Universitat
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WORLD HERITAGE BRAND PERSONALITY COMPARATIVE ANALYSIS

Mohamed Abdalla Elsayed Hassan

Universitat de Girona

DOCTORAL THESIS

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ANALYSIS**

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DOCTORAL PROGRAMME

Supervised by:

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Doctoral Thesis submitted to obtain the degree of Doctoral by the University of Girona

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de Girona

Dr [Konstantina Zerva and Dr Silvia Aulet Serrallonga], of [University of Girona],

WE DECLARE

That the thesis titles [World Heritage Brand Personality Comparative Analysis], presented by [Mohamed Abdalla Elsayed Hassan] to obtain a doctoral degree, has been completed under our supervision.

For all intents and purposes, I hereby sign this document

Signature

Girona, [26/10/2022]

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LIST OF PUBLICATIONS HELD FOR THE THESIS DOCTORAL

This doctoral thesis, entitled 'World Heritage Knowledge Comparative Analysis' is a compendium of publications including three articles following the same research line. These publications have been previously accepted or sent to the academic journals and their quality indexes are indicated as follows;

Article one: Published

> Title: Brand Personality Traits of World Heritage Sites: Text Mining Approach

> Authors: Mohamed Abdalla Elsayed Hassan, Konstantina Zerva and Silvia Aulet

> Journal: *Sustainability*

> Indexes: high Visibility: indexed within Scopus, SCIE and SSCI (Web of Science), GEOBASE, GeoRef, Inspec, AGRIS, RePEc, CAPlus / SciFinder, and many other databases.

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> Authors: Mohamed Abdalla Elsayed Hassan, Konstantina Zerva and Silvia Aulet

> Journal: Tourism Culture & Communication

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Authors: Mohamed Abdalla Elsayed Hassan, Konstantina Zerva and Silvia Aulet

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OTHER PUBLICATION RELATED TO THE DOCTORAL THESIS

In addition to the research publications, the research carried out provided a book chapter as follow;

1- Mohamed Abdalla Elsayed Hassan, Konstantina Zerva and Silvia Aulet (2019). World Heritage Brand Personality. *In ATLAS Annual Conference 2019 Tourism Transformations* (08- 11). Girona, Spain. ISBN: 978-94-93064-003

2- Hassan, Mohamed Abdalla Elsayed; Zerva, Konstantina; Aulet Serrallonga, Sílvia. (2021). Four Thesaurus Brand Personality Dictionaries [dades de recerca]. Girona: Universitat. [Consulta: 03 Juliol 2022]. Disponible a: http://hdl.handle.net/10256/21254

3- An article entitled "The Brand Personality Positioning of World Heritage Sites: Text Mining Approach" is under reviewing in the European Journal of Tourism Research. [submitted on: 25 July 2022]

Abstract:

World Heritage Sites (WHSs) are perceived as significant tourism brands. Analyzing the intangible meaning of cultural attraction types of WHSs from visitors' lenses is still lacking. This study used the advances in text-mining and BP lexical approaches, specifically World Heritage (WH) personality categories to identify the WHSs' cultural attraction types, intangible meanings - BP items- and measure the WH personality categories distributions for each type of WH cultural attraction -as organized on TripAdvisor- and WHSs in Asia and the Pacific, and Europe. Accordingly, the Analysis of 9,971 visitor-generated reviews helped identify fifteen cultural attraction types attributed to WHSs in

seven countries. Furthermore, different relationships were explored between the WH personality categories, the seven countries and the WH attraction types. Therefore, the latter were clustered into four groups and significant differences between WH category distributions between Asia and the Pacific and Europe are explored. For example, "Churches & Cathedrals, "Architectural Buildings**.**Teaters", and "Castles" are attached to France and Spain and ascribed by Sophistication and Excitement categories; "Ancient Ruins", "Architectural Buildings", "Caverns & Caves" and "Points of Interest & Landmarks" are grouped near China and attributed to Sincerity.

RESEARCH CONFERENCES

1- IGU Conference "Heritage Geographies: Politics, Uses and Governance of the Past, Lecce (Italy) University of Salento - May /2020. Presentation of communication, Paper titled "World Heritage Brand Personality Case of Spain"   Authors: Mohamed Abdalla Elsayed Hassan: Dr. Silvia Aulet Serrallonga: Dr. Konstantina Zerva.

2- Atlas Annual Conference - Tourism Transformation, September 17 – 20, Girona, Spain. By University of Girona and Atlas.   Presentation of communication, Paper titled "World Heritage Brand Personality". Authors: Mohamed Abdalla Elsayed Hassan: Dr. Silvia Aulet Serrallonga: Dr. Konstantina Zerva.

3- SISTUR III International Conference on Tourism Dynamics and Trends joint with X SISTUR Scientific Meeting, Benevento (Italy), November 14-16 2018 : Presentation of communication paper titled "Branding World Heritage Sites Case of Egypt"

RESEARCH SYMPOSIUM, PROGRAMS AND PHD WORKSHOPS

1- PhD Seminar Publishing Research in Tourism - Atlas Annual Conference - Tourism Transformation. By University of Girona and Atlas, 17 September 2019.

2- Connecting Natural and Cultural Heritage International Seminar: By University de Girona, Campus Patrimony cultural i Natural, 4 October 2018

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LIST OF ABBREVIATIONS

BP	Brand Personality
CA	Correspondence Analysis
DMOs	Destination Marketing Organizations
DP	Destination Personality
ICCROM	Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
IUCN	International Union for Conservation of Nature
NLP	Natural Language Processing
OUVs	Outstanding Universal Values
UNESCO	United Nations Educational, Scientific and Cultural Organization
WH	World Heritage
WHC	World Heritage Center
WHS	World Heritage Site
WHSs	World Heritage Sites

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Resum

Actualment, els llocs del Patrimoni Mundial (d'ara endavant, LPM) es perceben com una marca turística destacada, un fet que motivaria molts països a augmentar els seus LPM registrats (Su & Lin, 2014) perquè les economies turístiques puguin beneficiar-se de l'ús de Patrimoni Mundial (Buckley, Shekari, Mohammadi, Azizi i Ziaee, 2020). No obstant això, malgrat que hi ha un cos creixent de literatura que reconeix la importància del Patrimoni Mundial, els estudis publicats anteriorment sobre l'efecte d'aquest patrimoni en el màrqueting turístic no són consistents (Y. Yang, Xue i Jones, 2019). Hi ha un gran debat sobre si el Patrimoni Mundial té efectes turístics més profunds als LPM registrats, com l'augment de visitants nacionals o internacionals, ingressos turístics i desenvolupament socioeconòmic a les àrees de Patrimoni Mundial (Yang & Lin, 2014) o altres efectes menys significatius (Mariani & Guizzardi, 2020; Y. Yang et al., 2019). Previ al Covid-19, l'augment de la demanda turística i la competència entre destinacions turístiques pressionava les Organitzacions de Màrqueting de Destinació (OMD) a explorar constantment els avantatges competitius, diferents de les eines promocionals tradicionals que no s'enfoquen només en els aspectes tangibles – i en occasions, fàcilment substituïbles – de les destinacions (Lee & Kim, 2018; Shankar, 2018). En conseqüència, els experts en màrqueting van començar a prestar atenció a les qualitats intangibles del Patrimoni Mundial per a la promoció turística (Mariani & Guizzardi, 2020).

Si bé el principal objectiu del Patrimoni Mundial és protegir els LPM amb valors universals superiors (VUS), els administradors de destinacions turístiques estan a favor de noves eines per obtenir avantatges competitius com els significats intangibles del Patrimoni Mundial (V. Kumar & Nayak, 2018 (Rojas-Méndez & Hine, 2016; Skinner, 2018). Tanmateix, la manera com els visitants i els experts perceben els significats intangibles no s'ha examinat detingudament. Cal assenyalar que la generalització de moltes investigacions sobre Patrimoni Mundial al sector de turisme és problemàtica (Buckley, 2018; Y. Yang et al., 2019). En examinar els enfocaments lèxics de la Marca de Personalitat (MP), aquesta tesi doctoral va buscar tancar les bretxes als estudis de Patrimoni Mundial. Si bé aquest últim és prominent, els seus enfocaments encara s'han de desenvolupar més (Davies, Rojas-Méndez, Whelan, Mete i Loo, 2018). Per tant, aquesta tesi doctoral va ampliar i actualitzar la MP al camp dels LPM com un microelement de les destinacions turístiques (Kirilenko, Stepchenkova i Hernandez, 2019). Concretament, es van fer tres estudis en aquesta tesi doctoral per tal d'identificar els

significats intangibles dels SPM a través de l'extensió i el desenvolupament d'enfocaments lèxics de la MP. Aquesta tesi doctoral presentarà primer la introducció, seguida dels objectius de la dissertació i un resum dels tres estudis. Tot seguit, es presentaran els tres estudis i les conclusions generals i discussions.

Resumen

Actualmente, los sitios del Patrimonio Mundial (en adelante, SPM) se perciben como una marca turística destacada, un hecho que alienta a muchos países a aumentar sus SPM registrados (Su & Lin, 2014) para que las economías turísticas puedan beneficiarse del uso de Patrimonio Mundial (Buckley, Sh ekari, Mohammadi, Azizi y Ziaee, 2020). Sin embargo, a pesar de que existe un creciente cuerpo de literatura que reconoce la importancia del Patrimonio Mundial, los estudios publicados anteriormente sobre el efecto de este patrimonio en el marketing turístico no son consistentes (Y. Yang, Xue y Jones, 2019). Existe un gran debate sobre si el Patrimonio Mundial tiene efectos turísticos más profundos en los SPM registrados, como el aumento de visitantes nacionales o internacionales, ingresos turísticos y desarrollo socioeconómico en las áreas de Patrimonio Mundial (Yang & Lin, 2014) u otros efectos menos significativos (Mariani & Guizzardi, 2020; Y. Yang et al., 2019). Previo al Covid-19, el aumento de la demanda turística y la competencia entre destinos turísticos presionaba a las Organizaciones de Marketing de Destino (OMD) a explorar constantemente las ventajas competitivas, distintas a las herramientas promocionales tradicionales que no se enfocan solo en los aspectos tangibles – y en ocasione facilmente sustituibles – de los destinos (Lee & Kim, 2018; Shankar, 2018). En consecuencia, los expertos en marketing comenzaron a prestar atención a las cualidades intangibles del Patrimonio Mundial para la promoción turística (Mariani & Guizzardi, 2020).

Si bien el principal objetivo del Patrimonio Mundial es proteger los SPM con valores universales sobresalientes (VUS), los administradores de destinos turísticos están a favor de nuevas herramientas para obtener ventajas competitivas como los significados intangibles del Patrimonio Mundial (V. Kumar & Nayak, 2018; Rojas-Méndez & Hine, 2016; Skinner, 2018). Sin embargo, la forma en que los visitantes y los expertos perciben los significados intangibles no se ha examinado detenidamente. Cabe señalar que la generalización de muchas investigaciones sobre Patrimonio Mundial en el sector de turismo es problemática (Buckley, 2018; Y. Yang et al., 2019). Al examinar los enfoques léxicos de la Marca de Personalidad (MP), esta tesis doctoral buscó cerrar las brechas en los estudios de Patrimonio Mundial. Si bien este último es prominente, sus enfoques aún deben desarrollarse más (Davies, Rojas-Méndez, Whelan, Mete y Loo, 2018). Por lo tanto, esta tesis doctoral amplió y actualizó la MP al campo de los SPM como un microelemento de los destinos turísticos (Kirilenko, Stepchenkova y Hernandez, 2019). Por lo tanto, se realizaron tres estudios en esta tesis doctoral con el fin de identificar los significados intangibles de los SPM a través de la extensión y el

desarrollo de enfoques léxicos de la MP. Esta tesis doctoral presentará primero la introducción, seguida de los objetivos de la disertación y un resumen de los tres estudios. A continuación, se presentarán los tres estudios y las conclusiones generales y discusiones.

Abstract

Currently, World Heritage Sites (hereafter, WHSs) are perceived as a prominent tourism brand, a fact that encourages many countries to increase their listed WHSs (Su & Lin, 2014) so that they may benefit from the use of WH for tourism economies (Buckley, Sh ekari, Mohammadi, Azizi, and Ziaee, 2020). However, even though there is a growing body of literature that recognises the WH significance, previously published studies on the effect of World Heritage (WH) on tourism marketing are not consistent (Y. Yang, Xue, & Jones, 2019). There is much debate as to whether WH has more profound tourism effects on listed WHSs, such as increasing domestic or international visitors, tourism receipts, and socio-economic development in the WH areas (Yang & Lin, 2014) or less significant effects (Mariani & Guizzardi, 2020; Y. Yang et al., 2019). Prior to Covid-19, the increase in tourism demand and the competition between tourism destinations put pressure on Destination Marketing Organizations (DMOs) to constantly explore competitive advantages, different from the traditional promotional tools that do not focus only on the tangible aspects of destinations which on some occasions have become easily substituted (Lee & Kim, 2018; Shankar, 2018). Consequently, marketing experts started paying attention to the intangible qualities of WH for tourism promotion (Mariani & Guizzardi, 2020).

Even though WH's main objective is to protect WHSs with outstanding universal values (OUVs), tourism destination managers are in favor of new tools for competitive advantages such as WH intangible meanings (V. Kumar & Nayak, 2018; Rojas-Méndez & Hine, 2016; Skinner, 2018). However, the way intangible meanings are perceived both by visitors and experts has not been closely examined. To note, the generalisability of much-published research on WH in tourism is problematic (Buckley, 2018; Y. Yang et al., 2019). By examining BP lexical approaches, this doctoral thesis sought to bridge gaps in WH studies. While BP is prominent, its approaches still need to be further developed (Davies, Rojas-Méndez, Whelan, Mete, & Loo, 2018). This doctoral thesis therefore extended and updated the BP to the field of WHSs as a micro-element of tourism destinations (Kirilenko, Stepchenkova, & Hernandez, 2019). Therefore, three studies were conducted in this doctoral thesis in order to identify the WHSs intangible meanings through extending and developing BP lexical approaches. This doctoral research will first present the introduction, followed by the Aims of the dissertation and a summary of the three studies. Following on, the three studies will be presented and the general conclusions and discussions.

CHAPTER 1

1. Introduction

The introduction will begin with a discussion of WH studies in tourism, followed by advances in BP studies in the framework of this doctoral thesis theoretical knowledge as follows;

1.1 World Heritage Perceived Attributions in Tourism Marketing

In WH's fourth decade's celebration, United Nations Educational, Scientific and Cultural Organization (UNESCO) constructed the WH to sustain the irreversible WHSs of OUVs. Since 1972, the convention "Concerning the Protection of the World Cultural and Natural Heritage" was ratified, WH is perceived as a unique international legal instrument among 167 country members (UNESCO, 2021). Up to 2022, the listed WHSs reached 1153 on the WH list has seen a rapid increase that shows their prominence. WHSs are selected based on the site significance, which is defined as "cultural and/or natural significance which is as exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity" (UNESCO, 2019: 20). The WH site must compile one or more of the ten criteria of significance designed by UNESCO advisory bodies, these criteria are to ensure WHSs outstanding universal values (OUVs) (UNESCO, 2019). The implementation of the 1972 convention is framed in the operational guidelines that are constructed and frequently adopted by UNESCO advisory bodies International Union for Conservation of Nature (IUCN) for natural WHSs, the International Council on Monuments and Sites (ICOMOS), and the International Centre for the Study of the Preservation and Restoration of Cultural Property ICCROM (UNESCO, 2019).

To continue, the sites must also possess the necessary Integrity "*a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes',* authenticity '*The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful. Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning as accumulated over time, are the requisite bases for assessing all aspects of authenticity.*', and management systems '*ensure*

that their OUV, including the conditions of integrity and/or authenticity at the time of inscription, are sustained or enhanced over time' (UNESCO, 2019.p 26/28) to assure its protection in order to be recognized as having Outstanding Universal Value. a more detailed account of the key aspects of the WH convention, its concepts of significance, the designation process and advisory bodies have recently been discussed in the study of Khalaf (2020). Overall, the WH selection process ensures that WHSs have OUVs, which adds value to the listed sites in form of uniqueness providing intangible and abstract meanings to WHSs. Thus, marketers have acknowledged the prominence of the soft meaning of WHSs for marketing advantages (Buckley, Shekari, Mohammadi, Azizi, & Ziaee, 2020; Ryan & Silvanto, 2009, 2011).

The WH's main objectives as established by its convention have been advanced from mainly protecting and communicating the irreversible heritage to including aspects of socio-economic (Buckley et al., 2020) and political development (Adie & Amore, 2020). By way of illustration, Conradin, Engesser, and Wiesmann (2015) show that the designation related to conservation objectives is decreased, they referred to the fact that sites in dangerous on the WH list on the UNESCO webpage (https://whc.unesco.org/en/danger/: accessed 04/04/2022) are reduced. This has been seen in the case of the lack of integrity and authenticity as UNESCO requirements (Khalaf, 2020), which have limited several sites to be included. Recent cases reported by Caust and Vecco, (2016) show that the increases in visitors to WHSs have become faster than the increase in the protective aspects. There seems to be some evidence to indicate that WH designation objectives became wider than the primary objectives stated in the 1972 conventions.

Following on, firstly, the political objectives can be described in terms of the designation desired by most countries to get a high profile on the UNESCO WH list in terms of WHSs numbers (Roh, Bak, & Min, 2015) to demonstrate countries' global pride and gain a unique international image (Adie, 2016; Adie & Amore, 2020; Bertacchini & Saccone, 2012; Bertacchini, Saccone, & Santagata, 2011; Frey, Bruno & Pamini, 2009; Frey, Bruno, Pamini, & Steiner, 2013; Frey, Bruno & Steiner, 2011; Meskell, Liuzza, Bertacchini, & Saccone, 2015). Secondly, the social and economic objectives become a reason for the designation of WHSs (Buckley et al., 2020), for aspects related to tourism sustainable development that has been widely recognized in a large body of WH literature (Buckley, 2018; Y. Yang, Xue, & Jones, 2019). Hence, Han, Cai, Wei, Zhang, and Han, (2019) defined that WH has social and cultural, political, and environmental effects on the development of hosted site community. Worth

mentioning Buckley (2018), Yang et al. (2019), and recently J. Zhang, Xiong, Liu, and He, (2022) provide a structured literature reviews for WH in relation to its wide aspects of influences.

Turning now to the WH visitor perception as a tourism marketing brand, which is the focus of this doctoral thesis, Since the 1990s, in pioneering WH studies in tourism marketing, Drost, (1996) portrayed the WH lists as a celebrated feature of 1972 conventions. Highlighting the significant relationship between tourism development and WH, Drost (1996) stressed the necessity of conformity of tourism activities within sustainable development goals. Later on, Frey, Bruno and Steiner (2011) provided a detailed account of WH adverse impacts that result from the relationship between tourism marketing activities in the WHSs, a relation which has been described as complicated by Buckley (2018). For example, the effects of carrying capacity (Jimura, 2011; J. Li, Whitlow, Bitsura-Meszaros, Leung, & Barbieri, 2016), the substituted effect of WH on the neighbour national heritage sites caused by visitor intensity, fund distribution unbalance and compare to non-listed sites development (Conradin & Hammer, 2016; Conradin & Wiesmann, 2014; Patuelli, Mussoni, & Candela, 2013). In contrast to these cases, Drost (1996) considered tourism as a positive tool that can achieve WH convention objectives such as promoting, transmitting values of heritage conservation, and enhancing education and regulations among countries, which affords commitment to mobilizing national and international resources by generating sustainable revenues. This attracted Buckley, (2002a) to propose an economic question asking whether WH can generate income from visitor expenditures and numbers to the natural WHSs. In response, Rodwell (2002) drew attention on that in the UK WHSs visitors' numbers increased and perceived WH is considered a generator of social and economic values. Furthermore, Ryan and Silvanto (2009, 2011, 2014) considered WH as a de-facto tourism brand consisting of potential values for visitors as a guarantee of superior quality and enhancer of social and economic values.

Further on, a large body of literature has investigated the significant impacts between WH and tourism development (Andrian & Stanojlovic, 2011; Arezki, Cherif, & Piotrowski, 2009; Buckley, 2004; Cárdenas-García & Pulido-Fernández, 2015; Hall & Piggin, 2002; Jimura, 2011; Marcotte & Bourdeau, 2006, 2012; C.-H. Yang, Lin, & Han, 2010). For example, Wang et al., (2015) acknowledged that WH social-economic development is strongly proven as a higher possible impact in developing countries, and argued that this result reflects China's appeal to submit many new nominations. This can be demonstrated in the WHSs in China, which is currently among the top countries in terms of WH numbers (Y. Gao and Su,

2019). Parga Dans and Alonso González (2019) explored that the Cave of Altamira WH site is one of the determinants to visit the destination and generate economic value. Lin, Chen, Lin, and Su (2020) explored that WH designation for both natural and cultural sites has significant effects on enhancing domestic and international tourism receipts. This also agreed with Wuepper (2017) exploring that visitors are willing to pay extra fees to sustain WHSs. Furthermore, Buckley (2020), Panzera, de Graaff, and de Groot (2021), and Wuepper (2017) explored that WH has prominent tourism economic influences on WHSs in rural areas. Recently, Hosseini, Stefaniec, and Hosseini (2021) and Mariani and Guizzardi, (2020) explored that there is a significant relationship between the density of WHSs in countries and tourism flow.

On the other side, other literature has emerged offering contradictory findings on the tourism enhancing effects of WH (Adie, 2017; Cellini, 2011; Cuccia, Guccio, & Rizzo, 2013, 2016; Frey, Bruno et al., 2013; Gao et al., 2019; Huang, Tsaur, & Yang, 2012; Kayahan & Vanblarcom, 2012; King & Halpenny, 2014; Mariani & Guizzardi, 2020; VanBlarcom & Kayahan, 2011). For example, Y. Gao and Su (2019) explored that WH does not promote tourism revenue and arrivals, supporting that the WHSs effects are exogenous to other determinants of local tourism outcomes. They explored that WH has negative effects on domestic visitors and argued that the WH as a brand has more impact on the protection and preservation of the Chinese WHSs rather than being a marketing tool attracting visitors. Moreover recently, Mariani and Guizzardi (2020) and Nian et al., (2019) showed that WH has a negative influence on the overall evolution of the destination due to the limitation added to the sites by WH for protection. Hence, even though academics highlight that the growth in tourist numbers may be faster than the advances in protective measures provided for preserving the WHSs, calls for enhancing the protection and sustainability of WHSs in conformity with the tourism visitor increase (Caust & Vecco, 2016; Parga Dans & Alonso González, 2018).

The relationship between WH and tourism development has been perceived as sophisticated (Buckley, 2018), but when tourism managers at WHSs have balanced the relationship between attracting visitors and protecting the WHSs, and with improved experiences in managing WHSs, this relationship offers significant tourism enhancing outcomes in WHSs (Mariani & Guizzardi, 2020). Mariani and Guizzardi (2020) found that promoting a group of WHSs together significantly increases a destination's visitor evaluation because managing and promoting a large number of WHSs adds to the experience of the destination manager by balancing the sustainability of WHSs and attracting visitors to WHSs. This agrees with both Poria,

Reichel, and Cohen, 2011, Su and Lin (2014) and Ivanunik, Krul, & Bryk (2021) who demonstrated that the more WHSs in a destination, the more visitors will be attracted. Thus, a key aspect of WH influences is the appropriate management of the brand, as illustrated by Mariani and Guizzardi, (2020) when explaining that a positive evolution of the overall destination with many WHSs is derived from the accumulative experience of the DMOs in managing WHSs.

Even though WH designation can be significant for visitor flow into the destinations, it is not sufficient only for this purpose, as several other variables such as management and promotion capacity should be incorporated (Ramón-Cardona, Peña-Miranda, and Sánchez-Fernández, 2021). Worth mentioning, a growing body of literature recognises that the WH has a significant impact on attracting attention and increasing visitors around the year of WH listing. This year is known as the champion year (Huang et al., 2012; Jones, Yang, & Yamamoto, 2017; Pavlić, Portolan, & Puh, 2017; Svels, 2015; Wuepper, 2017; Wuepper & Patry, 2017; Y. Yang et al., 2019). The visibility of WHSs increased extensively during this year by media when highlighting the nomination process (Cuccia et al., 2016; Huang et al., 2012). Strengthening the lights on the WH in the process of nomination attracts the attention of private and public organizations and visitors (C. H. Yang & Lin, 2014). Consequently, WH can be acknowledged as an opportunity to attract more visitors and increase the appeal of the public and private organizations to invest in the protection and development of the listed WHSs (Y. Yang et al., 2019). Therefore, a large body of WH literature, even though, among them studies that contradict that WH has a prominent influence on tourism, investigated that WH may have short-term tourism enhancing effects related to the media highlights in the year of nomination.

