natural and cultural spaces and the rejection of local population to visit these places (Goodwin 2017). In

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