Consequently, the continuity of WH's influence on tourism development may demand the appropriate management, which has been highlighted also by S. Kim (2019). When he explored that WH has excelled in its role as a tourism brand. Thus, the benefits of the WH would rely on how different countries will use the WH within their marketing capacity (Adie, 2017; Buckley, 2018; Wuepper & Patry, 2017; Y. Yang et al., 2019). This can explain, the WH literature's findings which have already drawn attention to the paradox in the recent WH literature over the contradictory findings of WH in marketing (Buckley et al., 2020; Gao et al., 2019; Mariani & Guizzardi, 2020; Y. Yang et al., 2019). For example, the influence of WH on attracting visitors is perceived with conceptual discrepancies (Cellini, 2011; Cerveny et al., 2021; De Simone, Canale, & Di Maio, 2018; Gao et al., 2019; Huang et al., 2012; Wang et al.,

2015; C.-H. Yang et al., 2010; C. H. Yang & Lin, 2014). Y.Yang et al., (2010) described the WH as a Panacea or Catholicon attracting visitor numbers. Ribaudo and Figini (2017) illustrated that WH attracting visitors is puzzling. Moreover, Adie, Hall, and Prayag (2017) investigated that WH is not a determinant of tourism demand but rather has a Placebo effect in the politicians' and stakeholders' minds. These differences in the literature pushed Y. Yang et al., (2019) to conduct a meta-analysis of WH literature to investigate its tourism enhancing effects.

Previous research by Y. Yang et al., (2019) has established that one major theoretical issue that has dominated some WH studies is that they have addressed WH in general terms. An explanation for this is now well established from a variety of studies, supporting that WH tourism economic effect may vary due to the following features: whether the WHSs are older or newly nominated. The differences in specific study's data, for example, whether the study is for measuring WH influences on attracting domestic or international visitors. Another feature is the size of WHSs, for example, one unit like Aachen Cathedrals in Germany or a few units like Works of Antonio Gaudi in Spain that includes nine units, or hundreds of units like the Historic Cairo in Egypt that consists of 533 units. Other features are the type of WH attractions such as culture or nature WHSs, the accessibility to them, being located in a rural or accessible area, their fame such as iconic like the Pyramids in Egypt or La Sagrada Familia in Spain, or less known sites. Furthermore, the type of methods applied to study WH also is considered. Wuepper and Patry (2017) explored that WHSs near the natural environment, less known, with less accessible status and far away may contribute to the WH brand because they used the WH to attract visitors rather than the well-known and iconic WHSs. Furthermore, it is found that WH adds tourism enhancing effects to rural areas (Y.Yang et al., 2019); Buckley et al., (2020) called for more studies on this subject to be implemented.

One of the most prominent issues highlighted in early studies on the conceptual differences between WH tourism influences (Hambrey Consulting, 2007; Rebanks Consulting Ltd, 2009; Rebanks, n.d.; VanBlarcom & Kayahan, 2011), are the objectives of the countries from the listing. Marcotte and Bourdeau (2006) classified countries' objectives for including sites on the WH list into chronological periods, whereby they acknowledged that the recent WHSs inscriptions from two to ten years' nominations are oriented toward utilizing WH for promotion. In contrast, the first nominations were mainly for the purposes of protection, such as the case of Abu Simbel (1979) WHS in Egypt. It is well established that among the attempts that constituted the 1972 WH convention was the protection of Abu Simbel (UNESCO, 2020).

In the illustration that the views that the objectives of nomination influence the WH tourism development, this study referred to some WH listed mainly for the protection of the WH in the dangerous list. These sites may be preferred to reduce the carrying capacity of visitors or establish barriers to visitations (Parga Dans & Alonso González, 2018). Given that there are several important areas that influence WH's success as a brand in tourism marketing, there is a consensus among scholars that WH as a potential marketing tool is limited to the previously highlighted features (Buckley, 2018; Buckley et al., 2020; Wuepper, 2017; Y. Yang et al., 2019).

Furthermore, a large body of literature agrees that the influences of WH in addition to the previously mentioned aspects relate to the social, and economic aspects that surround WHS (Buckley et al., 2020). This can be illustrated from the following studies: Cellini and Cuccia, (2016) have related the WH efficiency to several factors such as the cultural and natural endowment, human resources, and management in a relationship that is described as Creativity Atmosphere. Moreover, Ryan and Silvanto (2014) emphasized that WHSs input is a tool for improving the WH areas. In addition, Yang and Lin (2014) underlined the promotion exploitation necessity and indicated that countries, which benefit from nominations, are those with effective promotional strategies and aggressively promote their sites. In the same line, Wuepper and Patry (2017) related WH influences to the heterogeneity of benefits from WH brand on each country's marketing capacity and willingness to benefit from WH, while they explored that the WH located in rural areas add value to WH communications as they used WH for promotion. This can explain that the previously published studies on the effect of tourism enhancing effects are not consistent, as it is not easy to generalize the WH efficiency in marketing from limited cases as in most of the previous studies (Y. Yang et al., 2019). However, even though much of the research up to now has been focused on the tourism enhancing effects of WHSs (Buckley, 2018; Y. Yang et al., 2019), there has been no detailed investigation of the visitor awareness of WHSs (Adie & Hall, 2016; King & Halpenny, 2014).

Even though the communication of WH knowledge is considered one of the aims of the WH convention, previous studies of WH have not dealt with visitor awareness in much deeper ways. Adie (2017) described the relationship between UNESCO WH and the counties of listed WHSs as a franchising model. Wherein she acknowledged the advertising of WHSs as absent in the relationship between the countries and UNESCO WH because UNESCO adds the responsibility of communicating and advertising of WHSs only to the countries. To date, there has been controversial agreement on visitor awareness of WH (Adie & Hall, 2016; Hall &

Piggin, 2001, 2002; Hardiman & Burgin, 2013; King & Halpenny, 2014; J. Liu, Wang, Wang, Wang, & Deng, 2018; Marcotte & Bourdeau, 2006; Moscardo, Green, & Greenwood, 2001; Reinius & Fredman, 2007; Remoaldo, Ribeiro, Vareiro, & Santos, 2014; Yan & Morrison, 2008). In explaining this, the WH visitors' awareness, as Adie (2017) described, depends on each host country. Given much more detailed accounts that the previously mentioned aspects that may affect the WHSs tourism enhancing effects, these factors also have a significant influence on communicating and promoting WH and increasing visitor knowledge. Thus, the communications of WH rely upon each country's marketing capacity and willingness on an individual basis (Wuepper & Patry, 2017; C. H. Yang & Lin, 2014). Although the knowledge of WH as a tourism brand is crucial to the success of WH in terms of influencing visitors' preferences for WHSs within specific tourism destinations, previous studies haven't measured the way visitors perceive the WH brand, and more research is necessary.

On WH knowledge for marketing practitioners, research to date has not yet focused on investigating the tourism marketing organization WH knowledge. In the early conducted studies in these areas, Hall and Piggin (2002) made a survey about the business knowledge of the WH and explored a gap in the business organizations' awareness of WH and its attributes in terms of attracting visitors and protecting the listed sites. They concluded that most tourism business organizations do not extend the use of the WH in their promotion. Thus, in accordance with several other studies (Adie, 2017; Drost, 1996) Hall and Piggin (2002) urge UNESCO to communicate WH to tourism business organizations. In contrast, Marcotte and Bourdeau (2006, 2012) investigated to what extent the DMOs use the WH brand as a tool for online promotion, exploring that they used the label as a tool for online promotion more than focusing on the main attributes of WH in fostering sustainable tourism at the site as they are more sales-oriented approach. In explaining this, Buckley (2018) described the relationship between tourism marketing organizations and heritage organizations as sophisticated. For the visitors' awareness of WH, academic conclusions also as contradict each other (Adie & Hall, 2016; King & Halpenny, 2014).

In previous studies on visitor WH awareness, the mechanisms that underpin WH visitor awareness focuses on the extrinsic aspects of WH. This can be illustrated by the way previous studies measures WH visitors' knowledge, where visitor degree of knowledge is measured by the Likert Scale, rather than measuring WH in-depth meaning. In marketing studies, however,

enhancing the awareness of brands is the first and most prominent step in their development (Keller, 2013). The way WH awareness is measured can be recognized as superficial recognition, as it relies on recalling the WH name that is based on exposure strategies, and it has short effects on visitor preferences (Keller, 2013). Baral, Hazen, and Thapa, (2017) and King and Halpenny (2014) explored that most of the visitors do not recall WH meanings, even though they recognize the brand. In addition, Alvarez-Sousa and Prados (2020) explored that the articulation of WH or UNESCO WH keywords is not easily recognized in the visitors' reviews on TripAdvisor. Therefore, more focus on exploring the visitors' awareness of the OUVs or the intangible associations of WH may add to enhancing the WH tourism effects. Understanding the visitors' knowledge of WH increases the potential visitor preference for the WH brand (Keller, 2013). In such an approach, previously published studies when investigating the visitors' perceptions of WHSs are restricted to scales that are designed without taking into consideration the visitors' knowledge (Baral et al., 2017; H. Kim, Oh, Lee, & Lee, 2018; Nian et al., 2019).

Worth mentioning, that studies which are dedicated to measuring the perception of WH are limited to using a scale customized only by scientists. The significance of WHSs is scientifically assessed in terms of Authenticity (genuine and credible of WHSs), Integrated (holiness of WHSs), and Protection and Management concepts criteria as defined by UNESCO (2019). Even though Cleere (1996) acknowledged the term universal in WH 1972 convention as vague, the author described the OUVs concept as noble. Some studies paid attention to measure the WH perceived qualities from visitor lenses (Baral et al., 2017; H. Kim et al., 2018; Nian et al., 2019; Poria, Reichel, & Cohen, 2013; Wang et al., 2015) but they operationalized terms of OUVs as defined by scientists as those taken from Chhabra (2010). Furthermore, most of the previously referred studies have focused more on the visitors' perceived authenticity, even though the OUVs of WH include several other aspects. On the other hand, only Poria et al. (2013) provide an in-depth analysis of how practitioners and visitors perceived WH. However, it is a significant initiative to study WH from visitors' and experts' sides extracting the visitors' knowledge about WHSs but it is limited to 57 respondents. Therefore, part of the aim of this doctoral thesis is to explore the WH perceived quality besides providing a mechanism by which understanding WH perception in a generalizable way can be defined.

Understanding the visitor perception of the cultural attraction of WHSs may also contribute to enhancing potential visitor preference for tourism destinations. In this context,

the attractions have been categorized by UNWTO (2007) as one of the six elements of destination attractiveness. Several studies have identified attractions as elements that shape a destination's attractiveness and influence visitor choices (Hanafiah, Hemdi, & Ahmad, 2016; Kirilenko et al., 2019; Lacher, Oh, Jodice, & Norman, 2013; B. Liu, Huang, & Fu, 2017; Mandić & Garbin Praničević, 2019). Moreover, attractions have been perceived as important elements of destination development. As described by Liu et al., (2017), attractions have more connections in the destination network systems and bundling several attractions not only promotes them but also provides an integrated image of a destination. They also called for enhancing the cooperation among managers of attractions within the destination, as this may enhance the overall sustainable development of entire destinations. This is agreed with Mariani and Guizzardi, (2020) who explored that promoting a group of WHSs together adds significant evolution to the overall destination. Mandić and Garbin Praničević (2019) also highlighted that the role of the individual attractions as an element of the destinations is imperative for future tourism development planning. Lacher et al. (2013) emphasized that further research investigating the different perceptions of heritage and cultural sites as destination attractions add to the knowledge of understanding how they influence destination preferences. Furthermore, Mandić and Garbin Praničević (2019) recommended that providing high-quality content that describes these attractions is a necessity in enhancing the visitor preference for destinations.

The advance of social media platforms in tourism has been widely acknowledged (Gretzel, 2008; Gretzel & Gret, 2006; Xiang & Gretzel, 2010). In this regard, the engagement of visitors on social media proved that visitor post-experience may influence potential visitor decisions (Ciruela-lorenzo, Gabriel, & Crist, 2021; Corpas & Castillo, 2019). For example, visitor reviews as post-experience on TripAdvisor have become reliable sources of tourism marketing research (Fang, Ye, Kucukusta, & Law, 2016; Mariani, Borghi, & Gretzel, 2019). Recently, given the prominence of user-generated content on tourism through social media in the co-production of cultural tourism 3.0, Greg, (2022) stated a shift from supply-driven development to consumer-led development to co-creation. Further on, Stankov and Gretzel (2020) discussed the state of 4.0 where technology-mediated tourist experiences. Academics thus pay attention to the analysis of visitor reviews by providing several approaches.

Among the available reviews analysis approaches, there is sentimental analysis, which uses text mining and machine learning to determine whether users have positive, negative, or neutral feelings toward particular travel products (Kirilenko, Stepchenkova, Kim, & Li, 2018;

Mehraliyev, Cheng, Chan, & Kirilenko, 2022; Ordenes, Ludwig, De Ruyter, Grewal, & Wetzels, 2017). Moreover, De Ascaniis and Gretzel (2013) and De Ascaniis and Cantoni (2017) offered linguistic features and argumentative approaches in response to the importance of visitor review analysis on tourist destinations and attractions (2017). According to these authors, the argumentative process involves Standpoint (travel advice, position, for example, visitor recommendation to visit), an argument, and a counterargument. The linguistic features measure frequencies of pronouns, adjectives, and nouns (the reason justifying the position). In contrast to sentimental analysis, these argumentative structures focused on measuring the support of a personal opinions presented in their online reviews toward attractions or places (De Ascaniis & Cantoni, 2017). Furthermore, BP lexical approach has recently been considered fundamental in defining the intangible meanings of brands (Pitt, Opoku, Hultman, Abratt, & Spyropoulou, 2007; Rojas-Méndez & Hine, 2016). Therefore, this study will extend the concept of BP to measure WHSs' visitors' and experts' perceptions and add a new approach in terms of visitor reviews analysis to WHSs. In particular, Fang et al., (2016) discussed that even though visitor online reviews are significant in influencing potential visitor decisions (Yoo & Gretzel, 2009), analysis of reviews related to tourism attractions still requires further attention.

Thus, this doctoral thesis aims to study the cultural attractions of WHSs from visitors' perceptions and identify new methods underpinned by the concept of BP to assist marketers to well customize their content when describing WHSs (Mandić & Garbin Praničević, 2019). Simply, the concept of BP has been perceived as a prominent tool in tourism marketing (Aaker, 1997; Davies et al., 2018; McManus, Carvalho, & Trifts, 2021); in destination personality (DP) studies, academics explored that BP is a significant tool in influencing several visitors variables towards destinations (Eisend & Stokburger-Sauer, 2013a; Ekinci & Hosany, 2006; Murphy, Benckendorff, & Moscardo, 2007; Usakli & Baloglu, 2011; Vinyals-Mirabent & Koch, 2020; C. Zhang, Huang, Cao, & Chen, 2019). Furthermore, academics have recognized that understanding the intangible meaning of attractions aids in identifying and positioning the overall DP (Ekinci & Hosany, 2006; Saeed, Burki, Ali, Dahlstrom, & Zameer, 2021), but still requires further investigation (Saeed et al., 2021). Therefore, this doctoral thesis will expand and develop the concept of Brand Personality (hereafter, BP) to measure WHSs' visitor and expert perceived qualities as micro-elements of destination for the first time.

2.1 Brand Personality Overview

Brand Personality Concept Origin

The BP concept was underpinned by the metaphor of anthropomorphism (Gilmore, 1919) and human personality measures in psychology (Mccrae & John, 1992). In marketing, since customers have liked placing personal attributes on objects, brand animism has gained significant attention from academics; advertisers thus utilized the anthropomorphism concept when imbuing personal meaning to brands to enable consumers to express themselves via enduring and distinct constructed personal traits (Plummer Joseph, 1985). This anthropomorphism aimed to communicate the symbolic attributes of brands, which are central determinants to enhance consumer and brand relationships (Aaker & Fournier, 1995). The personification of objects such as brands is motivated by the logic that the higher the match between customers' personality and brand characteristics (symbolic meanings), the more the preference for brands, this explains, the appearance of the self-congruity concept in the marketing literature (Sirgy, 1986).

The self-congruity theory has received academic attention; Helgeson and Supphellen (2018) in a comparison between this concept and BP explained that the latter concept is crucial to determine the characteristic associated with brands, and self-congruity helps in the process of matching, as the consumer more likely appeals to brands that fit into their lifestyle (Murphy, Benckendorff, & Moscardo, 2007). The BP term appeared when academics studied personality meaning attributed to retail (Martineau, 1958), and products (Al E . Birdwell, 1968; Dolich, 1969). These primary studies were qualitative and utilized semantic differentiation scales, which lacked robust methodological validations and reliability (Aaker & Fournier, 1995; Ekinci & Hosany, 2006). In addition, Aaker (1997) described that the self-congruity concept is limited when designing the promotion strategy, as the brand characteristic is designed without determining a specific dimension of BP for communication. Thus, Aaker (1997) provided the first scale based on quantitative methods adopted from psychology measures (Churchill, 2006; Nunnally & Bernstein, 1978) and underpinned by the psycholexical theory (Mccrae & John, 1992) to formulate brand human-like personality dimensions.

Allport and Odbert (1936) introduced the psycholexical hypothesis, which is considered later the basis of the development of the Big Five personality dimensions as common factors for describing human personality (Mccrae & John, 1992). Allport and Odbert (1936) hypothesized that unique human personality characteristics are encoded in the natural

language in single terms (Goldberg, 1993). These authors perceived the adjective as a centre to the human social relationship, as they become part of the vocabularies that are used daily and sustained over generations through socializing (Caprara, Barbaranelli, & Guido, 2001). The Psycholexical approach has thus evolved upon the fact that language develops adjectives that are different between persons' attributes (Caprara et al., 2001). A large body of academics developed this lexicon hypothesis (Mccrae & John, 1992). Most psychology studies, their theoretical part originated from this hypothesis, where the most referenced factors are the Big Five model: Extroversion, Agreeableness, Conscientiousness, Openness, and Neuroticism. Surprisingly these five factors are replicated and generalized in several studies in psychology research (Mccrae & John, 1992). This agreement is based on the outcomes of the consecutive frameworks to construct factors of manageable sets of traits through self-report ratings or peer ratings (R. B. Cattell, 1946; Raymond B. Cattell, 1947; Eysenck, 1998; Eysenck & Strelau, 1987; L. Goldberg, 1992; Gray, 1981; Mccrae & Costa, 1985, 1987; Tupes & Christal, 1961; Tupes & Raymond E. Christa, 1958). Furthermore, studies in BP were inspired by the Big Five approach and tried to construct a valid and generalizable BP scale to describe brands (Aaker, 1997; Davies, Rojas-Méndez, Whelan, Mete, & Loo, 2018; Geuens, Weijters, & De Wulf, 2009; Rojas-Méndez, Kannan, & Ruci, 2019). Thus, the construction of a BP scale in marketing later tries to imitate the development of the Big Five in the sense of coming up with generalizable common factors that can describe any brand.

In the construction of BP, this concept is derived from the way various authors have attempted to add animism to brands in different ways; Aaker (1997) conceptualized brands as a person with specific characteristics, for Padgett and Allen (1997) a brand is a character, whose personality derived from the consumer attributes about the brands' behaviour; they defined the BP as a set of meanings recalling the innermost brand characteristic formalized by the consumer through brand behaviour observation in a narrative way. Fournier (1998) and Jillian Sweeney and Brandon (2006) portrayed a brand as active partner in a mutual relationship allowing consumers to detect trait inferences from brand behaviours and actions by considering brands as an active partners. In this relationship, consumers interpret brand actions and behaviours as traits given inferences for BP. Thus, Jillian Sweeney and Brandon (2006: 645) considered BP as "a set of human personality traits that correspond to the interpersonal domain of human personality are relevant to describing the brand as a relationship partner in a relationship between consumer and brands".

Focusing on Aaker's (1997) metaphor, she acknowledged similarities between persons and brands in having distinct characteristics. She conceptualized brands as a persona with specific characteristic dimensions (namely; Sincerity, Excitement, Competence, Sophistication, and Ruggedness). The author acknowledged that the symbolic meanings of brands are to a certain extent similar to the characteristic attributed to the personality dimensions established by psychologists the Big Five. On the other hand, the differences in the way of attributing or inferring traits to brands are different from those of the Big Five (Caprara et al., 2001); in human personality, characteristics are inferred based on individual behaviour, physical appearance, attitudes and beliefs, and demographic features (Azoulay & Kapferer, 2003). In the BP, the trait inferences are determined by brand attributes, benefits, price, and user imagery through direct and indirect contact (Aaker, 1997). The differences in the ways of determining personality traits thus limited the underpinning of the Big Five to BP (Caprara et al., 2001; Vinyals-Mirabent & Koch, 2020). Nonetheless, Aaker's (1997) scale has been perceived with limitations.

Brand Personality measure and implications

Among the BP concept implication is to differentiate between brands within or between product categories (Aaker, 1997), affect consumer preferences (Eisend & Stokburger-Sauer, 2013a) and increase customer variables towards brands (Saeed, Burki, Ali, Dahlstrom, & Zameer, 2021). BP is constructed to foster consumer preference based on soft meanings (symbolic attributes) by evoking consumer emotion, and thus it has been perceived as a prominent tool for establishing advertising communications, and key element in brand equity (Aaker, 1997). Even though a large body of literature agreed on the importance of BP consequences in marketing (Davies et al., 2018; Eisend & Stokburger-Sauer, 2013a; McManus, Carvalho, & Trifts, 2021; Saeed et al., 2021), the existing BP scales are considered with limitations (Austin, Siguaw, & Mattila, 2003), which discussed in relation to the Big Five (Bosnjak, Bochmann, & Hufschmidt, 2007; Caprara et al., 2001; Milas & Mlačić, 2007). For example, the replication of Aaker's five dimensions when extending to different cultural contexts cannot fully emerge (Anees Ahmad & Thyagaraj, 2014; Gondim Mariutti & de Moura Engracia Giraldi, 2020; Rojas-Méndez et al., 2019). In general, Austin et al. (2003) described Aaker's model as having boundary limitations in terms of generalizability because this scale is constructed from cross-brand analysis, and explored that Aaker's is limited when measuring

individual brands or categories. Furthermore, Aaker's (1997) definition of BP as human characteristics attributed to brands adds conceptual overlaps with brand identity (Azoulay & Kapferer, 2003), and destination image (Ekinci & Hosany, 2006; Hosany, Ekinci, & Uysal, 2006; Murphy, Benckendorff, et al., 2007; Murphy, Moscardo, & Benckendorff, 2007).

Specifically, Azoulay and Kapferer (2003) considered Aaker's definition as loose because it included the term "characteristics" which allowed aggregating social and demographic characteristics that are not considered in the Big Five model and it includes characteristics from the endorser of brands, which is related to brand identity. Firstly, in terms of BP social and demographic characteristics (Grohmann, 2009), Davies et al. (2018) when they analyzed dimensions from previous research starting from 1997 until 2018 based on the Big Five, stated that there are not any dimensions influenced by social or gender characteristics. This means that aggregating personality characteristics in the BP scale do not affect the overall identified dimensions. Brand identity is thought of as two sides of one coin in a destination branding process. The brand identity of a brand is perceived from the inside-out marketing-related activities that rely on visuals rather than senses, and the brand image is the outside-in construct that is customized for the target market's perception of a destination that depends on senses and emotional feelings of visitors (Skinner, 2018). Thus, brand identity is related more to the sender rather than the receiver of the communicated promotional materials.

To continue, hence, Azoulay and Kapferer (2003) debated that Aaker's definition includes those characteristics of brand identity. Austin et al. (2003) highlighted that Aaker's (1997) definition is wide, as the author did not specify how the characteristics are formulated in the sense they are related to the brand endorsers or customers' perceptions. However, they noted that it was clear from Aaker's (1997) methods that the characteristics of BP are measured in relation to the customer perceptions. Here, the BP concept overlaps with brand identity, and Azoulay and Kapferer (2003:153) defined BP as " a set of human personality traits that are both applicable to and relevant for the brand", later, the term "trait" is used in several studies (Chen & Phou, 2013; Geuens et al., 2009; Rojas-Méndez et al., 2019; Ye, 2012). Up to now, Aaker´s definition has been widely used (Davies et al., 2018; V. Kumar & Nayak, 2018; Saeed et al., 2021).

One of the observations in Aaker's five dimensions is that they do not have any negative traits (Aaker, 1997). In contrast, when Rojas-Méndez, Papadopoulos, and Murphy (2013: 1029) measured country BP, they included negative items in the scale and updated the BP

definition to ¨the set of positive and/or negative human personality traits comprising specific dimensions that internal and external audiences associate to a country name, based on previous experiences and perceptions as a consequence of the actions, intentions, and opinions of that country's government, companies and institutions, and society at large¨. By including negative items in the BP, the scale depends on the type of brand and the aim for its construction. When Aaker (1997) extended the Big Five to brands, the author explicitly described that the aim of defining the BP dimensions for brands or product categories is to achieve better positioning for these brands in marketing promotion; thus, the author avoided any negative traits. For example, this doctoral thesis did not include negative traits as it aimed to investigate the BP dimensions of WHSs, adding to the fact that this doctoral thesis aim agreed with Aaker in the sense that the main aim of defining WH BP dimensions is to enhance the visitor ties to WH. Besides this doctoral study found that visitors' reviews related to WHSs rarely included negative items. In explaining this, WHSs are ranked by visitors with five or four stars on TripAdvisor.

Thus, the definitions of BP applied to various domains are underpinned by Aaker's (1997) definition or Azoulay and Kapferer's (2003), and some definitions took into consideration negative traits. For example; Ekinci and Hosany (2006), employed Aaker's definition and define DP as a set of human characteristics associated to a tourism destination perceived by tourists. Pitt et al. (2007) when investigating the official tourism website personalities of countries, ascribed BP as the set of human characteristics associated to a particular country. Opoku (2009) considered it as a set of human personality characteristics associated with a particular destination and how these characteristics are communicated through a country Web site. In generally, Usakli and Baloglu (2011) acknowledged a DP as BP in the tourism context, Ye, (2012) and Chen and Phou (2013) include the term personality "traits" instead of "characteristics", which are associated with a destination, and used it to describe a destination. Li and Kaplanidou (2013) defined BP as a set of human characteristics associated with a destination.

Following on, Kumar and Nayak (2018) considered BP as an extension of human personality traits to products and brands, and they widen DP definition to include positive and negative traits ¨ a set of positive and negative human traits, which are associated by the tourists to a destination based on their prior experiences and perceptions with that particular destination¨. For countries, D'Astous and Boujbel (2007) were the first to describe a country's personality as ''the mental representation of a country on dimensions that typically capture an individual's personality'' (p. 233). For cities, Kaplan et al. (2010) adopted Aaker's (1997)

definition to city brand personality as the set of human characteristics associated with the city brand. Generally, places, destinations, cities, and countries' personalities are described as a set of human characteristics associated with specific subjects of study and their constituent boundaries (Glińska & Gorbaniuk, 2016).

While Aaker (1997) underpinned the BP construct by the Big Five, this was found to be unsuitable (Caprara et al., 2001; Davies et al., 2018). Firstly Davies et al. (2018) debated that the construction of the Big Five has little theoretical foundation. Later, academics stated that the antecedents of BP are completely different from the antecedents which establish the trait generations for the Big Five (Caprara et al., 2001; Saeed et al., 2021); for example, the Big five antecedents are observed directly from the persons' behaviours, attitude and beliefs (Azoulay & Kapferer, 2003), as McCrae and Costa, (1997: 509) defined the human traits *as "enduring styles of thinking, feeling, and acting"*. Hence, due to BP definitions, the brand trait inference is established by the consumer directly from user imagery, employees, indirect contact, brand's product endorser; and directly by product-related attributes such as category associations, pricing, and distribution channels (Azoulay & Kapferer, 2003). The BP traits are consequently inferred from any direct or indirect contact with brands (Aaker, 1997; Carvalho, Demo, & Scussel, 2021; Schmitt et al., 2007). This process of the BP construct should be considered a metaphorical one since it is different from the case of the Big Five (Caprara et al., 2001; Vinyals-Mirabent & Koch, 2020). This explains why the five dimensions Aaker did not replicate the Big five, where Aaker explained that only three of her dimensions agreed with the Big Five; Sincerity agrees with Warmth, Excitement with Agreeableness, and Competence with Consciousness. Later, Caprara et al. (2001) did not support the Big Five for brands saying that brands' embedded cultural meanings and adjectives have contextual meaning and their meaning can be perceived differently due to their cultural context.

Furthermore, as brands embedded cultural meaning, the BP trait generations are varied due to the differences in consumer values and beliefs (Aaker, Benet-Martinez Veronica, & Jordi, 2001; Aguirre-Rodriguez, 2014; Anees Ahmad & Thyagaraj, 2014); Aaker et al. (2001) and Aguirre-Rodriguez (2014) described that brands are cultural carriers, where the values and beliefs of specific cultural contexts influence the antecedents of BP dimensions. Roy and Banerjee (2021) investigated how the differences in culture affect the perceived personality dimensions. Ahmad and Thyagaraj (2014) thus emphasized that managers should take into consideration the role culture plays in establishing consumer perceptions towards brands, as this assists in constructing well-defined BP dimensions that capture the beliefs and values of a

specific culture. Many studies have been thus conducted in favor of exploring the viability of Aaker's dimensions in different cultural contexts (Anees Ahmad & Thyagaraj, 2014). in the case of Spain and Japan, Aaker et al. (2001) explored that the dimensions of "Passion" in Spain and "Peacefulness" in Japan emerged rather than Ruggedness, as in the USA. In France, Ferrandi, Valette-Florence, and Sandrine (2000) replicated four dimensions from Aaker's model as follows; Sincerity (Sincerity), dynamism (Excitement), Feminity (sophistication), and Robustness (Ruggedness). In German contexts, Bosnjak, Bochmann, and Hufschmidt (2007) explored four dimensions of Drive, Conscientiousness, Emotion and Superficiality applicable to the German context, while the latter dimension includes negative traits. Rojas-Méndez et al. (2019) defined two culturally positive dimensions Sincerity and Competence, and one negative dimension Assertiveness for Japan context. Most of these studies could not fully replicate Aaker's dimensions (Anees Ahmad & Thyagaraj, 2014).

This explained the notion that BP dimensions can have universal as well as specific dimensions (Aaker et al., 2001). For example, Aaker et al. (2001), when investigating Aaker's (1997) scale for measuring products in Spain and Japan compared to those of the USA, concluded that BP of the five-dimensional scale includes some universal dimensions (Competence, Excitement, and Sincerity), and some cultural-specific dimensions (Sophistication and Ruggedness, which replaced by Peacefulness in Japan and Passion in Spain). Furthermore, Mohtar, Rudd, and Evanschitzky (2019) and Shi and Shan (2019) explored and agreed with Aaker et al. (2001) that some traits are universal and some pertain to a specific culture. Yet, Shi and Shan (2019) referred to the importance of cultural context in BP formation as the match between the customer values and beliefs enhancing the preference for the brand (Aguirre-Rodriguez, 2014; Le Thai Hoa, 2020). Pereira, Correia, and Schutz (2015) and Rojas-Méndez et al. (2019) supported that BP dimensions pertain to cultural-specific context. Carvalho, Demo, and Scussel (2021), in their bibliometric analysis for BP from 2015 until 2019, explored that the role of culture on BP construct has been demonstrated in the DP studies. Thus, DP studies agreed that BP dimensions should pertain to culture-specific contexts (Baloglu, Henthorne, & Sahin, 2014; Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; Murphy, Moscardo, et al., 2007; Roy & Banerjee, 2021; Soundari & Shankar, 2019; Usakli & Baloglu, 2011). Hence, academics call for further approaches to underpin BP construct (Vinyals-Mirabent & Koch, 2020).

Several approaches provided a scale to be generalizable for brands. Lee (2009) expressed the importance of considering the consumer perspectives and the context of the

brands when constructing a scale to suit the post-modern marketplace. Lee (2009) also stated that the BP construct should not only depend on the trait psychology theory, and used the theory of consumption symbolism in which the consumer perspectives and context are fundamental. Davies et al. (2018) found that the signalling and associated theory from human perception is more appropriate for brands and robust in supporting generic findings in different contexts and cultures. Even though studies attempted to explore a scale to be generalized as they were motivated by how the Big Five is constructed, Demangeot and Broderick (2010) referred to the fact that the case for brands should be different as brands embedded cultural meanings, marketers' aims thus are to position their individual brands based on BP cultural-specific context (Anees Ahmad & Thyagaraj, 2014; Le Thai Hoa, 2020; Rojas-Méndez et al., 2019). These different approaches still require expansion. In a bibliometric analysis of BP literature, Carvalho et al. (2021) when investigating the traditional psychometric methods, which are the most used method for the BP construct, they recommended that the use of qualitative and multi-method studies that combine the qualitative and quantitative methods or including methodological triangulation may add to the knowledge of BP.

Hence, this doctoral thesis aims to provide a new approach which aids the formation of WH personality dimensions from digital textual data posted on TripAdvisor as post experiences evaluations of visitors. In particular, the post-experience visitors' reviews related to WHSs on TripAdvisor can be a tool to assist in WH BP formation, as brand experiences are considered a major foundation of BP formation (Saeed et al., 2021). This doctoral thesis, therefore, developed the BP lexical approaches and provided new models to identify the WH personality dimensions. This doctoral thesis perceived the WHSs as microelements of DP, hence, the development of the approaches of BP in this study were based on the advances of knowledge for BP in tourism marketing (Saeed et al., 2021; C. Zhang, Huang, Cao, & Chen, 2019).

Brand Personality in Tourism studies

In the tourism domain, academics agreed that BP is a prominent vehicle in positioning tourism destinations (Rojas-Méndez & Hine (2016). Thus, BP is applied to destinations (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018), such as countries (D'Astous & Boujbel, 2007; Rojas-Méndez & Hine, 2016), cities (Kaplan et al., 2010). In tourism literature, BP is discussed in three areas of interest (C. Zhang et al., 2019); Firstly, academics debated questions about what are the human-like traits and dimensions that can be attributed to destination. Rojas-Méndez and Hine (2016) highlighted that destinations are metaphorically personified with the

multi-dimensions average from three (Ekinci & Hosany, 2006) to six dimensions (J. Kim, Kwon, & Kim, 2018). Secondly, the antecedents and consequences of BP have gained academic attention in tourism (Saeed et al., 2021; C. Zhang et al., 2019). Regarding the consequences of BP, academics have agreed that BP dimensions are important determinants for enhancing visitor feelings toward destinations (Eisend & Stokburger-Sauer, 2013a; Usakli & Baloglu, 2011). For example, Rojas-Méndez et al. (2019) explored that nation BP dimensions have an impact on overall attitudes such as intention to behave. Zhang et al. (2019) explored a chain of impacts between BP antecedents and overall destination image. S. H. Kim, Kim, and Holland (2018) explored the positive impact of some dimensions on brand trust and affect. For the antecedent of BP, Ekinci and Hosany (2006) stated that destination dimensions can be directly inferred from attractions, restaurants and coffee and indirectly from the contact with employees in different destination elements, meaning the typical destination visitors (user imagery). (Saeed et al. (2021) and Zhang et al. (2019) recognized that efforts to investigate the antecedents of BP, such as the attractions, for example, are still required.

The difference between DP and destination image in tourism studies is debated. A tourism destination is defined as "perceptions about a place as reflected by the associations held in tourist memory" (Cai 2002, p. 273). Thus, destination brand tangible and intangible associations both serve to identify, differentiate and enhance destinations in tourism marketing. In this respect, destination branding has been described, as a multidimensional construct comprising functional, emotional, relational and strategic factors, which should be managed to design and communicate destinations' unique identity through marketing activities to competitively position them (Kasapi & Cela, 2017; Konecnik & Go, 2008; Qu, Kim, & Im, 2011; Tsaur, Yen, & Yan, 2016). Destination branding contributes to the establishment of unique destination images in visitors' minds (Dickinger & Lalicic, 2016; Hosany, Ekinci, & Uysal, 2007; C. Zhang et al., 2019). A destination image has been described as the mental perception of a person about destinations (Crompton, 1979). For DP, Ekinci and Hosany (2006) recognized the efficiency of BP to identify the intangible attributes of destinations and defined DP as a set of human characteristics that tourists' associate to a destination. In addition, Usakali and Baluglu (2011) and Chen and Phou (2013) acknowledged DP as an extension of BP.

Furthermore, Kumar (2018) referred to the DP as the implication of the multidimensional construct of BP to tourism areas, considering it as an extension of human personality traits to products and brands. The destination image concept thus overlapped with

BP as the brand identity of destinations is modelled to include the destination image that comprises functional, utilitarian symbolic aspects of a destination and cognitive aspects of the destination image (Skinner 2018). The personality aspects are perceived as the soft or symbolic meaning of the destination, thus they also overlapped with the affective aspects of the destination image measure (Hosany et al., 2006; Murphy, Moscardo, et al., 2007). Due to the fact that DP and images measure the symbolic meanings of the destinations (Hosany et al., 2006), these two constructs have been acknowledged as one concept used interchangeable (Graeff, 1997) or as two different related concepts (Hosany et al., 2006; Prayag, 2007) or an effective component of brand image (Murphy, Benckendorff, et al., 2007; Murphy, Moscardo, et al., 2007; C. Zhang et al., 2019) in literature. Academics have explored that BP mediates the effects of the brand image such as visitor intention to return (Ekinci & Hosany, 2006) or to recommend (Murphy, Moscardo, et al., 2007; Papadimitriou et al., 2015; Xie & Lee, 2013) and visitor loyalty (Usakli & Baloglu, 2011).

Even though academics agreed that the DP concept enhances visitor preference for the destinations (Zhang et al. 2019; Kumar and Nayak 2018; Hosany, Ekinci, and Uysal 2007; Xie and Lee 2013; Baloglu, Henthorne, and Sahin 2014; Pitt et al. 2007), most of the studies agreed that BP required further development; particularly the cultural meaning of DP dimensions was absent. Ekinci and Hosany (2006) explored that only three dimensions can describe the destinations and explored that most of Aaker's (1997) dimensions are not applicable to destinations. They explored new traits specific to the destination cultural context that should be considered in the DP scale. Murphy et al. (2007) also could not replicate Aaker's dimensions, stating that DP should have a unique construct specific to destinations. Kumar and Nayak (2018) dedicated a study to constructing a DP scale, emphasizing that each destination has its own intangible characteristics. Thus, the doctoral thesis agrees with the prior tourism studies about dedicating a scale relevant to a specific domain rather than attempting to generalize the BP dimensions.

More attention is given to the DP from BP lexical approach due to the huge amount of text data available online, thus the Web-based destination personality has triggered academic attention. Besides, the development in the text-mining processing features encouraged tourism academics to expand the BP to measure dimension distributions from digital texts (Pitt et al., 2007; Rojas-Méndez & Hine, 2016). For example, Pitt, et al. (2007) used computerized context analysis to explore the official website personality of ten African countries and detected their personality distributions by the use of correspondence analysis (CA) in text mining. The CA

allowed Pitt et al. (2007) also to figure out the different relationships among country tourism websites' personalities and their BP dimensions (Greenacre, 2017). Therefore, several studies on various fields were inspired by Pitt et al.'s (2007) approach and their dictionary ((De Moya & Jain, 2013; Haarhoff & Kleyn, 2012; Masiello, Bonetti, & Izzo, 2020; R. A. Opoku, Pitt, & Abratt, 2007; R. Opoku, Abratt, & Pitt, 2006; Robert A. Opoku, 2009; Papania, Campbell, Opoku, Styven, & Berthon, 2008; Paschen, Pitt, Kietzmann, Dabirian, & Farshid, 2017; Pitt et al., 2007; Rutter, Nadeau, Aagerup, & Lettice, 2020; Shi & Shan, 2019). Even though the BP lexical approach was inspired by these previous studies, it requires further development specifically that the dictionary items are limited to capture other cultural contexts (Papania et al., 2008; Ranfagni, Crawford Camiciottoli, & Faraoni, 2016). In contrast to these studies, Rojas-Méndez and Hine (2016) recognized the importance of text mining to enhance the context-based customized personality dictionary and customized dictionary items relevant to South American country websites' personalities to measure their BP dimension distributions. They stated that there has not been a well-agreed nation personality scale yet, and explored South American countries' websites' personality by a dictionary consisting of 533 traits have been taken from their previous exploratory study (2013) and grouped them under dimensions that correspond to NEO Five Factor-Model (McCrae & Costa, 1989).

In generally, Carvalho et al. (2021) explored that the antecedents of BP, that construct the BP dimensions are still missing in the literature. Thus they suggest that the direct or indirect contacts assisting in BP formation should be investigated, shedding light on the mechanisms that help consumers to evaluate the personality of a brand. Attractions are one of the elements that attributes to direct contact with destinations. Understanding visitors' evaluations of WHSs attraction, within the destination, assist in understanding the visitor evaluation of a destination (Mariani & Guizzardi, 2020). In particular, when brands inhabit unique traits, they influence the emotional attachment of the customers towards the destination (Eisend & Stokburger-Sauer, 2013a; Usakli & Baloglu, 2011; C. Zhang et al., 2019) and assist in defining the overall DP (Ekinci & Hosany, 2006) with profound meaning enhancing visitors' ties to the destination (Roy & Banerjee, 2021). The WHSs attractions are acknowledged by academics that they are of OUVs (Buckley, 2018; Ryan & Silvanto, 2014; J. Zhang et al., 2022), hence these WHSs inhabit intangible attributions. Understanding these WH intangibles thus can enhance their positioning, and boost the overall destinations' visitor preference (Mariani & Guizzardi, 2020). This doctoral thesis has therefore several aims that assisted in identifying WHSs' intangible

meaning by extending and updating the BP lexical approach to these types of attractions with tourism destinations.

2. Aims of the dissertation

This doctoral thesis includes three studies. In this dissertation, the main aims, as well as the specific objectives of each study, are described by discussing the questions, hypotheses, or objectives linked to them that aided in achieving the overall aims. It is the main purpose of this doctoral thesis to identify the WHSs' perceived intangible attributes and to analyze the BP lexical measure so as to assist the BP approach in identifying the WHSs' perceived meanings. This contributes to improving how destination managers market and position their destinations in light of the identified WH perceived attributions. In addition, it seeks to enhance the process of developing BP dimensions in order to capture to some extent the brand's culturally-specific meanings. Enhancing the manner in which BP dimensions are constructed could improve the reproducibility of constructing BP dimensions for different elements of a destination or overall destination or other domains of study. This doctoral study thus designed several objectives to accomplish these aims as follows;

1. Identify the overall WH perceived meaning from visitor and expert attributions, and examine whether there are significant differences in the way natural and cultural WHSs are perceived by visitors on TripAdvisor for WHSs, and by experts on the UNESCO WH center (hereafter WHC) websites. By doing so, destination managers, experts (UNESCO experts), and academics will be able to better understand the attributes of WHSs and, therefore, enhance their positioning as potential target tourist destinations. This may also enhance the overall positioning of the destination (Kirilenko, Stepchenkova, & Hernandez, 2019; B. Liu, Huang, & Fu, 2017), as WHSs are perceived as one of the direct factors influencing visitor preference (Mariani & Guizzardi, 2020).

2. Providing to a certain extent, a less generic perspective about the overall attributes of WHS, since a substantial body of research on WHS has concluded that general conclusions about WH are problematic (Buckley, 2018; Y. Yang et al., 2019). The definition of the soft meaning of WHSs, which constitutes their outstanding universal values attributes, will broaden the academic and practitioner knowledge about WHSs. However, this requires a novel approach that may allow the analysis of all WHSs or at the very least a large sample size, which is not the case with most of the existing approaches in previous WHS studies (Buckley, 2018; Buckley et al., 2020; Y. Yang et al., 2019).

3- Expanding the concept of BP (Aaker, 1997) to the tourist attraction as a microelement of destinations (Ekinci & Hosany, 2006). There has been an increase in interest in applying BP to marketing (Carvalho et al., 2021; Davies et al., 2018; Eisend & Stokburger-Sauer, 2013a; Radler, 2017; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020). BP is perceived to be a viable tool for positioning brands (Rojas-Méndez et al., 2019) and specifically in the tourism academy (Ekinci & Hosany, 2006; Hosany et al., 2006, 2007; Murphy, Benckendorff, et al., 2007; Murphy, Moscardo, et al., 2007; Usakli & Baloglu, 2011; C. Zhang et al., 2019). Thus, extending the construct of BP to WHSs as a type of attraction was based on the following: WH is perceived as a tourism brand (Y. Yang et al., 2019) and UNESCO WHC provides a platform where the descriptions of all WHSs are publicly available. The visitor post-experience of WHSs published on TripAdvisor, which is considered a reliable source for marketing research (Xiang, Du, Ma, & Fan, 2017), shows how visitors perceive the quality of WHs from actual attributions, not hypothetical survey questions. Hence, BP specifically the lexical approach may be a new approach added to and different from the available traditional approaches analyzed WHSs. As a result, it may assist in identifying the overall characteristics of WHSs based on the huge sample size of digital texts.

4- Developing BP measures to enhance the identification of WH BP dimensions in a way that the emerged dimensions capture the overall WH cultural context meanings. In spite of the fact that Aaker's (1997) BP scale has been viewed as a prominent tool for positioning destinations, academics agree that it still needs to be further developed to incorporate culturally specific meanings (Davies et al., 2018). Aaker, Benet-Martinez Veronica and Jordi (2001) explored the generalizability of Aaker's (1997) scale in different cultural contexts and found that this scale has universal dimensions and culturally specific dimensions. However, most of the studies in tourism have agreed that destinations require culturally specific dimensions (Anees Ahmad & Thyagaraj, 2014; Gondim Mariutti & de Moura Engracia Giraldi, 2020; Rojas-Méndez et al., 2019). As WHSs can be perceived as one of the antecedents that assist in the formation of DP (Saeed et al., 2021) the present study expands and develops the BP lexical approach to measure this type of attraction and enhance the formation of BP dimensions.

As part of the research process for this dissertation, three studies were conducted, with each study being developed from its previous study-specific limitations in order to accomplish the overall objectives of the dissertation. These studies addressed specific questions, objectives, or hypotheses to fill in specific knowledge gaps in WH and BP literature. Defining the intangible meaning of WHSs and developing an intangible measure using digital textual data

related to the cultural context of WHSs are the ultimate objectives of this research. Below is a summary of these studies, their objectives, questions, and limitations, and how they are processed to achieve their overall goals.

Paper N.1; Brand Personality Traits of World Heritage Sites: Text Mining Approach

Through their digital reviews, this study explored the perceived personality qualities of WH from visitors' perspectives. The study also sought to understand if the existing BP lexical scale can capture the attributes of all WHSs, or if the scale needs to be modified in order to do so. This study aims to bridge several gaps by a) providing a list of comprehensive personality traits that reflect visitor perceptions of WHSs; b) extending BP to WHSs, which may add to the knowledge to both fields; c) widening the samples in order to obtain more holistic assumptions, given that WH research in tourism marketing needs generic conclusions; d) investigating how Aaker's five dimensions can be linked to WH, given that replicating BP is subject to cultural contexts; and finally, e) developing the BP lexical approach by providing a new technique for including relevant subject-specific traits. Moreover, the perceived personality of WHSs was defined by expanding BP to the context of WHSs. Thus, this study provides an answer to two main questions;

1.   What are the WHS visitors' perceptions of their personalities and their distribution in relation to Aaker's five BP dimensions (1997)?

2.   How can all the items that capture the significant meanings of WHSs be included in the BP Lexical scale?

With the advantages of the available BP dictionary and the visitor reviews posted on Tripadvisors for WHSs, this study expanded the construct of BP for the first time to tourist attractions, specifically WHSs. In order to undertake the analytical procedure, this study collected 5579 WH TripAdvisor reviews of 175 cultural WHSs located in four European countries: French (39), German (44), Italian (50), and Spanish (42) WHSs. Most of the listed WHSs are in these countries, which contributes to the high number of reviews, and for the first time, a sample of data related to these WHS can be studied to understand WH attributions (UNESCO, 2022). This study is underpinned by Aaker's five personality dimensions and the BP dictionary of Pitt et al. (2007). The development of the BP lexical approach by Pitt et al. (2007) provides 833 items as an expansion of Aaker's five personality dimensional items. Therefore, this study utilized and developed Pitt et al. (2007) methods and dictionary as an initial approach to measure WH. However, Pitt et al. (2007) dictionary is reported for its

simplicity and efficiency in measuring web-based destination personality. In agreement with previous studies, this study found that these 833 items cannot be used to measure WHSs, as many items relevant to the descriptions of WHSs were missing when the study used Pitt et al. (2007). This study expanded Aaker's (1997) 42 items into 9460 items that constructed Four-Thesaurus BP dictionaries (available at: http://hdl.handle.net/10256/21254) by using a technique that enabled these items to be ranked and categorized for their high relevance to Aaker's 42 items. The dictionaries are compiled through the use of four publicly available thesaurus dictionaries, which categorize synonyms based on their high level of correlated meaning.

The method used in this study is to define WH personality traits with the use of these Four-Thesaurus BP dictionaries, which included items not included in the Pitt et al. (2007) dictionary. The result was a 222-item dictionary of WH personality traits, which can be used to measure personality traits in WH cultural attractions within five personality categories; Sophistication, Excitement, Sincerity, Competence, and Ruggedness. This study used these identified WH personality categories in order to measure the distribution of the overall WHSs personality attributes. WH was found to be attributed in four of the five categories as Sophistication and Excitement are the most attributed, followed by Competence and Sincerity. Ruggedness is found to be not suitable for WHSs. In terms of practical and empirical implications, this study extended several text-mining techniques when identifying thesaurus dictionaries, WH personality dictionaries and the distributions of WH categories. The CA is used in text mining to compare the WH personality categories and their relationship with the four counties. Based on this method, it is possible to visualize the relationship between the WH personality dimensions and the WHSs located, which, to a certain extent, helps to clarify that WHS types are similar in their attributions to WH categories. This article thus extended the BP concept to WHSs and illustrated several practical and empirical implications for the use of WH BP categories.

Despite the fact that this study was the first to extend the BP measure to the WHSs and to broaden the WH sample, two limitations were noted. Despite the fact that Aaker's (1997) dimensions are constructed based on customer perception, as this study did with the user-generated reviews, academics have pointed out that expert perception was omitted in the construction of the BP scale, and observed as a weak point in the construct. This also may contribute to the limitation of the BP scale in capturing all the cultural aspects related to a specific brand context. Other studies have recommended including experts' opinions in the

construction of the scale. In the first study, the identified WH dictionary is also limited to items related to visitor-generated content for WH cultural sites; thus, identifying the personality dimensions by including WH natural sites would improve the construction of WH dimensions and add a more complete picture of WHS personality attributes. The majority of traditional empirical approaches used psychologists or language experts when defining the personality items, which was not the case for the Pitt dictionary and the Four-Thesaurus dictionaries used in this study since they relied on the level of correlating meaning provided by the thesaurus dictionaries. In light of these limitations, the second study was designed to enhance the identification of WHS personality dimensions.

Paper N.2: Brand Personality Dictionaries and World Heritage Natural and Cultural Sites: Text Mining Approach to Visitor and UNESCO Expert Perceptions

The purpose of this study is to improve the identification of the WH personality dimensions by ensuring that the different items of WH dimensions are derived from most of its cultural contexts. In addition, ensure that the overall items are related to personality items. Moreover, UNESCO WHC described the listed WHSs in the frame of different concepts; Authenticity, Integrity, Protection and Management. The purpose of this study was to investigate the relationship between the WH personality dimensions attributed by visitors and experts with these concepts. It is important to note that, although WH OUVs are described in relation to these several concepts, WH has been investigated in relation to perceived authenticity (Baral et al., 2017), and these other concepts have been overlooked. The higher the agreement between the promotional message and the visitors' needs and values (Aguirre-Rodriguez, 2014) the higher the preference for the brand, where BP dimensions are attributes associated with a specific culture, and the match between these attributes and visitors (self-congruity theory in marketing (Sirgy, 1986)) improves visitors' feelings towards the WHSs (Aaker, 1997; V. Kumar & Nayak, 2018). This study ensured that the identification of WH personality derived from the visitor and expert attributes for both cultural and natural WHSs. Adding items from natural WHSs to the overall WH dimensions is useful for several reasons; firstly, it enhances that the emerged WH dimensions pertain to most WH aspects. Secondly, since Covid-19 started, academics have noticed visitors prefer natural attractions over cultural attractions due to the fact they provide a safe and physical relaxation experience (Kusumaningrum & Wachyuni, 2020). Therefore, this study posed the following research questions and hypotheses:

1. In order to construct a comprehensive WHSs BP dictionary, what are the most significant WHS personality items, and how may they be classified under Aaker (1997)'s five personality dimensions? 'Comprehensive' here means that the dictionary should reflect the views of both visitors and experts regarding natural and cultural WHSs. Previously published BP dictionaries such as Pitt et al. (2007) and Abdalla Elsayed Hassan, Zerva, & Aulet, (2021) did not validate personality items. Thus, the current study provides a technique to ensure that the WH dictionary items include personality items based on collecting items previously evaluated in BP and psychology studies (Fischer et al. 2020).

2. What are the WHSs personality distributions? Three hypotheses follow: 1) visitors attribute WHSs differently than experts; 2) the WH personality dimensions differ between natural and cultural sites; 3) there is a link between the WH personality dimensions and the various Authenticity, Integrity, Protection and Management UNESCO concepts.

The analytical procedures in this study included more visitor reviews from more WHS; from cultural WHSs; attributions from 9,971 visitor-generated reviews related to 261 cultural WHSs in two UNESCO regions: Asia and Pacific and Europe and North America. The reviews relate to the top seven countries with listed sites: China (37); India (30); Japan (19), France (39); Germany (44); Italy (50); and Spain (42); that is, 261 WHSs in seven counties. From the natural WHSs, visitor reviews were collected from all 213 natural WHSs listed. As most of the natural WHSs do not have websites on TripAdvisor, we examined the 3,500 reviews for the 101 natural WHSs available on TripAdvisor. Increased visitor reviews helped identify WHSs and added generic information about how visitors perceive WHSs. In order to understand how brands' promotional material is perceived, or even to measure the alignment in perceptions (Ranfagni et al., 2016) between the sender and receiver of that material, constructions of WH items must include items from both senders (UNESCO experts describing WHSs on WHC webpages) (Heere, 2010; Rauschnabel, Krey, Babin, & Ivens, 2016; Schade, Piehler, & Burmann, 2014) and visitors' post-experience reviews. Hence this study collected all texts describing all WHSs on UNESCO WHSs; that is, 1,121 WHSs data describing all the listed WHSs until 2020 from the WH centre and prepared one file for 869 cultural sites, and another for 213 natural WHSs, and three other files including descriptions of Authenticity, Integrity, Protection and Management UNESCO concepts. These collected data assist in defining the WH items from most of their related context.

The study also incorporates Aaker's five personality dimensions to construct WH personality dimensions from these digital texts. Thus, the BP dictionary of Pitt et al. (2007) and the Four-Thesaurus BP dictionaries are used to extract the match between these dictionaries and the attributions of WHSs in each of the collected data. The match is collected from each file allowing us to understand the differences in the pattern of items attributed by visitors and experts to WHSs. Then, this doctoral thesis explored some items that are particular to the specific textual data context. Together, these two dictionaries allowed the items that are not included in Pitt and are often relevant to WHSs meaning due to the text-mining frequency criteria to be included in the overall WH dimensions (Denny & Spirling, 2017). A 389-item WHSs personality dictionary was customized and attributes were classified into five personality categories: Sophistication, Competence, Excitement, Sincerity and Ruggedness. By using these dictionaries to measure the WH dimensions distributions, and the relationship between these dimensions due to Aaker's (1997) interpretations of these five dimensions and the UNESCO concept, significant differences in the way UNESCO experts and visitors perceive natural and cultural WHSs were explored. Visitors attribute WHSs most often to Sophistication and Excitement items, and experts attribute them to Sincerity and Competence.

CA in text-mining showed that visitors associate cultural WHS with Sophistication and natural WHS with Excitement, while experts describe natural WHS with Sincerity and cultural WHS with Competence. Different practical implications can be extended from these outcomes. This study demonstrated the importance of including in the WH dimensions items from a different perspective in order to enhance the cultural context of the BP dimensions. In the study, UNESCO experts attributed WH to their needs and values, as they should describe the WH within the framework of UNESCO OUV criteria. They frequently described WH as Sincerity which is expressed in the Authenticity concept, and Competence, which is expressed in Integrity and Protection and Management. In explaining this, findings showed that Authenticity is frequently linked to Sincerity, and Integrity, Protection and Management are attributed to Competence. For Aaker (1997), these two dimensions are related to the internal aspects of the brands. On the other hand, visitors expressed WHSs with Sophistication and Excitement where the first is mostly referred to as an external aspect of the brand and the latter as social activities. Considering these findings in the promotion of WHSs may improve the WH positioning on their intangible meanings.

As limitations to both this and the first study, although both developed BP lexical approaches to identify the WHSs personality dimensions based on their cultural meaning, both

studies relied heavily on Aaker's (1997) five-dimensional scale items. The items generation and categorization of the defined WH dictionaries in these two studies were mostly based on Aaker's (1997) items synonyms and the same categorizations. The defined WH dictionary is customized due to previously well-defined categories, which is the most common approach used in text-mining as computer content analysis (Pitt et al., 2007). In order to explain the limitations caused by the use of predefined Aaker's five dimensions, most of the items incorporated into Aaker's five dimensions are from brands that relate to different cultural contexts than that of the brand under study and from brands from cross-products or categories (Austin et al., 2003; A. Kumar, 2018). This explains why Aaker et al. (2001) found that BP dimensions in other cultural contexts were related to their culturally specific meanings in part. In text-mining analysis, finding themes from texts is considered to be the second most common approach, as these methods allow for the discovery of themes in texts without any prior knowledge (Fischer, Karl, Luczak-Roesch, Fetvadjiev, & Grener, 2020). To our best knowledge, the latter type of text-mining approach has not been extended to investigate BP dimensions. In the following study, we aimed to provide a new approach to identifying WH dimensions, in which item generation and categorization are conducted entirely from texts related to the WH brand cultural context.

Paper N.3: Brand Personality Word Embeddings Model: UNESCO World Heritage Personality Categories Identification

This study uses textual data to define the WHSs according to their cultural context and to measure the difference between the perception of the WHS by visitors and experts. Even though the BP construct has been perceived as prominent in marketing research and recently the academic interest in the concept of BP is noted (Carvalho et al., 2021) academics agreed that the existing BP scale methods require further development (Vinyals-Mirabent & Koch, 2020)). Specifically, Aaker's BP scale construction was based on the Big Five, which had several limitations, such as the generalizability of the scale when it was extended to measure DP (V. Kumar & Nayak, 2018) or brands (Davies et al., 2018) across cultural contexts, which could be further developed (Saeed et al., 2021).

BP dimensions are difficult to generalize due to their culturally specific versus universal meanings (Shi & Shan, 2019) Two objectives were therefore targeted:

1.   There is an acknowledgement that brands inhabit cultural meanings that require a means to facilitate the construction of their personality dimensions. This study aimed to define the mechanism by which the WHS personality dimensions are constructed.

2.   It is suggested that these personality dimensions might be perceived differently by those who communicate the symbolic meaning of brands and those who receive them (Ranfagni et al., 2016; Rauschnabel et al., 2016). This study shows how the symbolic meanings or personality dimensions of WHSs are perceived between experts and visitors to WHSs.

This study provided a new technique for identifying the personality categories of WHSs involving three phases: 1) item Generation, 2) item Refinement and 3) word Embeddings and clustering. In contrast to the traditional BP methods, this study analyzes the WH personality from digital texts rather than questionnaires, which usually have a limited number of participants answering hypothetical questions, rather than being based on experience (Aaker, 1997). The present study analyzed 1,400,247,000 words, describing WHSs from all 1,121 UNESCO WHSs and 9,920 user-generated reviews on TripAdvisor that provide more data about WH cultural meanings. The new approach is based on the hypotheses of psycholexical representation (Allport & Odbert, 1936) and distributed representation of words (Mikolov, Sutskever, Chen, Corrado, & Dean, 2013; Rubenstein & Goodenough, 1965). This method employed several text mining features and several programming codes that are designed particularly for the purposes of this study. These approaches assisted in defining the WH items and categorizing these items into WH clusters based on the word correlated meaning. The identification of the level of word correlated meanings known as the cosine similarity is developed by the use of word embeddings from the hypothesis of distributed representation of words (Mikolov et al., 2013). The psychological hypothesis, which introduced that personality differences are encoded in everyday natural language terms (Allport & Odbert, 1936; L. Goldberg, 1992) aided in validating WH items. A new model is designed, while the BP Word Embedding Model explained the analytical procedures in this approach.

This model aided in identifying a 192-item WH personality dictionary categorized into five clusters: Exceptionality, Attractiveness, Identification, Responsibility and Prominence. This study expanded this dictionary to measure the overall WH personality attributions as described by visitors from their post-experience reviews and UNESCO experts from their attributions, where differences in the perception between visitors and experts also are explored. Visitors describe more WH in terms of Exceptionality, and Attractiveness and UNESCO

experts attributed WHSs more to Identification, Responsibility and Prominence. This study provided a confusion matrix (Curiskis, Drake, Osborn, & Kennedy, 2020) explaining the different relationships between the identified dimensions and the different UNESCO Concepts as organized on the WHC such as Authenticity, Integrity, Protection and Management, Criteria Descriptions, Brief Synthesis and Descriptions. This helps explain the meaning of the dimensions identified and aids in understanding the difference between visitors' and experts' attributions to WHS. The identified WH personality dimensions are used to demonstrate the practical implications for WHSs positioning.

CHAPTER 2

3. Publication One:
Brand Personality Traits of World Heritage Sites:
Text Mining Approach

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Article

Brand Personality Traits of World Heritage Sites: Text Mining Approach

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Abstract: UNESCO World Heritage Sites (WHSs) must necessarily display Outstanding Universal Values (OUVs), as these play a vital role in constructing competitive brand personality (BP) in tourism marketing. However, how these WHS qualities are perceived by visitors still needs substantial investigation. Adopting a visitor-driven approach, this study seeks to explore the intangible attributes of WHSs and, for the first time, uses the BP concept to measure these attributes in cultural attractions. To investigate how visitors perceive WHS personality traits, 5579 visitor-generated reviews of 175 French (39), German (44), Italian (50), and Spanish (42) cultural WHSs on TripAdvisor were analysed using empirical, mixed methods. Results show that four personality dimension categories can be attributed to WHSs: Sophistication, Sincerity, Competence, and Excitement. Moreover, a novel BP lexical technique is presented along with a 222-item personality trait dictionary, which can be used to measure personality traits in cultural attractions. Theoretical and practical implications of the study are also discussed.

Keywords: brand personality; world heritage; attraction traits; text mining; computer-based analysis

1. Introduction

UNESCO WH has moved beyond its original remit and is now perceived as a unique tourism brand in itself [1]. Nonetheless, little published data exists on its qualities as perceived by visitors. Although WHS status is recognized as a magnetic tourism brand, and countries compete to increase their numbers of WH sites [2], existing literature highlights discrepancies in how these sites affect tourism marketing [3]. A number of critics have addressed these conceptual ambiguities [4], claiming that the marketing implications of WHSs are discussed in mere general terms [5]. To date, the majority of research on WH is limited to individual case studies, specific geographical locations, or tourist experience pre-visit; few studies examine visitor knowledge of WHSs [6]. A robust analysis of visitor knowledge of latent attributes of WHSs is lacking, as are insights into the intangible chronological and typological links visitors perceive through their WHS experiences.

Although considerable attention has been paid to BP in marketing research [7], it has not been extended to the field of WHSs. Radler [8] identified five areas of academic interest linked to BP: measurement of BP; dynamics of BP dimensions; direct and indirect effects of BP; BP in brand extensions; and the application of BP to several domains. Two of these dimensions have been the focus of tourism studies: Ekinci and Hosany [9] investigated visitors' perceptions of BP in tourism destinations, and Zhang et al. [10] carried out a study on the direct and indirect effects of BP on visitor behaviour variables. Following from Yang, Xue and Jones [5], who highlighted the influence WHSs have on visitor choice, the main aim of this study is to empirically identify WHS personality attributes perceived by visitors, thus extending BP knowledge within the field of tourism to "attractions".

Brand personification has significant implications for marketing, such as enhancing visitor brand recognition [10] and brand equity [11]. However, its complexity relies on sophisticated analytical and theoretical methods that formulate personality traits and then

transform this qualitative data into desired enumerated statistics. Aaker [11] provided a framework for the first reliable scale to measure BP, rooted in human psychology and developed from the so-called "Big Five" personality dimensions [12]: Excitement, Sincerity, Competence, Sophistication, and Ruggedness. Aaker's BP measure has drawn a great deal of attention in the literature; however, academics agree that it needs developed further [13].

To simplify the BP measure for use in tourism research, Pitt, Opoku, Hultman, Abratt, and Spyropoulou [14] developed a lexical method using a dictionary that de-factorized Aaker's five dimensions into 833 synonyms. Even though Pitt et al. [14]'s methods were an initial path to the development of the BP lexical approach, few studies use the 833 synonyms dictionary [15–19]. The limitations related to the use of the BP dictionary may add to the applicable limitations of the lexical approach. As the dictionary is limited to 833 words that are classified under Aaker's five dimensions, it does not capture any new items [18]. Consequently, a new technique is required to allow for the inclusion of personality items relevant to any study domain.

Despite the importance of Aaker's model, academics have noted important boundary conditions for its successful application [20]. These boundaries relate to the measure's capacity to replicate the five personality dimensions [13] and how cultural differences between brands may influence the generalisability of these dimensions [21]. As the dimensions were not replicable in different cultures, subsequent studies evaluated and extended the stability of this model to fit a variety of settings. The context of cultural attraction within European culture is still missing in the application of BP.

Thus, our study bridges several gaps, as it aims to: first, provide a list of comprehen- sive personality traits that reflect visitor perceptions of WHSs; second, extend BP to WHSs, which may add to the knowledge to both fields; third, (indirectly) widen the samples in order to obtain more holistic assumptions, given that WH research in tourism marketing indicates a lack of generic conclusions; fourth, further investigate how Aaker's five di- mensions can be linked to WH, given that replicating BP is subject to cultural contexts; and finally, develop the BP lexical approach by providing a new technique for including relevant subject-specific traits. In the results, the study develops the BP lexical approach by providing a technique that can be reproducible for other marketing domains. Moreover, we defined the perceived personality of WHSs by expanding BP to the context of WHSs, wherein a 222-item personality dictionary to measure the cultural attraction is customized.

2. Literature Review

2.1. World Heritage Marketing Perspective and Visitor Knowledge

It is well known that inherent qualities of OUV in WHSs show abstractly intrinsic features of tourism attractions [3]. WH branding, therefore, goes beyond its original goals in order to include tourism marketing objectives. The aim of the United Nations Educational, Scientific and Cultural Organization (UNESCO) is to preserve heritage sites of global significance, but many countries seek WHSs in order to attract more visitors (rather than conserve heritage [2]. The growth of international tourist arrivals (before the COVID-19 era) has forced marketing agencies to place greater emphasis on the intangible aspects of tourism products [22]. Thus, WH has come to be perceived as a top brand [3] and a determinant for tourism demands, which has evolved to encompass socioeconomic elements linked to the growth of sustainable tourism [5].

Although several studies claim WHSs stimulate tourism, some academics doubt their ability to enhance visitor attractiveness [23–25]. In a meta-analysis of WHS studies, Yang et al. [5] set out to uncover discrepancies among findings. To do this, conceptual variances in the case studies were classified according to the following criteria: whether the WH nomination was old or new; whether the target samples were domestic or international visitors; the study methods employed; the size of the site; the type of WHS (cultural or nature-based); whether the WHS was located in rural or accessible areas; whether it was an iconic or a lesser known site; and whether the countries' underlying reasons for nominating the sites could be identified. Many scholars [5,23] highlight that considering these criteria

in studies are essential to determine whether the WH brand has potential impacts on visitors. Data for the study came from user-generated reviews of French, German, Italian, and Spanish WHSs encompassing most of these WHS features.

Findings from studies analysing visitor awareness of WH vary, showing poor robustness. The underlying reasons for this may depend on the ability and willingness of host countries to disseminate WH knowledge. Wuepper and Patry [26] linked the added value of being designated a WHS to the heterogeneity of benefits arising from a site's objectives and marketing. Yang and Lin [27] stressed the importance of promotion, claiming that the countries that benefit from nominations are those with effective, aggressive, and constant marketing strategies. Both Adie [28] and Wuepper and Patry [26] urged UNESCO to better inform the public about WH in order to increase visitor awareness. Adie [28] in particular argued that advertising and raising visitor awareness were generally lacking, as UNESCO hands these responsibilities over to the host countries.

Several recent studies have highlighted visitor awareness of WHSs, but no robust conclusions have been drawn [28,29]. Furthermore, several academics believe that the impact of WH is temporary, as visitors may only receive knowledge of it through heightened media exposure during the nomination process [30,31]. Keller [32] acknowledged that brand awareness is core to the success of brands such as WHSs and classified awareness influences into three types: recognition, recall, and "top of mind". The last has the most impact on visitor preference as it reflects customer awareness of the intangible, immaterial attributes of brands and has not been measured in the literature so far.

However, a small number of studies have attempted to measure how visitors perceive the intangible attributes of WHS by using a scale with specific terminology reflecting expert opinions. For example, Wang et al. [33] defined OUVs as being magnificent, scenic, beautiful, intact ecosystems with abundant flora and fauna and confirmed that the visitor-perceived authenticity of WHSs aids in their protection. Baral et al. [34] operationalized Wang et al.'s [33] terms, allocating traits such as distinction, uniqueness, impact, legacy, value, and allure to authenticity, and confirming that visitors value these attributes of OUV. In contrast, Poria et al. [35] analysed WH through a visitor's lens and found that WHSs were recognized as culturally famous sites of major significance to humankind, describing them as authentic, must-sees, promising quality, well managed, and expensive. The findings stressed that what visitors found most attractive was immateriality, the WH philosophy, and the concept of cultural significance.

Following from this, Adie [28] called for a deeper understanding of WHS attributes. This article, therefore, investigates WHS attributes from a visitor perspective and uses BP to customize a visitor scale to measure WHS attributes, given its suitability for measuring intangible brand assets.

2.2. Brand Personality Construct

BP is rooted in anthropomorphism, the theory that individuals tend to assign personality features to various contexts, including brands [36]. In marketing research, this animism is developed through the self-congruity theory, based on the logic that the higher the match between a consumer's personality and a brand's characteristics, the higher the preference they will have for the brand [37]. Once marketers recognized the relevance of animism and self-congruity, they imbued brands with personal meanings and lasting, distinct, constructed personal traits through which consumers felt they could express themselves [7]. Aaker [11] stated that the majority of self-congruity studies have elusive conclusions because scholars matched personality characteristics to brands with an aggregate personality, or to just one personality dimension, and failed to identify the specific BP dimensions that could be matched. Aaker [11] therefore went on to develop a well-defined BP with five dimensions resonating with customers' personalities. This personified brands as multidimensional people, a theory which would go on to have a marketing impact on consumer behaviour and overall brand equity [11]. However, Aaker's concept proved unstable when applied in different cultural contexts [21].

Methods for measuring BP are imported from the well-accepted "Big Five" personality criteria in psychology [12]; however, using these to personify brands is extremely complex. Despite academic interest, Aaker's [11] ability to replicate the Big Five dimensions to brands has been debated in the literature [20]. Only the inner characteristics of brands were replicated: Excitement (Extroversion), Sincerity (Agreeableness), and Competence (Conscientiousness); Sophistication and Ruggedness were added as outer characteristics.

Initially, Aaker [11] ascertained that all five dimensions are applicable to brands, but further research revealed that the BP dimensions showed embedded cultural variances [21]. This prompted several academics to extend Aaker's model to various cultural contexts: countries [38]; destinations [9,10,22]; cities [39]; places [40]; sports clubs [41]; corporations [42]; retail [43]; and product brands in many countries [21]. The outcomes of this research revealed that (1) four of Aaker's dimensions are replicated in several studies [13]; (2) the Ruggedness dimension is not widely applicable [10,44]; and (3) applying BP to different cultural contexts has limitations [45]. Thus, we aim to extend the concept of BP to the context of visitor attractions.

2.3. Concept of Brand Personality in Relation to Brand Identity and Image

Aaker [11] offered the most popular definition of BP in the field of tourism, outlining it as a set of human characteristics that described brands, despite Azoulay and Kapferer's [46] criticism of the loose term "characteristic". This definition creates confusion as it overlaps with the concept of brand identity and BP [46,47], and the concept of brand image and BP [9,44,48].

In branding communication, brand identity, which is defined as "a unique set of associations that the brand strategist aspires to create or maintain" [49] (p. 68), belongs more to the supply side. Brand image, on the other hand, which is defined as "the perception about a brand reflected as associations existing in the memories of the consumers" [32] (p. 3), is perceived from the demand side [50]. Tsaur, Yen, and Yan [51] emphasized that a brand's identity and image are perceived as two sides of the same coin, while Aaker's definition puts forward several aspects of supply and demand as one.

Scholars studying branding consider brand identity and brand image as multidimensional and BP as an essential dimension of these two concepts [5,50,52,53]. Azoulay and Kapferer [46] argue that the term "personality characteristic" in Aaker's definition encompasses sociodemographic characteristics, meaning that BP is perceived a whole and not as a part of brand identity. The use of the term "characteristic" in BP includes all non-psychical attributes, such as the functional, utilitarian, and emotional associations of a brand. These attributes overlap with the attributes offered by the supply side and those perceived by the customers [40,54]. For example, Azoulay and Kapferer [46] explained that items of age and social classes which are included in BP are more related to user imagery or the typical user (the receiver) of a brand, and not to the brand itself. Geuens et al. [47] stated that this loose definition creates uncertainty over what academics are investigating, whether it is the perceived BP (the sender aspect) or the perceived user characteristics (the receiver aspect).

In addition, Azoulay and Kapferer [46] perceived BP as one element of brand identity, arguing that BP is derived from personality studies in the field of psychology. For decades, psychologists agreed on excluding non-behavioural items, such as sociodemographic aspects, and restrict personality to only personality traits, and defined personality as a "systematic description of traits" [55] (p. 81). Thus, to avoid conceptual confusion in branding studies, Azoulay and Kapferer [46] (p. 153) defined BP as "the unique set of human personality traits both applicable and relevant to brands", using the term "trait" instead of "characteristic". Among the few studies that have used the term "traits" are Geuens, Weijters, and De Wulf [47]; Ye [56], Chen and Phou [57]), and Rojas-Méndez et al. [58].

The confusion over BP and brand image has drawn more attention in tourism studies [48] as the definitions of both concepts tap the soft association of a brand that is perceived by the receiver. Even though scholars agree on the prominence of destination personality

in tourism, a controversy arises between the concept of destination image and personality. Crompton [59] classifies the components of destination image as cognitive (visitor's beliefs) and affective (visitor's feelings). In addition, Biel [60] perceived brand image as a group of associations which customers link to brands, wherein these associations may be "hard", based on tangible and functional attributes, or "soft", based on emotional attributes. Biel [60] recognized BP as having a soft association with brand identity.

Zhang et al. [10] summarizes how destination personality academics perceived the state of confusion between the two concept BP and brand image. Some academics consid- ered destination personality and image to be one concept which could be used interchange- ably [61]; or as different constructs [62–64]; or as different but linked concepts, wherein BP has potential influences on the affective aspects of destination images [10,44]. In general, scholars found that BP mediates effects of brand image on visitor behaviours such as the intention to return [9], to recommend [44,65,66], and to be loyal [63].

In contrast to this confusion between BP and brand identity, Davies et al. (2018) found that the aggregated personality characteristics in the traits of BP dimensions did not affect the overall distribution of dimensions. To date, Aaker's [11] definition is the most widely used in tourism literature [13]. In fact, our study is underpinned by Aaker's construct and follows the findings of Davies et al.; thus, we first follow the stream of literature [10,48]that perceived BP and brand image as two different but related constructs. Second, we bore in mind Aaker's definition of BP and used it to define WHS personalities as having associated human characteristics which fit WH-designated attractions, and are perceivedas such by WHS visitors post-visit.

2.4. Brand Personality in Tourism

In destination branding, the complexity of competition among destinations means that marketers pay more attention to the intangible aspects of a destination than to its substitutable physical attributes [22]. Using Aaker's concept, Ekinci and Hosany [9] developed the first destination personality measure; the second was constructed by Kumar and Nayak [22], who defined destination personality as a multidimensional construct of BP applied to tourism. Academics subsequently agreed that attributing destination personality enhances a number of visitor behaviour variables, which strengthen visitor preference for a destination [10,22,67].

Therefore, tourism research concurs that BP is a prominent driver for positioning tourism destinations and that perceived attraction is paramount in shaping the personality of a destination [9,10,22,57]. Culture and history are among a destination's most important attributes [48], wherein a destination's cognitive aspects are measured against tourists' beliefs of the functional attributes of cultural, historical, religious, and spiritual attrac- tions [48]. Ekinci and Hosany [9], on the other hand, asserted that destination personality traits are directly linked to a destination's attractions, as they can identify and measure its personality. Our study acknowledges that BP has been applied to countries, cites, places, and destinations; however, it has yet to be applied to WH attractions. This research fills this gap by adopting lexical methods within BP to extend the personification metaphor to the unique attractions that constitute WHSs.

The BP lexical approach was chosen, as it plays a crucial role in generating destination BP traits and offers practical implications for DMOs. Website BP has also been a focus of attention in the literature. Pitt, et al. [14] pioneered a dictionary containing 833 synonyms of Aaker's 42 traits and used it to measure the tourism website personality of 10 African countries. Several studies subsequently adopted these methods [15–19], using the dictio- nary as a comprehensive guide to trait synonyms. Papania et al. [18], however, pointed out the limitations of Pitt's dictionary, warning that it needed to be modified to fit the subject of study.

Despite the dictionary being a comprehensive guide, Pitt et al. [14] and subsequent studies failed to include industry-specific traits. Papania et al. [18] explicitly referred to their absence. Churchill and Iacobucci [68] also warned that content validity relies on

an adequate number of traits from the original samples. Thus, empirically, establishing content validity was considered essential when generating traits [9–11,22]. In lexical studies, Rojas-Méndez and Hine [69] recognised the importance of content validity in dictionary customization and customized a 533-item dictionary based on their study samples. This study advances Pitt's lexical approach by providing a new technique to include traits from study data.

3. Materials and Methods

3.1. Research Question

In this study, we want to explore the perceived personality qualities from visitors' perspectives through their digital reviews. Moreover, we aim to understand if the existing BP lexical scale can capture the attributes of all WHSs, or if the scale requires modifications. Two main research questions are presented: (1) what are the WHS visitors' perceived personality dimensions and their distribution in relation to the five BP dimensions of Aaker [11]? (2) How can all the items that capture the significant meanings of WHSs be included in the BP Lexical scale?

3.2. Analytical Procedure

The study used the following methods and tools: (1) a machine learning package to extract reviews from TripAdvisor; (2) manual content analysis to prepare relevant data for WHSs; (3) Pitt dictionary analysis to determine primary personality traits and dimensions; (4) text mining pre-processing to define the most relevant dictionary to use as a unique personality scale to measure WHSs, including high-frequency and new personality traits not included in Pitt's dictionary; (5) dictionary analysis to identify the distribution of WH personality dimensions; and (6) correspondence analysis (CA) to demonstrate the practical implications of methods employed in the study.

3.3. Data Preparation

This study follows Aaker [11] and Pitt's [14] concept of "what others say about me" and uses social perception to investigate WH personality using visitor post experience reviews of all France, Germany, Italy and Spain's cultural WHSs on TripAdvisor. Therefore, our sample depends on how visitors evaluated WHSs on the social network site TripAd- visor. We limited our study to WH cultural sites, as these dominate the list of WHSs; of the 1121 sites registered, 869 (77.5%) are cultural sites [70]. These countries were selected as they have the highest number of sites on the WH list in Europe. These four countries represent 36.29% of the total share of Europe and North American's WHSs (529) [70]: Germany (44), France (45), Italy (55), and Spain (48). The sample of user-generated reviewsis limited to the English language and includes visitors from many countries, which may reduce segment bias.

To extract the reviews, the first step was to identify the cultural WHSs related to these four countries on TripAdvisor, as most of the official names of WHSs are not explicitly labelled on the website. Cases in point are the Alhambra, Generalife, and Albayzín. These three sites are combined into one individual WH site on UNESCO URLs but have three separate URLs on TripAdvisor, each with its own webpage. This led to identifying a total of 286 URLs for 175 cultural WHSs. Second, not all visitors who visit WHSs write a review specific to WH. Thus, two TripAdvisor filter options were applied: "English language reviews" and the search engine. The best outcomes were obtained from the term "World Heritage". After analysing all reviews related to 175 URLs for the month of May 2021, we found "World Heritage" mentioned in 5579 reviews. For example, the Alhambra has 41,810 reviews in total, and reviews in English totalled 15,945, with 357 mentioningWH. Finally, the review title, the text itself, the number of stars given, date, and visitors' countries of origin were extracted.

The data was prepared by performing manual content analysis and text mining pre-processes. First, we were able to omit irrelevant text using manual content analysis, thus

assuring that the reviews were specific to WHS. For example, one visitor described the Alhambra as "*beautiful, scenic and with old architecture*" . . . "*Meet your guide who provides you a convenient ear piece to listen to the commentator.*" "*Have good walking shoes*". Here, the adjectives "*convenient*" and "*good*" refer to ideas that are irrelevant to the site itself. Thus, we manually extracted only the text that directly described the WHSs, avoiding references that were misleading. Of the reviews, 95% were 4 or 5 star; thus, as the probability of negative adjectives is low, double negation was excluded, as in the Alhambra: "*(A World Heritage Site) is such an amazing beautiful place and you just accept my word you will not be disappointed*".

Computer-based analysis of digital text has gained importance in social science due to the availability of a huge amount of digital text [71]. By text pre-processing in the data mining, we were able to reduce the size and complexity of the vocabulary to allow for computational efficiency and limit irrelevant words [72]. The text pre-processing items used in this study are as follows: lemmatisation, substitution, exclusion list (stop words), and infrequently used term reductions. The English Language Exclusion list was used; this is built into WordStat textual software, which includes irrelevant words such as pronouns. Lemmatisation removes inflectional ends and stemming prunes words to their original dictionary form [72]. Both lemmatisation and stemming are methods that combine and reduce vocabulary, counting words like beautiful, beauty, and beautifully as one. Although Balakrishnan and Lloyd [73] found insignificant differences between lemmatisation and stemming, they did remark that lemmatisation provides more accurate interpretations; therefore, lemmatisation was used in this study. Thus, data preparation provided a unique text relevant to WHSs, which comprised a total number of 324,034 words, from which 134,079 words (41.35%) were excluded.

4. Results

4.1. Dictionary Customisation for WHSs

As the study aimed to construct a robust WH personality scale based on lexical methods, we considered Pitt's 833 synonyms as a first source of scale measurement. In reply to the second research question, which aims to define all the traits that capture the attributes of WHSs, a lexical analysis based on Pitt's built-in dictionary was conducted using WordStat software. This generated a so-called 'included-words' list, which reported the frequencies of all adjectives matching Pitt's dictionary. However, only 223 words in the included list matched Pitts' synonyms, many of them at a low frequency. Therefore, the study depends on the frequency selection criterion in the text-mining method to select relevant WHS traits. The minimum accepted frequency was 0.01%; in text mining, items with frequencies lower than 0.05–1% are considered infrequent [72,74]. In addition, to reduce the complexity of the words, we took under consideration words that were repeated more than 5 times. We selected only 98 personality traits from the total, with a frequency 0.01% of "% processed" text. This frequency percentage was provided by WordStat after the text mining pre-process was carried out.

Moreover, the study added traits suited to the subject of the study, but not found in Pitt's dictionary, by investigating 2563 adjectives in the so-called "leftover word list". To do this, we first filtered 2563 adjectives found in the list by using KNIME analytic software (free open source analytic tool). We used the text pre-processing packages in KNIME, such as Case Convertors and Tokenization "Part of Speech" (POS) to select adjectives only. As a result, this list of 2563 adjectives was reduced to 574 manageable adjectives of significant frequencies by applying the criteria previously mentioned, which relate to word frequency selection, and removes inappropriate words or characters.

Second, to determine which adjectives represented human-like traits, we took Aaker's five personality categories as parameters with which to define adjectives relevant to personality. We then linked the adjectives from the leftover words list to their relevant synonyms to Aaker's [11] BP traits. Here, we rely on the lexical assumption and hypotheses of word representation distribution [75] that each trait shares a large part of its meaning with other synonyms distributed in the same factor structure [76]. Lieven [77] confirmed that adjec-

tives sharing a high number of common synonyms are grouped together in one personality dimension and share few common synonyms with those outside their dimension. The personality traits from the 574 adjectives list were sorted accordingly, and then classified based on their relevant similarity to Aaker's [11] five personality dimensions, 15 facets, and 42 traits.

Pitt et al. [14], was the first to expand Aaker's method for returning and grouping the adjectives to their similar synonyms, and defined the first BP dictionary. Here, the technique lies in expanding Aaker's 42 traits. Pitt et al. [14] (p. 838) compiled 883 synonyms to match Aaker's 42 traits and 5 dimensions using Encyclopedia Britannica's online Thesaurus. De Moya and Jain [15] and Kim and Lehto [78] grouped traits using the same synonym technique. Therefore, classifying the 322 new adjectives, which were not founded in Pitt's 833 synonyms, requires increasing the BP dictionary that complies with Aaker's five dimensions and expands the synonyms.

To create a new dictionary parallel and similar to Pitt's dictionary, we built four unique dictionaries from four online dictionaries: *Power Thesaurus* (www.powerthesaurus.org, accessed on 25 May 2021), *OneLook Thesaurus* (www.onelook.com/thesaurus, accessed on 25 May 2021), *Thesaurus Dictionary*, www.thesaurus.com (accessed on 25 May 2021), and *Merriam Webster* (www.merriam-webster.com, accessed on 25 May 2021). The main idea here is that each dictionary may include more unique words, so using four sources enables us to expand the number of synonyms. It is worth mentioning here that when Aaker's 42 traits were used as a scale in other studies, on most occasions the dimensions Excitementand Competence overlapped [18,76,79].

In these dimensions, the words emerge attached to each other in a graphic representation. This means that some keywords for certain personality categories may be highly similar.The four dictionaries were thus used as a parameter for classifying the adjectives and placing them in the appropriate dimension. For example, in all four dictionaries the word "amazing" is classified as a synonym to Excitement dimension traits. Using these four dictionaries as parameters, therefore enables us to classify the new adjectives under the five dimensions of Aaker's BP scale.

It is worth noting that, our choice of the four dictionaries used to extract the synonyms for the 42 traits was based on our aim to find a dictionary which could categorize the synonyms of any target keywords based on the level of similarity. The four dictionaries selected are unique in the way they provide similarity rankings for the target keywords. From the four dictionaries 9460 keyword synonyms linked to the 42 traits from the four dictionaries were extracted. This four-dictionary ranking of keywords was beneficial when extracting synonyms for Aaker's items as each synonym is color coded according to where is ranked in relation to a specific keyword. By color-coding the keyword, it can then be placed in Aaker's five dimensions according to its relevance.

The 9460 were colored to show that the closer the similarity to one of the 42 traits in Aaker, the darker the color. Using color in this way is inspired by the way *Thesaurus* and *OneLook* dictionaries prioritize the degree of similarity between synonyms. An example can be found in the following URLs: www.thesaurus.com/browse/unique; www.onelook.com/thesaurus/?s=unique, accessed on 25 May 2021. Using colors enables four unique dictionaries to be constructed (hereafter: 4-Thesaurus BP dictionaries), and their entire set of adjectives classified according to the degree of relevance to one of the 42 traits within the five personality categories. These dictionaries first help verify whether a new keyword has synonyms relevant to the Aaker's dimensions or not. If it does, the new adjective is then classified (the 4-Thesaurus BP dictionaries are available from the authors).

Hence, we defined 124 new personality traits, 89 of which have appeared in two, three, or four dictionaries with the same classification categories, while the remaining 35 adjectives have appeared in one or two dictionaries. This process of sorting and classifying the new adjectives increases the number of personality traits relevant to WHSs from 98 words, found in the Pitt BP dictionary, to 222 items. This ensures that each high-frequency term relevant to the WHSs is defined. The final 222-item list of traits was categorised under five

personality dimensions as follows: Sincerity 27.47%; Excitement 22.97%; Sophistication 23.42%; Competence 19.3%, and Ruggedness 07.20%. These five dimensions have high frequency and relevant, human-like traits that can be used to measure WHSs (Table 1).

Table 1. World Heritage Customised Personality.

World Heritage Customised Personality Dictionary									
COMPETENCE		**EXCITEMENT**		**SINCERITY**		**RUGGEDNESS**		**SOPHISTICATION**	
	Freq		**Freq**		**Freq**		**Freq**		**Freq**
top	297	well-preserved	952	nice	517	complex	106	beautiful	1479
special	220	amazing	774	ancient	182	hard	60	stunning	352
huge	168	impressive	504	happy	162	difficult	47	picturesque	288
able	113	unique	291	typical	156	massive	41	magnificent	221
complete	73	modern	231	real	111	intricate	36	spectacular	198
perfect	73	free	216	local	103	western	26	famous	178
outstanding	70	fantastic	183	original	102	sunset	25	easy	166
rich	52	incredible	122	major	69	powerful	15	fine	161
holy	48	breathtaking	121	remarkable	59	terrible	12	excellent	160
extraordinary	45	awesome	98	worthy	55	uneven	11	fascinating	125
industrial	38	awe-inspiring	81	live	44	external	10	royal	114
fortified	35	absolute	54	limited	43	outdoor	10	pretty	108
exceptional	31	cool	52	glad	42	wild	9	gorgeous	87
worthwhile	30	peaceful	51	significant	40	outer	8	fabulous	85
golden	29	artistic	36	pleasant	39	challenging	7	grand	67
modernist	29	popular	35	accessible	37	rude	7	magical	62
favourite	25	particular	32	natural	35			charming	55
official	25	brilliant	31	helpful	34			quiet	53
knowledgeable	23	aware	25	lucky	34			expensive	48
protected	20	unbelievable	25	clean	33			superb	47
commercial	17	marvelous	24	poor	32			majestic	43
definite	16	unfinished	24	straight	32			enjoyable	33
spiritual	16	alive	20	romantic	30			intact	31
classical	15	colorful	19	sheer	26			astonishing	30
fortunate	15	unexpected	19	urban	26			impressed	30
glorious	15	strange	18	sad	24			splendid	29
reasonable	15	exciting	17	sunny	24			ornate	28
professional	14	incomplete	17	friendly	21			attractive	27
proud	14	recent	17	actual	20			delightful	27
safe	13	overwhelming	15	civil	20			scenic	27
educational	12	individual	14	single	20			elegant	24
notable	11	separate	14	simple	19			extensive	23
suitable	11	astounding	13	standard	18			renowned	23
smart	9	current	13	essential	17			exquisite	22
wealthy	9	intriguing	13	positive	17			enchanting	19
sufficient	8	terrific	13	traditional	17			cute	17
technical	8	excited	12	warm	17			plain	14
adequate	7	specific	12	comfortable	16			magic	13
atmospheric	7	vibrant	12	common	16			calm	12
dominant	7	creative	11	decent	16			delicious	12
solid	7	minor	11	inspired	16			gilded	12
strong	7	colourful	10	international	14			overwhelmed	11
untouched	7	fresh	10	deep	13			careful	10
		contemporary	9	normal	13			female	10
		rare	9	proper	13			photogenic	10
		serene	9	sacred	13			opulent	9
		active	8	concrete	10			precious	9
		crazy	8	convenient	10			lavish	8
		relaxed	8	modest	10			celebrated	7
		ongoing	6	pure	9			regular	7

Table 1. *Cont.*

COMPETENCE		EXCITEMENT		SINCERITY		RUGGEDNESS		SOPHISTICATION	
World Heritage Customised Personality Dictionary									
Freq		**Freq**		**Freq**		**Freq**		**Freq**	
		unfriendly	6	regional	9			delicate	6
				authentic	8			soft	6
				ordinary	8				
				correct	7				
				legendary	7				
				passionate	7				
				serious	7				
				honest	6				
				prime	6				
				useful	6				
Sum of Keyword Occurrences: (13,619) in 5579 Visitor Post-experience Reviews on TripAdvisor									
1704		4325		2517		430		4643	
Keywords % to Total 222-item Scale of WH Personality									
19.4		23.4		23		7.2		27.02	
5579 Reviews Text Frequencies: 324,034 After Text Pre-processing: Numbers, Punctuations, Stop Words Eraser									

Note: All Other textual software frequency tables are available from authors.

4.2. World Heritage Personality Distribution on TripAdvisor

In response to the first research question that relates to identifying and measuring WHS personality distribution in the most effective way possible, we used our 222-item personality trait list. The results from the 5-dimensional dictionary in Figure 1 showed that Sophistication was the highest distributed dimension (34.09%), followed by Excitement (31.16%). Competence showed a distribution of 18.48% and Sincerity of 12.51%. Ruggedness was only 3.16%; so not considered applicable to WH. The distribution of WHS personality dimensions is the reflection of a sum of 13,619 occurrences (Table 1) of the most frequent 222-item personality scale assigned specifically to WHSs as cultural attractions. Moreover, these dimensions are post-visit evaluations in the four studied countries. Therefore, defining these WHS personality dimensions converts them into a significant tool for further practical implications.

4.3. Relationship between World Heritage Sites and their Overall Personality Dimensions

One of the implications of using the BP lexical approach is that it enables comparison of countries' tourism websites in order to understand their positioning and competitive advantages [14,69]. WH is an umbra over a chain of sites or "branches" [28], so the present study uses the BP traits and dimensions identified to compare the personalities of individual sites with the overarching personality dimensions of the WH brand, in order to ascertain the degree to which each WHSs consent with the overall personality categories of WH. This helps identify the sites that need to enhance their personality traits for specific categories. Thus, WHSs are not competing with each other but rather sharing unique personality attributes. Our focus of interest, therefore, is to illustrate how the five identified personality dimensions of WH can be used effectively to help practitioners define WHSs lacking suitable personality profiles, or whose attributes were not perceived favourablyby visitors.
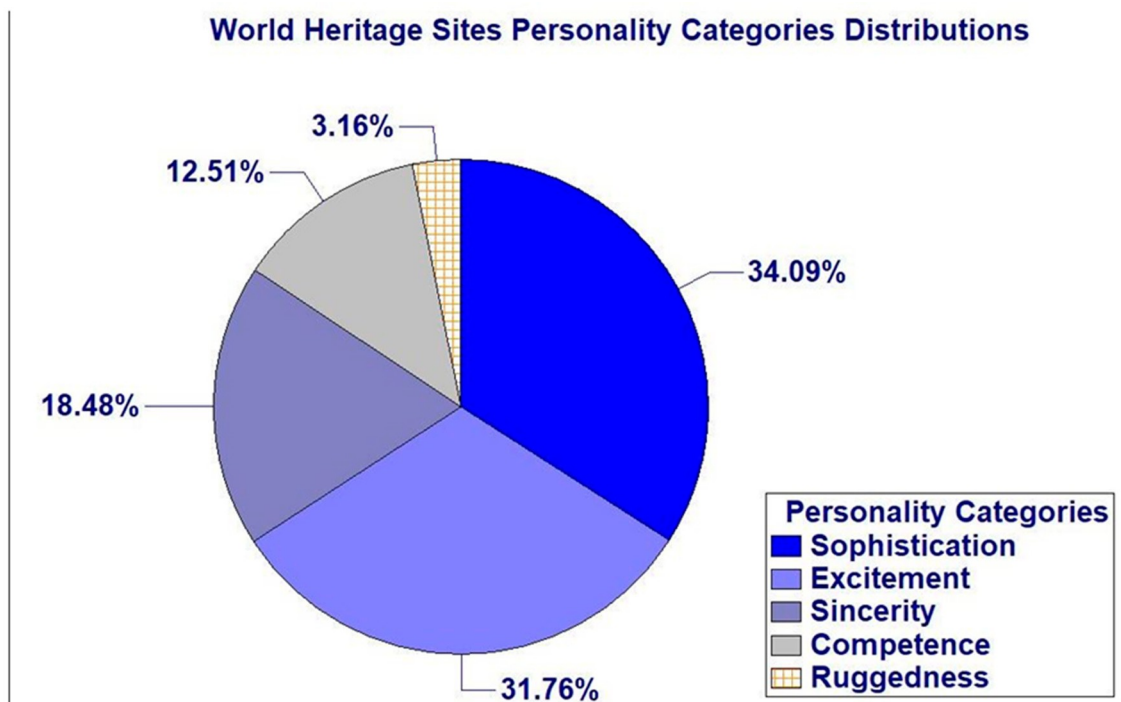
Figure 1. Personality Category Distribution for World Heritage Sites on TripAdvisor.

To effectively compare several WHSs from the 175 sites visitor re-views highlighted as being relevant to the overall WHS personality, we selected 10 WHSs from each country (France, Germany, Italy, and Spain). The selection of these 40 sites (Table 2) was based on the file size, which indicates the number of reviews. Moreover, we selected the sites whose official names are well recognised on TripAdvisor or sites with a maximum of three URLs as in the case of the Alhambra. For each site name, we added initials to the beginning to indicate the country, followed by a number from 1 to 10 (1 refers to a site that has the maximum number of visitor reviews). For example, SP_1_Alhambra (Spain) is the site with the highest number of visitor reviews (336).

In the CA summary, a relationship is confirmed between the personality traits as content variables that are associated with each WHSs and the four WHS personality categories: X^2 was 611.612, with [a]$p < 0.0001$; *df* 156. A two-dimensional symmetric map was employed (Figure 2), which is more appropriate [77] and more widely used in tourism [19,69], as it helps ascertain relationships between sites (rows) and personality categories (columns). Here, the model is explained by the first two dimensions calculated by the sum of cumulative inertia (78.59%). This indicates that 79% of variances are included and that the data can be interpreted through these first two dimensions; furthermore, the quality of the display assessed by accumulative inertia is good (79%)

Figure 2. World Heritage Sites Personality Correspondence Map (X^2 was 611.612, with [a]$p < 0.0001$; *df* 156).

The distances between the personality dimensions and the sites refer to the degree to which sites are linked to each other as well as the specific personality dimension, the degree to which they communicate, and how these dimensions are related (Greenacre, 2017). Figure 1 shows the sites' distances compared with WHS personality categories. In this study, we were more interested in the interpretation of the similarities and differences between WHSs based on the five BP dimensions. This can be explained by the distance between the sites on the two dimensions 1 (X) and 2 (Y) as in the profile of the rows' coordinates (Table 2) and the CA map (Figure 2). For instance, the WHSs Decorated Cave (the site names were shortened on the graph for efficiency of interpretation) in France is shown with the coordinate (0.744), which is far from being similar to Chartres Cathedral, also in France. Chartres Cathedral (0.544) and Place Stanislas (0.468) share a high similarity on the sophistication dimension, as they are very close on the map. We can also see visually, the historic center of Florence in Italy and the Work of Gaudi in Spain are very close to each other on the map.

Later, we interpreted the positions of Wurzburg and Aachen Cathedral in Germany on the CA map as being very close to Cordoba (Spain) and Alcázar (Spain), which indicates that these four sites share a high similarity of the Competence´s traits. The graph showed that most of the German and Spanish sites are grouped close to the Competence category. Sites located in France and Italy are oriented towards Excitement and Sincerity. This interpretation may be important for the WHSs managers who work in the same countries or other countries. The comparison through the CA map enables site managers to determine the site that received equal visitor evaluations. Consequently, marketing managers can determine how to position their sites based on the personality traits most attributed to their WHSs and which sites include highly competitive intangible attributes to their sites to be borne in mind in market strategies.

The CA in text mining can help determine the site outliers and categories on the graph's edges [77]. Firstly, the graph portrays the Ruggedness on the edge of the first dimension and far from being attached to any WHSs. Secondly, the analysis of the relationship between the WHSs as rows and the personality categories as columns shows that Museum Island and Decorated Cave WHSs are located on the outside of the CA map, Which means that these two sites may need to enhance the study of the available user-generated reviews in order to explore how visitors perceived these sites in the WH personality category.

Another significant observation emerges in the correspondence graph regarding the relationship between the type of attractions and the personality dimensions that can be interpreted. It is obvious that some attractions such as Chartres Cathedral, Cologne Cathedral, Aachen Cathedral, Speyer Cathedral, Cathedral, Alcázar, Burgos Cathedral, and Notre-Dame are all types of buildings classified by TripAdvisor as Sacred and Religious Building. These are grouped near to each other on the first dimensions of the graph in the Competence category. Another example is Pont du Gard and Vizcaya Bridge types of bridges located in Excitement. Centre of Rome, Town of Bamberg, and the Historic Site Lyon are types of Historical Cities. Another observation from the graph is that the WHSs within the same countries share very similar soft associations, for example, the woks of Gaudi and, the Catalan Music Palace in Spain are located near each other; the same applies to Villa Tivoli, Villa Casale, Agrigento, and Sassi in Italy, which are very nearby. The Alhambra, Centre Cordoba, Cathedral, Alcázar in Spain, Zollverein, Speicherstadt, and Würzburg Residence in Germany are also positioned very near each other.

Moreover, from the observations in Figure 2, firstly, it is obvious from the CA map that the Ruggedness dimension is very far from being applicable to any of the forty WHSs. Thus, we recommend not considering this dimension for further analysis related to cultural attractions, as its keywords account is 7.20% of the 222 total scale items and 3.6% of the distribution of WHS categories. However, when we customized the dictionary, even though it was clear from the frequency of the keywords that we should exclude Ruggedness, it has been kept so as to demonstrate visually that it is not applicable to WHSs. Later, we

emphasized that Ruggedness items in the 4-Thesaurus BP dictionaries may be useful to employ in other fields of stud. Secondly, even though Sophistication is the most dominant category in the frequency of WHSs personality categories distributions, the forty WHSs that were selected for comparison are more oriented towards the categories Competence and Excitement. The study highlights Sophistication dimension traits are the most frequent used to describing the 175 WHSs according to visitors' post-experience user-generated content.

Table 2. Symmetrical Normalisation of World Heritage Site Personality.

	Principle Coordinate (Rows)			
World Heritage Sites	**Dimension 1**		**Dimension 2**	
	Coord	**Corr**	**Coord**	**Corr**
F 1 Carcassonne	0.151	0.325	−0.196	0.544
F 2 Pont du Gard	−0.130	0.327	0.144	0.398
F 3 Notre-Dame	0.338	0.502	0.203	0.181
F 4 Versailles	0.310	0.851	− 0.102	0.092
F 5 Chartres Cathedral	0.544	0.682	− 0.246	0.139
F 6 Place Stanislas	0.468	0.549	− 0.423	0.447
F 7 Historic Site of Lyon	− 0.201	0.165	0.056	0.013
F 8 Decorated Cave	− 0.744	0.708	0.009	0.000
F 9 Abbey of Fontenay	− 0.047	0.009	0.141	0.081
F 10 Strasbourg	—0.173	0.082	− 0.014	0.001
G 1 Cologne Cathedral	0.336	0.517	−0.162	0.121
G 2 Würzburg Residence	0.317	0.807	−0.116	0.108
G 3 Museum Island	0.080	0.013	0.698	0.973
G 4 Town of Bamberg	—0.508	0.997	− 0.017	0.001
G 5 Aachen Cathedral	0.268	0.180	−0.144	0.052
G 6 Regensburg	−0.264	0.453	0.140	0.127
G 7 Zollverein	0.452	0.610	0.279	0.233
G 8 Speicherstadt	0.452	0.610	0.279	0.233
G 9 Quedlinburg	—0.274	0.425	− 0.145	0.119
G 10 Speyer Cathedral	0.095	0.050	0.073	0.030
IT 1 Trulli Alberobello	—0.369	0.945	− 0.061	0.026
IT 2 Pompei	−0.162	0.248	0.178	0.302
1T 3 Centre Rome	−0.307	0.963	0.005	0.000
IT 4 Sassi	0.025	0.037	−0.039	0.094
IT 5 Agrigento	−0.012	0.003	0.051	0.056
IT 6 Villa Casale	0.056	0.251	0.046	0.164
IT 7 Villa Tivoli	0.021	0.009	−0.165	0.533
IT 8 San Gimignano	−0.442	0.959	0.076	0.028
IT 9 Val d'Orcia	−0.510	0.419	−0.060	0.006
IT 10 Centre Florence	0.007	0.000	−0.468	0.312
SP 1 Alhambra	0.262	0.589	0.207	0.367
SP 2 Cathedral, Alcázar	0.260	0.810	0.015	0.003
SP 3 Centre Cordoba	0.211	0.860	0.001	0.000
SP 4 Antoni Gaudí Works	0.164	0.159	−0.336	0.665
SP 5 Palace catalan Music	0.237	0.293	−0.310	0.502
SP 6 Recinte Modernista	0.427	0.653	0.211	0.160
SP 7 La Lonja	0.177	0.220	−0.152	0.163
SP 8 Burgos Cathedral	0.454	0.831	0.122	0.060
SP 9 Vizcaya Bridge	−0.040	0.009	−0.138	0.107
SP 10 Escurial	0.116	0.060	0.387	0.667
Active Total		1.000		1.000

Symmetrical normalisation.

5. Discussion and Conclusions

5.1. World Heritage Theoretical Contributions

This research determines that visitors perceive WHSs through four personality dimensions which reflect WH values as a top brand. These dimensions are (1) Sophistication: referring to inspiration through such traits as "beautiful", "stunning", and "magnificent"; (2) Excitement: in social activity traits, such as amazing, wonderful, impressive, and unique; (3) Sincerity: conveyed through warmth and acceptance, via such traits as good, nice, original, and real; and (4) Competence: covering traits referring to responsibility, dependability, and security, such as "great", "outstanding", and "complete". The predominate WHS attribute is Sophistication (34.09% frequency). Aaker [11] claimed that brands ascribed Sophistication personality traits had significant value, pointing out the brands Mercedes and Revlon, which use Sophistication traits in their advertising to convey value. Sophistication, introduced to brands by Aaker [11], does not have a counterpart in the Big Five dimensions [12]. Therefore, we ascertain that the visitor-perceived WHS qualities identified concur with findings in previous studies claiming that WH is a top tourism brand [1,3,5].

Our study identified 222 personality traits which include prominent occurrences of personality descriptors congruent with the concepts "authenticity", "integrity" and "criteria of significance" [80]. These 222 visitor-perceived personality traits encompass the WH principles articulated in the UNESCO 1972 Convention and its operational guidelines [80], examples of which are original, authentic, complete, outstanding, unique, and expressional. Moreover, these 222 traits include items used in previous research scales to define the authenticity and integrated perceived quality of OUVs; for example, famous and authentic [35]; magnificent, scenic, beauty, and intact [33]; and eminence, uniqueness, and allure [34]. Thus, visitor acknowledged and assigned personality traits can be linked to perceived authenticity, integrity, and OUVs, which are triggers for increasing visitor numbers.

The study thus concurs with Wang et al. [33], Kim, Oh, Lee and Lee [81], and Nian et al. [82] in that the visitors' perception of authenticity and integrity affords protection and adds economic value to WHS. This notion is supported by the findings of Poria et al. [35] and Wuepper [31], who state that visitors are willing to pay higher entrance fees when they can perceive a WHS's intangible attributes. Thus, the WHS visitor-perceived quality mirrored in the aforementioned 13,619 human-like trait occurrences (clustered within five personality categories with 222 personality traits) can be considered a viable tool for promoting WHSs and similar cultural attractions. Furthermore, this 222-item scale can be used in other studies to measure various aspects of visitor behaviour surrounding WH branding.

5.2. Theoretical Contribution to Brand Personality

BP studies concur that visitors ascribe personality traits to countries, destinations, and places [9,10,40,44,58], but this study extends this animism to WHSs. Psychology studies and Aaker [11] perceived Excitement, Sincerity and Competence as being intrinsic aspects of personality, and Aaker was able to link Sophistication to external aspects of brands. Thus, our study acknowledges Aaker's [11] interpretation of the nature of these personality dimensions, and we link Sophistication to intrinsic aspects of WHSs through such traits as beautiful and magnificent, which visitors admire and that match their own. The other three frequent dimensions Excitement, Sincerity and Competence are related to the extrinsic attributes of WHS, as they exhibit traits such as original and authentic, which reflect UNESCO's internal philosophy.

This study supports previous research on BP stating that Aaker's replication of the five BP dimensions is subject to the specific field of study. In this regard, the four most distributed WHS personality dimensions defined (Sophistication, Excitement, Competence, and Sincerity) are congruent with several studies: Geuens, Weijters, and De Wulf [47] affirmed the replication of the four dimensions in several studies; and Davies et al. [13] noted that these four categories are the most widely explored, even if under different

names. In our study, four of Aaker's five personality dimensions are replicated in the cultural context of WHSs, but Ruggedness is not (3.16%). The present study also supports research by Kumar and Nayak [22], Zhang et al. [10], and Davies et al. [13] who claim Ruggedness has come under attack in the context of marketing and tourism, and is not widely applicable [9,57,69]. Thus, we conclude that Aaker's model perceives Ruggedness as a culturally oriented dimension, neither replicated in, nor applicable to, WHSs.

In addition, it is critical that WHSs managers customizing marketing activities related to their WHSs take into consideration and use these 222-items with the five personality categories of WH to determine: firstly, the strongest personality attributes perceived by visitors for their sites; secondly, which other WHSs are perceived as similar to their sites through the lenses of the visitor post-reviews. The new 222-item scale WHSs personality dictionary and the methods applied in this study may be used as a tool to assist WH or other types of cultural attractions site managers to prioritize a list of sites they should consider as important in marketing related activities and knowledge sharing.

5.3. Methodological Contributions

Empirically, the present study advances the BP scale measurement by introducing a new lexical technique to identify and measure BP. We recognize that the dictionary by Pitt et al. [14] is an important antecedent to the BP lexical approach, and that using text mining to modify it moves the study forward. We have therefore built on previous research [14–19], and taken advantage of the vast amount of data on TripAdvisor and advances in text mining [71] to deduce WHS personality traits. These traits are essential criteria for content validity when constructing a BP scale.

Regarding limitations, we tried to reduce bias while customizing the WHS dictionary; however, the methods may have been influenced by using the specific dictionary of Pitt et al. [14] and the context of the sample. A limitation of the Pitt dictionary is that it does not capture a significant number of high-frequency adjectives that are personality traits. Therefore, linking BP to the dictionary approach with advances in natural language processing for text mining opens new avenues for further research, which could add to the body of knowledge on BP theory.

In the context of our study, we expanded the BP dictionary to include the most relevant, and frequent intangible, association with the WHSs. The current study is inspired by the pioneering methods introduced by Pitt et al. [14], who constructed the first BP dictionary; and following on from this, we have established four new BP dictionaries (namely, the 4-Thesaurus BP dictionaries). In these four BP dictionaries, we extend the list of synonyms for the forty-two traits that are components of Aaker's 15 facets and five dimensions. The technique used to establish these four dictionaries is different from that of Pitt et al. in that it takes into consideration how to link the synonyms for the forty-two traits to the five personality dimensions, based on the level of similarity among the synonyms and the forty-two traits. Moreover, these four dictionaries enable synonyms that are more relevant to the forty-two traits to be included. This makes it easier for the current study to classify those new traits not included in the Pitt BP dictionary, and that are important for describing WHSs, under Aaker's five dimensions [11].

Although much effort was made to provide a complete picture of WH visitor perceived qualities, the present study is limited to the context of European French, German, Italian, and Spanish WH, visitor perceptions and English user-generated reviews. Thus, a similar study could be carried out in another continent's countries to further the knowledge on the WHSs personality. Moreover, a selection of reviews giving visitor perceptions of WHSs on TripAdvisor, or other tourism social networks, in different languages would give a deeper understanding of the intangible attributes of WHSs. This study is also limited to WH cultural sites; thus, identifying the personality of WH natural sites would provide a more complete picture of WHS personality attributes.

Another area that is worth investigating is the relationship between specific types of attractions and the four most distributed WH personality categories. The CA graph

shows that there is a relationship pattern between the types of attraction in the WHSs and the four personality categories. As the study highlighted, most of the cathedrals (as an attraction type) are grouped around the Competence dimension and near to each other. TripAdvisor´s search engine for all attractions provides a classification of types of attraction, for example, most of the cathedrals are categorized under Sacred and Religious Buildings. Using TripAdvisor as a data source is extremely important for such a study.

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4. Publication Two:
Brand Personality Dictionaries and World Heritage Natural and Cultural Sites: Text Mining Approach to Visitor and UNESCO Expert Perceptions

Title: Brand Personality Dictionaries and World Heritage Natural and Cultural Sites: Text Mining Approach to Visitor and UNESCO Expert Perceptions

Abstract

World Heritage Sites (WHSs) are acknowledged as a prominent tourism brand. However, research on the intangible relationship between WHSs and outstanding universal values (OUVs) is lacking. This study uses advances in text-mining, and uses online digital textual data, and BP lexical methods to explore descriptions of WHSs. Although existing BP dictionaries are useful for measuring the personalities of destinations and attractions and capturing their culturally specific meaning, they need further developed. Using 13,741 post-experience visitor generated TripAdvisor reviews, and 1,121 WH centre website descriptions, a natural and cultural WHSs personality dictionary was developed. Visitor and expert perspectives of WHS OUV concepts 'authenticity', 'integrity', 'protection' and 'management' were taken into account. A 389-item WHSs personality dictionary was customised, and attributes classified into five personality categories: Sophistication, Competence, Excitement, Sincerity and Ruggedness. Significant differences in the way UNESCO experts and visitors perceive WHSs were explored, and practical and managerial implications discussed.

1. Introduction

In recent years, World Heritage (WH) have been perceived as a magnetic tourism brand to attract visitors (Y. Yang et al., 2019). However, the way in which visitors perceive WH knowledge still needs further investigation. Academics have perceived WH as a significant brand in tourism marketing and a generator of sustainable economic advantage (Buckley et al., 2020). Even though countries desire the WH brand for its marketing efficiency, academics are still debating whether this increases visitor numbers or generates sustainable incomes (Yang et al., 2019). A comprehensive study of the intangible values of WHSs is needed, particularly insight into how visitors and experts perceive WH qualities in both natural and cultural World Heritage Sites (WHSs). Here, 'experts' means the agents responsible for preparing descriptions of listed WHSs on the UNESCO WH centre (WHC) website. Thus, exploring WH perceived quality from different perspectives can provide insights into WH values for both academics and marketers. Moreover, the current study perceived BP construct as a useful tool for measuring WH intangible meanings.

Aaker (1997) conceptualized the BP scale, which is widely used in tourism, and perceived as an effective tool to measure destination personality (DP) (V. Kumar & Nayak, 2018). Even though Pitt et al. (2007) updated the Aaker (1997)'s five personality dimensions by identifying the first BP dictionary to measure DP from digital texts, previous studies found the dictionary limited (Hassan et al., 2021) to capture specific brand cultural meaning (Papania et al., 2008; Ranfagni et al., 2016). This is because Pitt et al. (2007) restricted the dictionary to synonyms of Aaker items without considering the specific brand items. Brands have been acknowledged as cultural icons communicating cultural meaning based on the intangible associations of each brand known as BP associations (Aaker et al., 2001; Aguirre-Rodriguez, 2014). Attributes of their structures, such as personality dimensions, vary across cultures (A. Ahmad & Thyagaraj, 2014; Rojas-Méndez et al., 2019). Pitt et al. (2007) adopted their dictionary without any BP update, so it cannot fully include further brand association items related to brand culture (Hassan et al., 2021). In empirical traditional DP methods, academics agree that destinations pertain to specific cultures and the existing BP scale (Aaker 1997) still needs further development to include specific cultural meaning pertaining to brands(Shankar, 2018). Therefore, the present study intends to update the lexical BP approach by providing several techniques that can further improve the cultural meaning of personality dimensions by

validating human-like traits in the dictionary items (Fischer et al., 2020). Updating the BP lexical technique may help construct valid WHSs personalities.

Therefore, this study is about constructing a WH personality categorical dictionary that can be used to measure WHSs include items related to natural and cultural attractions as attributed by experts and visitors. This is recommended by various academics who believe constructing a scale from the visitor perception alone has limitations (Ranfagni et al., 2016; Schade et al., 2014). Aaker (1997) and several other scholars have only focused on collecting items from customers for the scales in the construction of BP. Heere (2010), George and Anandkumar (2014), and Schade et al. (2014) also point out that experts' viewpoints are neglected. Rauschnabel et al. 2016 and D'Astous and Boujbel (2007) emphasised that an effective BP scale should cover all aspects of brands. This study also explores for the first time the relationship between WH personality categories underpinned by Aaker (1997)'s five dimensions and the UNESCO concepts Authenticity, Integrity and Protection and Management (UNESCO, 2019) as attributed by experts on UNESCO WH center webpages.

In addition to studying WH attributions for cultural sites which dominate the WH list, the present study explore WH attributions for natural sites. Covid-19 has severely affected the tourism industry, with health and safety regulations limiting the movement of tourism. This has urged academics to develop several new strategies to cope with new regulations, which in turn has changed visitor behaviour (Litheko, 2021). Several trends in visitor motivations have been identified, such as domestic tourism, and private and solo tours and a great pull towards natural attractions (Kusumaningrum & Wachyuni, 2020), as these have inherent qualities that generally comply with Covid-19 regulations. Particularly eco-tourism (Sung, Kim, & Kwon, 2021), agritourism (Roman & Grudzień, 2021) and geo-tourism (Afifi & Negm, 2020), where visitors look for safe areas to enjoy natural attractions (Litheko, 2021). During the post-Covid-19, this may help marketers promote these sites, and it may allow for generating WHSs personality items related to all aspects of their cultural meaning.

2. Literature Review

2.1 World Heritage Brand in Tourism Marketing

The natural and cultural WHSs as tourism attractions are considered one of the destination elements which have potential influence on attracting visitors (Kirilenko et al., 2019). Moreover, tourism destinations with many WHSs are likely to attract more visitors (Mariani & Guizzardi, 2020; Wang et al., 2015) and contribute to promoting the overall destination image (B. Liu et al., 2017). Ekinci and Hosany (2006) when investigating for the first time the DP, acknowledged that the attractions are part of the direct sources, which contribute to identifying the DP categories. Despite the importance of attractions, in particular, WHSs, several studies have investigated the DP on a macro level (Shankar, 2018), Analyzing the intangible meanings of attraction, such as WHSs personality categories as microelements of destinations that may assist in improving destination positioning, still require investigation (Saeed et al., 2021).

The need for tourism marketing as a potential competitive tool pushes tourism promotion agencies to use WH as a tourism brand (Y. Yang et al., 2019). UNESCO developed the concept of WH which is primarily perceived as a unique legal instrument for protecting listed sites (Ryan & Silvanto, 2014). For the WH's 40th anniversary and the time of collecting this study data, the list of WHSs reached 1,121, indicating its prominence. Promotion agencies are increasingly focusing on the intangible aspects of cultural and natural heritage (Skinner, 2018), and WH objectives are expanding beyond conservation to include new aspects of tourism promotion (Buckley, 2018). Recently, WH has been perceived as a top value tourism brand (Yang et al., 2019) through the unique, intrinsic attributions given to WHSs. Moreover, WH enhances sustainable tourism development by increasing the number of visitors and attracting socio-economic development (Buckley et al., 2020; Castillo-Manzano, Castro-Nuño, Lopez-Valpuesta, & Zarzoso, 2021).

Drost (1996) pointed out the positive link between sustainable tourism and WHSs; stress that one of the WH 1972 convention objectives was to attract visitors and share experiences worldwide. King and Halpenny, (2014), and Poria, Reichel, and Cohen (2013) urge UNESCO to use their communication channels to enhance visitors' knowledge of WH. Wuepper and Patry (2017) emphasized that under the convention agreement UNESCO is compelled to communicate WH. Various studies have thus measured visitor awareness of WH and the extent to which it influences their behaviour such as visiting, revisiting or willingness to pay a higher entrance fee to WHSs (Adie & Hall, 2016; King & Halpenny, 2014; Wuepper,

2017; Wuepper & Patry, 2017). Buckley (2018) argues that visitor knowledge of the WH brand plays a crucial role its success in the complex relationship between pursuing economic benefits by increasing visitor numbers, and protecting WH areas to establish a sustainable relationship with tourism demand. The more visitors, or public and private organizations become aware of WH values in terms of protecting WHSs from irreversible damage, the more they will appreciate paying for conservation of listed sites (Wuepper, 2017). This requires enhancing visitor awareness of the intangible value of the WH brand (Adie, 2017).

Visitors knowledge of WH values such as perceived authenticity can make WHSs more sustainable (Baral et al., 2017; Nian et al., 2019). Previous studies have used the Likert scale to measure visitor awareness of WH (Adie & Hall, 2016; King & Halpenny, 2014), but is considered limiting when used to describe the intangible values of the WH brand (Keller, 2013). Measuring WH awareness in this way relies on the brand's promotion strategies, which may have a temporary effect on customer behaviour (Keller, 2013). In a study exploring WH visitor perception, Baral et al. (2017) stated that although most visitors did not recall the WH meanings, they were familiar with the brand name. Abdalla Elsayed Hassan et al. (2021) emphasised that WH intangible meanings still require further research and explored cultural WH associations from the visitor lens.

Few studies focus on understanding the significance of WH from a visitor subjective perspective. Poria, et al (2013) found that cultural WHSs were perceived as being culturally famous sites of major significance to humankind, as well as being authentic, must-see, well-managed, having high fees. Wang et al. (2015) examined domestic visitor perceptions of natural WH areas and conceptualized OUVs as a magnificent, scenic, beautiful, and intact ecosystem, with terms referring to abundant flora and fauna. However, when measuring visitor perceptions at Sagarmatha and National Park (Nepal), Baral et al. (2017) found that visitors' understanding of WH was limited, and highlighted that perceived authenticity may contribute to the protection of WHSs. Furthermore, Baral et al. (2017), Kim et al. (2018), and Nian et al. (2019) introduced academic terms for OUVs and authenticity in order to measure visitor knowledge of WHSs. They employed various scales identified by scientists. Kim et al. (2018), and Nian et al. (2019) adopted authenticity terms taken from Bara et al. (2017) and Wang et al. (2015).

By contrast with previous studies that used scales for other concepts identified by scientists, Poria et al. (2013) studied WH attributes from a visitor perception using a limited

number of samples. Additionally, even though Poria et al. (2013) and Hassan et al. (2021) identified the WH personality from the visitors' perception, they only derived their conclusions about WH personality attributions from visitor evaluations of WH cultural sites. Therefore, an understanding of the meaning of WHSs from different perspectives related to its cultural perspectives such as experts' point of view and natural WHSs still lacking. Understanding how visitors perceive the quality of natural WH sites could assist tourism-marketing agencies, particularly during the Covid-19 pandemic.

According to this study, when visitors know the value of WH, it adds sustainable economic value to WHSs (Buckley, 2018; Drost, 1996; Nian et al., 2019; Wuepper & Patry, 2017). Poria et al. (2013) emphasized that visitors are more attracted to immateriality, or WH philosophy, and the concept of cultural significance. Furthermore, Plummer (1985) described that acknowledging a social phenomenon should be considered from two perspectives. Firstly, in terms of the way in which the brand is communicated by entities responsible for its creation (sender's side as UNESCO WH brand) and secondly, in terms of its current social perception (recipient's side or visitors' attributions). Therefore, the aim of this study is to explore WHSs intangible meanings from visitor reviews and descriptions by WH experts. BP lexical scale approach and methods were developed and have proved effective in measuring DP from digital texts (Hassan et al., 2021; Pitt, Opoku, Hultman, Abratt, & Spyropoulou, 2007; Rojas-Méndez & Hine, 2016). The current study has developed the existing lexical approach for defining WH personality categories and to further enhance the practical implications of BP in the tourism market.

2.2 Brand Personality and Lexical Approach in Tourism

Aaker's (1997) BP concept evolved from human psychology's Big Five Factors (Mccrae& John, 1992), where thousands of words were studied in order to identify the most salient characteristics of personality (Caprara et al., 2001). The Big Five are Agreeableness, Conscientiousness, Extroversion, Openness, and Neuroticism (Mccrae and John 1992). BP gained academic interest after Aaker (1997) extended the five-factor structure to brands, providing the first valid, generic BP scale. Aaker (1997)'s model resulted in five personality dimensions: Competence, Excitement, Ruggedness, and Sophistication Sincerity, which includes 15 facets within 42 personality items that can be used to describe brands. Although Aaker's BP was established for product and service brands, it has been widely used to measure one brand or product category with high abstract values. BP has been extended to several areas

such as countries (D'Astous & Boujbel, 2007; Rojas-Méndez & Hine, 2016; Rojas-Méndez et al., 2019; Skinner, 2018), places (Kaplan et al., 2010), destinations (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; Murphy, Moscardo, et al., 2007; C. Zhang et al., 2019), and cultural attractions (Hassan et al., 2021). Based on to Radler (2017), this study focuses on two areas of BP in the literature: (1) applying BP to tourism context WHSs, and (2) developing the lexical methods for measuring WH.

In tourism, academics agree that BP is a prominent vehicle for positioning tourism destinations (C. Zhang et al., 2019). The BP construct helps identify various human-like traits in destinations, grouped under specific dimensions. Rojas-Méndez and Hine, (2016) highlighted that tourism places can be personified with a multi-dimension. The BP concept has also proved its viability in moderating several visitor variables such as purchase intentions, revisit and loyalty (Eisend & Stokburger-Sauer, 2013a; C. Zhang et al., 2019). Using BP in the tourism domain produces a conceptual ambiguity with the concept of destination image as both measure the soft attributes of brands (Hosany et al., 2007). Recently, academics acknowledge these two concepts as being different, yet related concepts, or perceive BP as an affective component of brand image (Ekinci & Hosany, 2006; Hassan et al., 2021; Murphy, Moscardo, et al., 2007; C. Zhang et al., 2019). Therefore, BP has begun to attract significant attention in tourism, and the lexical scale has been introduced to facilitate the implications of BP (Pitt et al., 2007).

Skinner (2018) described adapting BP to destinations as a sophisticated process. Aaker's concept is derived from product and service brands (Austin et al., 2003), whereas tourism destinations are public assets with both tangible and intangible aspects that differ from products (V. Kumar & Nayak, 2018). Advances in Information Communication Technology (ICT) and text mining have brought Web-based tourism DP to academic attention (Pitt et al., 2007; Rojas-Méndez & Hine, 2016). ICT has been recognized as a prominent way to portray destinations digitally, and textual digital data is seen as a way to give insight into consumer behaviour in marketing (Curiskis et al., 2020). Pitt et al. (2007) provided the first BP dictionary to measure these destinations, and used a novel lexical approach to define the tourism website personality for South Africa.

Pitt et al. (2007) researched methods to identify web-based personality through computerised context analysis. The textual contents of various tourism websites were analysed by using the first well-known BP dictionary, consisting of 833-items which are synonyms for

Aaker's 5 dimensions and 42 items. Pitt's dictionary helps detect DP from large amounts of textual data and introduces the lexical approach to DP parallel to the traditional approach presented by Ekinci and Hosany (2006), which adopts Aaker (1997) psychometric methods to destinations. The methods provided by Pitt et al. (2007) have been used in several other studies (Hassan et al., 2021; De Moya & Jain, 2013; Opoku, Abratt, & Pitt, 2006; Papania, Campbell, Opoku, Styven, & Berthon, 2008; Paschen, Pitt, Kietzmann, Dabirian, & Farshid, 2017; Rojas-Méndez & Hine, 2016). However, Pitt, et al. (2007)'s dictionary items have also been criticised (Hassan et al., 2021; Papania et al., 2008).

Pitt's dictionary is limited when it comes to items relevant to specific subjects of study (Hassan et al., 2021; Papania et al., 2008). When Papania et al. (2008) investigated the personality of biotechnology firms' websites, they found that items relevant to their concept were absent from the dictionary and vice-versa. Hassan et al. (2021) advanced using BP lexical methods by measuring the BP of cultural WH. In the process, they explored that several significant items related to the cultural attraction are not included in the Pitt 833-item dictionary, and therefore provided new techniques to include items from outside and inside the 833-items of Pitt et al. (2007). Hassan et al. (2021) intended to define WH personality, but they included only cultural WHSs. Therefore, this study introduces new techniques to advance the BP lexical approach, while measuring and capturing the soft meaning of WHSs related to its overall cultural context. Therefore, the following questions are posed:

1 - What are the most significant WHS personality items, and how can these items be categorized under Aaker (1997)'s five personality dimensions in order to construct a comprehensive WHSs BP dictionary? 'Comprehensive' here means that the dictionary should reflect the views of both visitors and experts regarding natural and cultural WHSs. It is worth mentioning that the validations of items such as personality items in previous BP dictionaries provided by Pitt et al. (2007) and Hassan et al. (2021) were missing. Thus, the current study provides a technique to ensure that the WH dictionary items include personality items based on collecting items previously evaluated in BP and psychology studies (Fischer et al., 2020).

2 - What are the WHSs personality distributions? Here three hypotheses are designed: 1) there are significant differences between how visitors attribute WHSs and how experts attribute WHSs; 2) there are differences in the WH personality dimension distributions between the natural and cultural sites; 3) there is a link between the WH personality dimensions and the various Authenticity, Integrity, Protection and Management UNESCO concepts.

3. Analytical Procedures

In the current study, the main aim is to construct a WHSs personality dictionary based on Aaker's five dimensions. In order to accomplish this, this study used several techniques as follows: Firstly, several digital corpora are selected related to the WHSs to explore the intangible meanings of these sites. Secondly, several text-mining preprocessing features are used to identify the most frequent items attributed to WHSs. Thirdly, those soft meanings that can be validated as personality traits from all WHSs are selected. The selected WH personality items are categorized under Aaker's five personality dimensions in a form of WH categorical dictionary. Thus, the analytical procedures refers to the selection of the sample, and introduce the technique for constructing the lexical WH dictionary.

3.1 Sample and Data Collection

To identify WH personality items from both the experts and visitors, two platforms with digital text describing WHSs were first determined. The first platform, UNESCO WHC (https://whc.unesco.org/en/list/ accessed 04/11/2021), expresses expert views on WH. Another platform expresses WHS visitor views on TripAdvisor (www.tripadvisor.com accessed 05/11/2021), a reliable tourism marketing resource (Xiang et al., 2017). The WHSs can be interpreted from both perspectives, the senders (UNESCO experts) promote and communicate the WH brand, while the receivers (visitors) receive the materials communicated by the experts. Between May and August 2021, 9,971 visitor-generated reviews for WH cultural sites and 3,500 reviews for WH natural sites were extracted from TripAdvisor. Additionally, all text describing the 1,121 WHSs from the UNESCO WHC was extracted. This is categorised into 869 (77.5%) cultural, 213 natural, and 39 (22.5%) mixed sites.

Attributions from the 9,971 visitor-generated reviews related to 261 cultural WHSs located in two UNESCO areas: Asia and the Pacific and Europe and North America. The reviews relate to the top seven countries with listed sites: China (37); India (30); Japan (19), France (39); Germany (44); Italy (50); and Spain (42). These 261 WHSs in seven counties account for 30% of the total list of WH cultural sites. The main concern is to collect as much as possible from visitor reviews related to WH. The selections is because UNESCO puts the communication of WHSs in the hand of each country (Adie, 2017), and the UNESCO WH list show that these seven countries may provide adequate user-generated reviews. On TripAdvisor, visitor reviews for WH are more frequent than those for natural WHSs. Visitor

reviews were collected from all 213 natural WHSs listed. Of these, we examined 3,500 reviews related to the 101 natural WHSs available on TripAdvisor. This study first prepared one file for 869 cultural sites, and another for 213 natural WHSs for the UNESCO experts by extracting all 1,121 WHSs data from the WHC and describing all the listed WHSs until 2020.

To collect the WHS visitor reviews from TripAdvisor, two issues were taken into account. Firstly, most of the WHSs mentioned on the UNESCO WH list do not exactly match the attractions on TripAdvisor. Secondly, for most TripAdvisor visitor-generated reviews on WH attractions, some visitors recognized and articulated the keywords 'World Heritage', while others did not. Accordingly, only data from TripAdvisor that mentioned WH and were related to WHSs were collected. A total of 402 URLs related to 261 cultural WHSs and 266 URLs for all 213 natural WHSs were explored. The TripAdvisor filter option was also used to collect data on the WH brand, and only searched URLs which included the keywords 'World Heritage' or 'UNESCO World Heritage' in English visitor generated-reviews. 9,971 reviews mentioning WH were collected from the 261 cultural WHSs; and , 3500 reviews mentioning WH were gathered from 101 natural WHSs. Lastly, four textual data sets were compiled (1) TripAdvisor cultural WHSs, (2), TripAdvisor natural WHSs, (3) UNESCO cultural WHSs, and (4) UNESCO Natural WHSs. These four data sets were used to construct WH personality dictionary items, and analyse perceived attributions of WHSs.

3.2 World Heritage Personality Dictionary Construction Techniques

Churchill, (2006) in his criteria for scale construction emphasized that the importance of content validation of in order to construct scale items that reflect the brand's entire features. Hence, it was ensured that the WH personality categories included items provided by visitors and experts that are unique to cultural and natural WHSs. As part of this process, four sets of textual data were extracted from TripAdvisor and the UNESCO WHC, from which items matched Aaker's five dimensions and that can be attributed to the overall of WHSs were extracted. Constructing the WH dictionary followed three steps: **Text Pre-processing; Identifying of Initial Items; and Purification and Classification of Personality Items.**

Text Pre-processing: The large textual data files were compressed and all adjectives related to WHSs extracted using text pre-processing linguistic features (Denny & Spirling, 2017). From Knime Software's text-pre-processing nodes, several linguistic features (Denny and Spirling 2017) such as Case Converter Punctuation, Numbers Erasers, and Stop-word were used, and all irrelevant or commonplace words were eliminated (pronouns, numbers and

punctuations). Moreover, Stemming and Lemmatization were used to truncate the words to their primary form. Part of Speech and Dictionary Tagging Filters assisted in identifying the targeting synthetic parts of sentences. In this case, this meant defining adjectives attributed to WHSs from an entire text. These linguistic features help reduce the complexity of the textual data. By using Dictionary Tagging in Knime, all adjectives can be extracted from the TripAdvisor and UNESCO data. Once all the adjectives are extracted, the potential personality items were then defined.

Identifying Initial Items: The study aims to define and validate items that can attribute WHSs as potential personality traits. As Aaker (1997)'s dimensions the foundation of this study, Pitt et al. (2007) and Hassan et al. (2021) BP dictionaries and methods (expansions of Aaker's dimensions synonyms) were used to determine potential personality traits for describing WHSs. the main core of BP scale identification is to identify and classify the personality items relevant to brands (Aaker,1997). The most prevalent criticism of Aaker's BP scale is it has been received is its inability to capture brand-specific cultural meaning when extended to another context than the USA, where originally it was constructed. This limitation can occur with the lexical approach when using Pitt et al. (2007) dictionary given that the brand context is frequently not included (Papania et al., 2008) in the dictionary construction as happened with the use of BP dictionary without any update (Hassan et al., 2021). Moreover, Hassan et al. (2021) constructed four dictionaries to encompass brand context when defining cultural WH personality item-dictionaries. First, items were collected from the data that agree with the 833 synonymous items in Aaker's scale, customized by Pitt et al. (2007) from Encyclopedia Britannica's online Thesaurus. Moreover, items that are unique to the concept of WHSs and outside of the Pitt BP dictionary were aggregated through a dictionary matching process between the items extracted from WH corpus data and Hassan et al. (2021)'s Four-Thesaurus BP dictionaries which expanded Aaker's 42 items to 9,460 items from four dictionaries; Power Thesaurus, OneLook, Thesaurus Dictionary, and Merriam Webster.

Validation of Personality Items: Pitt et al. (2007)'s BP dictionary and Hassan et al. (2021)'s Four-Thesaurus dictionaries relied on Aaker's 42-item, five dimension structure. The validity of the items of both dictionaries for personality traits relied on the fact that the items are highly synonymous with Aaker's 42 items, and depending on pair synonym similarity. Even though the synonym similarity approach is proven to be useful for grouping together similar items under unique dimensions in the study of Lieven (2017), the items emerging from the synonyms concept may still need further investigation regarding its suitability for personality

items (Chen & Phou, 2013; Geuens et al., 2009; Ye, 2012). There are two common BP scale item construction techniques. The first falls within the traditional BP empirical studies and restrict items to those that describe human behaviour (Davies et al., 2018). Thus, items imported from psychology and marketing studies are perceived as valid as they have been previously investigated and agreed upon by language experts or psychologists. The second technique uses the lexical approach, wherein the process of validating items is missing as it depends on the synonyms' relevancy (Hassan et al., 2021; Pitt et al., 2007) as explained. Thus, the current study introduces a new technique to extract and validate personality items from the digital text by building on existing personality trait dictionaries containing thousands of validated words.

First, the items extracted from the match between the four sets of digital data adjectives are matched to Pitt et al. (2007) and Hassan et al. (2021) dictionary items. Second, the selected items emerging from the first match are matched to the available psychology and tourism marketing personality dictionary items previously studied for appropriateness within the field of psychology. The first match ensures that the potential items agree with Aaker's five dimensions, and the second match ensures that the selected items are suitable to be personality items. Fischer et al. (2020) were the first to use this technique in psychology studies, and the current study extends this to marketing studies.

From psychology studies, the four English dictionaries perceived as being the most comprehensive for personality were used (Caprara et al., 2001; Fischer et al., 2020), in addition to dictionaries tailored for marketing in domains such as places, counties, and destination BP studies. From psychology studies, 18,337 non-redundant personality items were collected from Goldberg (1982), Saucier (1997), Norman (1963), and Allport and Odbert (1936) hereafter called psychology dictionaries. From marketing studies, 393 non-redundant items were collected from Aaker (1997), Ekinci and Hosany (2006), D'Astous and Boujbel, (2007); Kaplan, Yurt, Guneri, and Kurtulus, (2010); Kumar and Nayak, 2018; Lieven, (2017); Rojas-Méndez and Hine, (2016); Rojas-Méndez, Papadopoulos, and Murphy, (2013); Zhang et al., (2019), and Kumar and Nayak, (2018), hereafter called DP dictionaries. Allport and Odbert (1936) are the first to hypothesise that personality inhabits natural language terms, and their dictionary figures prominently in the development of the Big Five (Caprara et al., 2001).

Purification and Classification of Personality Items: Here the aim was to construct the scale dimensions with items contributing to the overall WH description from potential items

selected in the previous step. As part of this process, items are selected and categorized according to Aaker's five dimensions. Firstly, to select significant items to the concept of WH, frequency criteria that agreed with the text-mining methods were applied (Denny & Spirling, 2017). After pre-processing the four data sets: TripAdvisor and UNESCO natural and cultural WHSs, items that are mentioned in the data at least 0.01% were selected, which is the minimum acceptable percentage in text mining for selecting appropriate keywords from textual data (Denny & Spirling, 2017). When selecting the most frequent items from the data (0.01% minimum), the item frequencies for each file individually were calculated. This enabled us to figure out the important keywords related to each natural and cultural visitor review, and UNESCO attributions for WHSs, as well as differences in the centrality of keywords for each data set. Once the most frequent items attributed to WHSs were selected, they were categorized according to Aaker's five dimensions: Competence, Excitement, Ruggedness, Sophistication and Sincerity. This classification is underpinned by studies by both Pitt et al. (2007) and Hassan et al. (2021), where detail account about the items' categorization is provided.

3.3 World Heritage Personality Dictionary

The first aim of the study is to construct a WH personality item-dictionary. In the Text Pre-processing step, all the adjectives from all the TripAdvisor and UNESCO data were extracted. From TripAdvisor, 50,089 unique adjectives from 3,500 visitor-generated reviews for natural (13,850) WHSs were extracted; and from the 9,971 visitor reviews for cultural WHSs (36,234). From the UNESCO experts' descriptions, 22,384 unique adjective terms for both cultural and natural WHSs were extracted. When extracting the adjectives from UNESCO, the texts were not split because the number of natural WHSs is very low compared to the number of cultural WHSs. Thus, all UNESCO's 1,121 sites as one data set were considered. Therefore, a total of 72,473 adjectives attributed to WHSs were defined, and applied a frequency criteria of 0.01% minimum to select the high frequency items. The second step in constructing the scale was to define potential items. Items that agreed with Pitt et al. (2007) and the Four-Thesaurus dictionaries of Hassan et al. (2021) were selected as synonyms for Aaker's five dimensions. For natural sites, 477 items were matched to BP dictionaries; for cultural sites, 444 were matched; and from UNESCO adjectives 530. Then these lists of items were filtered to give one single item list.

The following step involved purifying and classifying personality items. From the 477 items extracted from the match between the adjectives related to natural WHSs and BP

dictionaries, 297 unique items that matched the psychology and marketing personality dictionaries were defined. From the 444 adjectives related to WH cultural sites, 332 items were filtered; and from the 530 from the UNESCO WHC, 301 personality items were defined. Therefore, from the three potential personality lists, 389 non-redundant personality items were defined. Table 1 shows a 389-item personality dictionary for WHSs: Competence (26.15%), Excitement (23.33%), Sophistication (21.02%), Sincerity (20.76%), and Ruggedness (08.71%). The study found that the percentage of ruggedness is very low, which indicates that this item is not suitable for describing WHSs. This concurs with other studies in marketing that explored that Ruggedness was not well distributed (Davies et al., 2018).

Table 1. World Heritage Personality Categories and Item Frequencies

World Heritage Personality Dictionary Natural and Cultural WHSs - Visitor and Expert Attributions							
Competence		**Excitement**		**Sincerity**		**Sophistication**	
outstanding	safe	amazing	scheduled	natural	exemplary	beautiful	exquisite
protected	learned	impressive	colorful	**nice**	customary	spectacular	**impressed**
universal	star	unique	alive	original	pioneering	wonderful	attractive
exceptional	organized	**fantastic**	vivid	local	originality	stunning	calm
public	untouched	**awesome**	democratic	significant	accurate	**lovely**	ornate
huge	ideal	artistic	influential	ancient	standard	magnificent	astonishing
scientific	consistent	modern	overwhelming	traditional	modest	famous	noted
social	productive	breathtaking	eclectic	major	convenient	excellent	sensitive
responsible	competent	free	encouraged	remarkable	prime	developed	renowned
rich	deserving	particular	fertile	essential	compatible	picturesque	careful
able	executive	specific	incomplete	**lucky**	precise	royal	worldly
complete	proud	living	**unexpected**	real	practical	scenic	exotic
industrial	concerned	glacial	unfinished	**happy**	attached	intact	striking
strong	constant	cool	**colourful**	authentic	healthy	fascinating	damaged
knowledgeable	secure	vulnerable	progressive	typical	ordinary	tranquil	artificial
perfect	successful	peaceful	intriguing	provincial	proper	pretty	altered
effective	supreme	rare	**relaxed**	friendly	adaptive	grand	prominent
approved	glorious	contemporary	**excited**	existing	damp	baroque	sophisticated
commercial	ministerial	current	arctic	distinctive	reserved	fine	elegant
fortified	modernist	pristine	unspoiled	clean	bright	expensive	distinguished
golden	intellectual	dramatic	lively	**comfortable**	cooperative	**gorgeous**	delightful
restricted	efficient	controlled	vibrant	live	normal	magical	studied
experienced	employed	recent	informed	accessible	insular	byzantine	**mesmerizing**
diverse	mercantile	active	adventurous	understanding	**decent**	fabulous	ornamental
comprehensive	**definite**	popular	moderate	limited	primeval	quiet	**enchanting**

spiritual	ruling	absolute	mysterious	indigenous	passionate	alien	precious
holy	qualified	dynamic	refreshing	considerable	**odd**	regular	**cute**
sufficient	flourishing	**unbelievable**	strange	civil	**honest**	harmonious	celebrated
lush	eminent	fresh	**terrific**	worthy	primitive	involved	advanced
classical	governing	innovative	**exhilarating**	worthy	touching	majestic	practiced
principal	devoted	abandoned	advised	True	tangible	superb	aristocratic
dedicated	endowed	creative	**entertaining**	pleasant	concrete	charming	lavish
marked	prosperous	separate	**enthusiastic**	sunny	unusual	aesthetic	ready
fortunate	thorough	inspiring	astounding	native	romantic	distinct	**delicious**
notable	guaranteed	brilliant	keen	helpful	memorable	critical	elevated
favorite	**bustling**	**serene**	**weird**	affected	strengthening	undisturbed	**photogenic**
managing	dominant	exciting	curious	sheer	serious	changed	capped
extraordinary	**knowing**	vital	**cooling**	substantial	pastoral	**enjoyable**	catching
valuable	chosen	uncontrolled	diversified	primary	simple	**quaint**	charismatic
protecting	flowing	isolated	**thrilling**	common	actual	splendid	controlling
official	improving	temperate		inspired		respected	exclusive
integral	reasonable	growing					

Ruggedness			
complex	**tough**	massive	strenuous
wild	dangerous	challenging	dense
difficult	mountainous	remote	harsh
hard	immovable	rugged	rigorous
physical	nomadic	powerful	jagged
rural	severe	rough	**rating**
intricate	irregular	rocky	demanding
volcanic	enduring	arid	
strict	terrible	stony	

(continued left columns)

leading	committed	autonomous
preserving	**pleased**	**marvelous**
protective	suitable	developing
systematic	confined	determined
steering	blessed	independent
genius	**exhausting**	noteworthy
formal	**grateful**	flowering
professional	blooming	sculptural
broad	logical	emerging

Items in bold are Unique to TripAdvisor dark grey: and UNESCO in light grey

Keywords extracted from TripAdvisor for natural WHSs and keywords extracted from the cultural WHSs do not differ significantly. Yet, when investigating the items extracted from UNESCO data with the items extracted from TripAdvisor for both natural and cultural WHSs, findings showed that there are items unique to each data set. Table 1 shows the items that appeared in the UNESCO data, but not found in TripAdvisor, and vice-versa. For example, Social, Vulnerable, Baroque, and Contemporary are attributed to WH by experts with adequate frequencies, but these items were not extracted from the natural and cultural items from visitors' reviews on TripAdvisor. In contrast, items such as Nice, Lovely, Fantastic, and Awesome are attributed frequently by visitors, but were not extracted from the UNESCO Data's 0.01% of frequent items. If prominent items are not to be overlooked, constructing a WH personality category dictionary from different sources is crucial (Rauschnabel et al., 2016).

4. Analysis of Results

Here, this study present the results of the WH personality dimension distributions as perceived by visitors and UNESCO experts in natural and cultural WHSs, and it also relate the visitors' and experts' WH perceptions to UNESCO WH concepts.

1.   World Heritage Personality Categories Distribution

The current study applied the customized WH 389-item personality dictionary to investigate how visitors and experts have perceived cultural and natural WHSs. In the first place, the relationships between the UNESCO concepts of Authenticity, Integrity, and Protection and Management, and the WH 389-items dictionary classified into five categories: Competence, Excitement, Ruggedness, Sincerity and Sophistications, were examined. Secondly, how experts from the UNESCO WHC and visitors from the TripAdvisor digital data files view cultural and natural WHSs personalities were explored. Finally, the visitors' and experts' WH perceived personality qualities in relation to UNESCO concepts and Aaker's interpretations for the five BP dimensions were analysed.

2.1 UNESCO World Heritage Personality Category Distribution

In order to understand the relationship between various UNESCO concepts and Aaker (1997)'s five dimensions, Aaker (1997)'s interpretations of the meanings of these dimensions were referred to. Firstly, when Aaker (1997) interpreted her five dimensions, she relied on the link between her five dimensions' items and the items in the Big Five, which underpinned her scale. She explained that only three dimensions agreed with the Big Five, which describe the intrinsic aspects of brands. Sincerity agrees with Agreeableness as both categories include items referring to warmth and acceptance; Excitement agrees with Extroversion as both refer to socialization, activities, and energy. Competence agrees with Conscientiousness as both, wherein they include items of dependability, responsibility and security. In addition, Sophistication and Ruggedness are connoting with the external part of the brand and do not exist in the Big Five. These two dimensions have attributes of aspiration, which visitors may desire but not necessarily have. Hence, Aaker's interpretations are used to understand WH personality.

To analyse the distribution of WH personality categories in the textual data provided by UNESCO experts on their webpage, the WH personality dimension distributions for three UNESCO concepts were measured: (1) Authenticity, (2) Integrity, and (3) Protection and

Management. The same process was followed in text-pre-processing to prepare text data for each concept. AntwordPro software was then used to measure the distribution of UNESCO personality using the customized 389-item WH personality dictionary. To understand the relationship between the UNESCO concept and the WHSs personality categories, a confusion matrix for both the concept and category distributions was generated. This matrix helps understand the mutual link between the UNESCO concept and WH personality categories. Curski et al. (2020) acknowledged the use of the matrix when analysing relationships between various variables in order to define the top keywords for specific topic modelling from un-categorised data in relation to previously defined categories.

Table 2 presents the distribution of personality categories for each UNESCO concept. Authenticity (38.10%) is highly represented by Sincerity items such as Original, Authentic and Natural. This is congruent with the UNESCO interpretation for Authenticity, wherein a WH site should prove original in terms of WH site components (UNESCO, 2019). Therefore, the most frequent items used by experts are Original, Authentic, Typical and Natural. Moreover, the concept of Integrity (34.46%), and Protection and Management (47.23%) were both found to be frequently described by UNESCO expert through items of Competence such as Complete, Protected and Preserving. A WH site should also demonstrate the wholeness to fulfil the Integrity criteria. Furthermore, the concept of Protection and Management, where experts define existing protection and management systems and strategically define how they will manage and protect listed WH in order to keep its OUVSs values. Here it can be concluded that Authenticity is well described by Sincerity, Integrity, Protection; and Management by Competence. Furthermore, Sincerity and Competence are the most attributed categories because they refer to intrinsic features of WHSs. Sincerity, on the other hand, refers to warmth and acceptance. Competence has inherent qualities of dependability and responsibility that are needed to protect WHSs. Finally, Ruggedness is the least frequent of the three concepts; hence, it can be determined that the items of this dimension are unsuitable for describing WHSs.

Table 2. UNESCO Concepts Personality Matrix

UNESCO World Heritage Concepts Personality Categories Distribution			
Personality Categories	UNESCO Concepts		
Categories	Authenticity	Integrity	Protection
Competence	30.10	34.46	47.23
Excitement	15.23	14.16	11.68
Ruggedness	04.95	07.20	04.97
Sincerity	38.90	30.07	28.58

Sophistications	10.79	11.86	07.51

2.2 Personality Category Distribution in World Heritage Sites

In the present study, the 392-item WH personality categories are expanded to investigate WH personality distribution. Table 3 shows the frequency of WHSs personality categories and how both visitors and experts perceive cultural and natural WHSs. Firstly, in terms of visitor perception, Sophistication is the most attributed category in cultural WHSs (38.93) and natural WHSs (29.34%). Excitement is the second most distributed category in both cultural (24.21%) and natural WHSs (24.65%). Sincerity makes up the third most frequent personality category in cultural (23.16%) and natural WHSs (19.85%). Competence is ranked as number four, but less frequent in cultural WHSs (12.33%) than natural (15.56). Lastly, Ruggedness is the least frequent category in both cultural (04.65%) and natural (07.18%) WHSs. Secondly, with regards to UNESCO experts, Competence was the highest frequency attribution in cultural (30.02%) and natural (32.49%) WHSs. This was followed by Sincerity in cultural (27.98%) and natural (29.39%) WHSs. Excitement was the third most frequent category in cultural (16.37%) and natural sites (17.71%). Again, Ruggedness is the least distributed in cultural (06.54%) and natural (08.20) WHSs.

Table 3. Personality Category Distribution in World Heritage Sites

Personality Category Distribution in World Heritage Sites				
Personality Category	TripAdvisor		UNESCO WH Centre	
	Natural WHSs	Cultural WHSs	Natural WHSs	Cultural WHSs
Competence	15.65	12.33	**32.49**	**30.02**
Excitement	24.65	24.21	17.71	16.37
Ruggedness	07.18	04.65	08.20	06.54
Sincerity	23.16	19.85	29.39	27.98
Sophistication	**29.34**	**38.93**	12.18	13.08

The study used Correspondence Analysis (CA) to understand differences in WHSs personality category distribution. Using CA in text mining is widely adopted in BP lexical Approaches (Pitt et al. 2007, Rojas et al. 2016, Hassan et al., 2020). Table 4 shows the distance between the profile of the rows (the four natural and cultural WHS data sets) in relation to the five personality categories, confirming a significant relationship between the five categories and WH attributions: X^2 was 40,698, with [a]$p < 0.0001$; df 12, with good quality of representations for the two-dimensional map by accumulated inertia counts for 100% for the first two dimensions. Figure 1 (correspondence map of WHSs) shows that the UNESCO WHC digital data attributed by experts are grouped around Competence in natural (32.49%) and cultural (30.02%) WHSs, and near Sincerity in the natural (29.39%) and cultural sites (27.98%). In contrast, visitor-generated reviews on TripAdvisor are grouped near Sophistication in cultural (38.93%) and natural (29.34%) WHSs, and Excitement in natural (24.65%) and cultural (24.21%) WHSs. Secondly, Figure 1 shows also the differences between natural and cultural WHSs. For TripAdvisor, cultural WHSs are dominated by Sophistication (38.93). This is also the case in Table 1, as the ratio between Sophistication in cultural WHSs compared to other category distributions is high. In contrast, natural WHSs are nearer to Excitement (24.65%) than Sincerity (23.16). Furthermore, UNESCO cultural WHSs (30.02%) are closer to Competence, whereas UNESCO natural WHSs sites are closer to Sincerity (29.39%) than cultural WHSs (27.98). Lastly, Figure 1 shows Ruggedness at the bottom, far from any other profile.
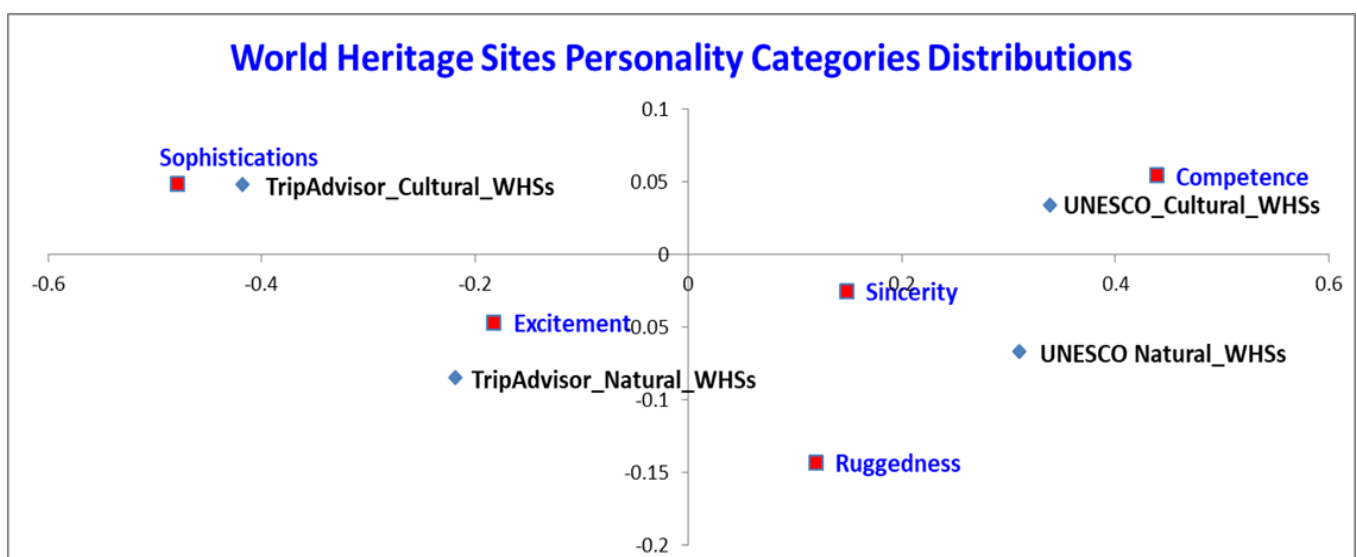

Figure 1. Personality Distribution Correspondence Map for World Heritage Sites

Table 4. World heritage Personality Categories Distribution

Row Profiles WHSs						
World Heritage Sites	**Categories**					
	Competence	Excitement	Ruggedness	Sincerity	Sophistication	Active Margin
TripAdvisor Natural WHSs	0.160	0.250	0.070	0.230	0.290	1.000
cultural WHSs	0.120	0.240	0.050	0.200	0.390	1.000
UNESCO Natural WHSs	0.323	0.182	0.081	0.293	0.121	1.000
Cultural WHSs	0.319	0.170	0.074	0.298	0.138	1.000
Mass	0.229	0.211	0.069	0.254	0.237	

The cumulative Inertia for dimensions: (1) 0.982 and (2) 0.018

To summarise, the WHS 389-item, five-personality categorical dictionary measures the personality of WHSs: four of these five personality dimensions are attributed highly in one of the four sets of digital textual data that includes all aspects of WH: (1) visitors on TripAdvisor perceived cultural WHSs most highly as Sophistication; (2) visitors on TripAdvisor perceived natural WHSs most highly as Excitement. In contrast, UNESCO experts (3) perceived Cultural WHSs most highly as Competence, and (4) natural WHSs as Sincerity, while items in Ruggedness are considered inadequate to describe WHSs. This concurs with scholars in several BP studies, who affirm that Ruggedness is not applicable to their cultural context (Davies et al., 2018). In light of the WH personality category distribution, a link between the UNESCO concepts and WH perceived personality distributions given by visitors and experts is acknowledged.

3.2 UNESCO Concepts and Overall WH Personality Distribution

Firstly, an analysis of the relationship between the five WH personality dimensions and UNESCO concepts shows that visitors are more attracted to the external features of WH: Sophistication, and Excitement, whereas UNESCO WH experts focused more on the intrinsic features of WH Sincerity and Competence. Competence is highly attributed in Integrity and Management and Protection, and Sincerity has the highest percentage in Authenticity. Table 5 shows that for both natural and cultural WHSs, visitors rated Sophistication highly, which

emphasizes that WHSs fit with Aaker's (1997) Sophistication items. Aaker (1997) argued that items in the Sophistication category are frequently used by advertising agencies to promote well-known, fashionable brands, and are related to outer features of brands, which customers may desire. Excitement, which refers to socialization and activities, is also highly rated by visitors. In contrast, Sophistication and Excitement are among the least attributed category for UNESCO experts. However, both these categories in natural and cultural WHSs are attributed frequently by visitors (Table.3). Sophistication and Excitement are, therefore, the most categories most favoured by visitors, but least favoured by UNESCO experts.

Secondly, UNESCO experts rated Competence highly, while visitors mentioned items from this category infrequently. Aaker (1971) interprets Competence items as Dependability and Responsibility. In the context of WHSs, Competence includes items such as Exceptional, Extraordinary, Protected and Preserved, which are crucial to the concept of OUVs (UNESCO, 2019). Competence rated highly in Protection and Management, and Integrity concepts. The second most highly rated category for experts is Sincerity, and on TripAdvisor, natural WHSs and cultural WHSs were 23.16% and 19.85% respectively. Sincerity is calculated as the highest category in Authenticity, which includes items such as Original, Natural and Authentic. UNESCO experts rated intrinsic features referring to Integrity, Protection, and Management through Competence items, and Authenticity through Sincerity items. Visitors acknowledged Authenticity in their post-experience ratings. Competence items are fundamental to UNESCO concepts as they refer to the exceptionality and universality of OUVs, and were highly attributed by experts. Visitors, however, showed little interest in expressing items of Competence Integrity, Protection and Management in natural (15.65%) or cultural (12.33%) WHSs. Lastly, although Ruggedness (including Wild, Challenging and Remote) is the least distributed category, the highest percentages for this category correspond to natural WHS: 07.18 for visitors, and 08.20 for experts on the UNESCO website.

5. Conclusions and Discussions

5.1 World Heritage Associations

The current study contributes to the knowledge of WH perceived qualities and the development of the BPlexical approach. This study adds to the construction of BP dimensional dictionaries to the context of WH tourism attractions as elements that influence visitor preferences for the overall destinations (Kirilenko et al., 2019). Scholars have emphasised that disseminating knowledge of WHSs is crucial to protecting irreplaceable natural and cultural WHSs (Adie, 2017; Buckley, 2018; Drost, 1996; King & Halpenny, 2014). It is thus important to understand how visitor WH knowledge (post-experience) and expert attributions can be used as a tool for promoting and communicating cultural and natural WH knowledge effectively to potential visitors. Consequently, a WH 389-items personality dictionary within five dimensions, Competence, Sincerity, Excitement, Sophistication and Ruggedness is identified. These 389 personality items are the most frequent and chosen from a pool of 72.473 adjectives attributed to WHSs. The analysis of results provides several conclusions that add to the knowledge of WH and BP.

The relationship between the UNESCO concepts and the Five WH personality categories reveals that Authenticity, Integrity, and Protection and Management were described highly by UNESCO experts as Sincerity and Competence. It was found that Authenticity is frequently linked to Sincerity, whereas Integrity, Protection and Management are attributed to Competence. Thus, inherent items from these two categories describe the intrinsic features of WH Brand according to Aaker's (1997) interpretation of the meanings for Sincerity, which includes Warmth and Acceptance; and Competence, which includes Dependability and Responsibility. In this context, experts used items from Competence and Sincerity to describe UNESCO concepts in order to fulfil UNESCO requirements relating to the intrinsic feature of these sites. Sincerity is defined by UNESCO in terms of originality and Integrity refers to the complete elements of the WHSs (UNESCO, 2019). In addition, experts are required to define how they protect and manage natural and cultural heritage. Therefore, it can be concluded that Sincerity and Competence items can be used to describe Authenticity, Integrity and Protection and Management.

Findings also show that five WH personality dimensions are attributed to natural and cultural WHSs differently by visitors and experts. Personality distribution frequencies show that the natural and cultural WHSs perceived by visitors post-experience rate highly regarding

Sophistication and Excitement, followed by Sincerity, and the last least attributed categories are Competence and Ruggedness. Findings showed, in contrast, that UNESCO WH experts attribute Competence and Sincerity the most for natural and cultural WHSs. This is followed by Excitement, and finally by Sophistication and Ruggedness. Furthermore, CA was used to understand significant differences between natural and cultural WHSs. Findings showed that TripAdvisor visitor-generated reviews on cultural WHSs are dominated by Sophistication; and natural WHSs by Excitement. For UNESCO WHC experts' descriptions, cultural WHSs were mostly attributed Competence, and natural WHSs, Sincerity. Here, a gap was identified between how visitors and experts perceived natural and cultural WHSs. It appears that experts attribute WHSs in relation to the intrinsic features of WH, focusing highly on such descriptions as Sincerity and Competence. In contrast, visitors attribute WHSs with aspiration associations expressed by items in Sophistication and Excitement that describe extrinsic features (Aaker, 1997). Understanding this gap can help UNESCO experts and destination managers promote WH effectively.

The study also found that Ruggedness is not suitable for describing WHSs. Items in this category, including digital text related to UNESCO concepts in Authenticity, Integrity, and Protection and Management, and natural and cultural WHSs data taken from TripAdvisor and UNESCO WHC, are the least frequent. It can be concluded that items in this dimension are not attributed to WHSs. This concurs with several other studies in BP in marketing that consider items belonging to Ruggedness only pertain to the cultural context of brands in the USA (Davies et al. 2018; Aaker 1997; Kumar and Nayak 2018). This study agrees with Hassan et al. (2021) in that Ruggedness is not attributed to cultural WH personality from the visitor lens.

The current study affirms that WH is perceived as a prominent tourism brand from a visitor perspective. The distribution of the WH five personality categories visitors use to describe WHSs highlights Sophistication items such as Beautiful, Amazing and Impressive. This affirms that these WHSs are favoured and perceived by visitors as top brands according to Aaker (1997)'s interpretation of Sophistication. Aaker emphasized that items within Sophistication are associated with, and frequently used by, advertising agents when promoting the most fashionable marketing brands. Thus, this research concurs with several other studies that WHS is a significant tourism brand (Adie, 2017; Buckley, 2018; Buckley et al., 2020; Hassan et al., 2021; Ryan & Silvanto, 2014; Y. Yang et al., 2019).

Due to the fact that visitors have attributed WHSs with Sincerity, which is linked to the

concept of Authenticity, it can be determined that the visitors in their post-experience generated reviews perceived Authenticity appropriately. It is worth mentioning that several scholars have acknowledged that increased visitor knowledge of the WH philosophy would also contribute to sustaining these irreplaceable WHSs. Here, visitors attributed both the natural and cultural WHSs with items of Sincerity, which means that visitors acknowledge Authenticity when describing WHSs in their post-visit experiences. Nian et al. (2019), Song and Kim (2018) and Wang et al. (2015) emphasised a significant relationship between perceived Authenticity and enhancing WHS preservation. This study concurs with previous studies regarding visitors' evaluations for natural and cultural WHSs, and acknowledge frequent items of Sincerity such as Original and Authentic. Moreover, this research agrees with Buckley (2018), Wuepper, (2017), and Wuepper and Patry (2017) in that visitor knowledge of WHSs increases visitor knowledge of the soft meaning of WHSs, which may add economic and protection value to WHSs.

5.2 Methodological Implications

The present study provides several techniques to facilitate and validate the construction of WH personality categories which take into account the cultural meanings of WHSs. Underpinned by Aaker (1997), a three-step technique was designed to construct a WH personality dictionary. Firstly, text-mining pre-processing took place wherein advances in text-mining enabled all the items attributed to WHSs to be managed and defined. Secondly, advances in BP lexical approaches enabled items that fall within Aaker's five dimensions to be extracted when identifying potential WHSs personality category items. Thirdly, this study select the appropriate items for the dictionary during the purification process. Items were checked for appropriateness as advised by Schade et al. (2014) and for psychological appropriateness as suggested by Fischer et al. (2020). To validate the WH dictionary items as personality items, previous studies in similar domains and in addition to psychology personality item dictionaries acknowledged by Caprara et al. (2001) and Fischer et al. (2020) were used. In total, 18,733 items were gathered and used as a tool to validate our items. By following these three steps, a 389-item WH personality dictionary was constructed from digital textual data.

The present study provides a technique that assists in enhancing the generation of WH personality dimensions pertaining to its cultural context. it perceived the use of both the BP dictionaries of Pitt et al. (2007) and Hassan et al. (2021) as useful tools to generate personality items that fall under Aaker (1997)'s five dimensions, while at the same time including items

that are significant to the concept of WHSs not included in Aaker (1997)'s items. The use of these two dictionaries together means that the items underpinned by Aaker's (1997) dimensions and are not limited to a predefined item-dictionary that ignores items related to the textual data for the brand understudy, as in this study. Previous BP and psychology dictionaries previously validated items as a source, thus ensuring the WH personality items are an easy and simple approach to constructing a personality dictionary. This step in the traditional approach requires psychologists or language experts, and the related costs.

WH personality items attributed by visitors and UNESCO experts were used to construct the WH personality dictionary. In this study, advice from previous studies was taken into consideration regarding the limitations of constructing a personality scale items from only one source (Heere, 2010; Ranfagni et al., 2016; Rauschnabel et al., 2016; Schade et al., 2014). Therefore, WH dictionary items were gathered from the customer (the receiver who perceives knowledge of the brand), and those responsible for the brand (the sender of brand communications). Findings show that there are adequate numbers of high frequency personality items related to WH attributed by visitors, but not included in UNESCO experts' descriptions, and vice-versa. The study acknowledges the importance of considering items from both sides as it enables the views of WHS visitors to be compared with those of UNESCO experts.

5.4 Practical Implications

The 389-item, five-WH personality categories and the methods used to construct them have various practical applications. The five WHSs personality dimensions can be used by UNESCO experts and destination managers to improve the positioning of WHSs. A WH personality strategy can be useful for practitioners to analyse and harness the competitive advantages of their sites, as well as to compare their WHSs with those of other WHSs (Pitt et al., 2007) taking into consideration that specific WH dimensions may have more influence on specific target visitors (Rojas-Méndez et al., 2019). the present study demonstrated that the visitor who shared their post-experience in WH have communicated more WH personality attributes in term of Sophistication and Excitement, while UNESCO experts perceived WH differently as they described WH to UNESCO concepts.

Thus, this study encourages destination marketers and UNESCO experts to consider the results reported in this study when customizing materials for WH promotion. In particular, academics agreed that the more personality dimensions match a visitor's personality while

communicating the brand, the more the visitor will be attached to it (Aaker, 1997; Sirgy, 1986). Moreover, this study found that Authenticity is frequently attributed by Sincerity, while Integrity and Protection, and Management by Competence, WH experts who write descriptions for inclusion of WHSs in the WHC webpages can analyse the relationship between WH concepts and the WH item- dictionary to better describe their WHSs within existing UNESCO concepts. Generally, practitioners and scholars can extend the techniques provided in the present study for BP lexical construction in order to construct a similar personality categorical dictionary in other marketing domains. These methods are designed to help identify the soft meaning of brands from big textual data.

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5. Publication Three:
Brand Personality Word Embeddings Model: UNESCO
World Heritage Personality Categories Identification

A Model for Brand Personality Word Embedding: Identifying UNESCO World Heritage Personality Categories

1. Abstract

Despite having received considerable academic attention, existing brand personality (BP) scales are difficult to generalize and likely need further development. The aim of this study was to design a novel method for constructing context driven-BP categories through the use of a multi-disciplinary approach and advances in personality studies in psychology and natural language processing. Based on a textual analysis that relies on devising hypotheses of psycholexical representation and the distributed representation of words, the aforementioned method was employed to explore World Heritage Site (WHS) personalities using information from all 1,121 UNESCO World Heritage Sites (WHSs) and 9,920 user-generated reviews on TripAdvisor. The study identified a 192-item WHS personality dictionary organized into five clusters: Exceptionality; Attractiveness; Identification; Responsibility; and Prominence. These categories could be employed to measure other tourism attractions. The results show that UNESCO strongly associates WHSs with the attributes of Attractiveness and Identification.

2. Introduction

Aaker's (1997) five-category brand personality (BP) scale (Sincerity, Excitement, Competence, Sophistication and Ruggedness) is the one currently most widely used in marketing research and destination personality (DP) studies; however, the scale has been argued to not be able to be generalized across all brands (Davies et al., 2018). DP studies extending Aaker's model agree that a generalized personality scale cannot be developed for DPs, since destinations are public assets with tangible and intangible features that differ from those of products (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; Murphy, Moscardo, et al., 2007; Usakli & Baloglu, 2011). Aaker's (1997) categories are also derived from cross products (Austin et al., 2003), making it more complicated to replicate Aaker's scale for destinations (Skinner, 2018).

Aaker (1997) extended psycholexical theory -specifically that pertaining to the Big Five, which described human personality and the psycholexical methods- to brands, and used this as a basis for constructing her scale. After Allport and Odbert (1936) posited that natural language encodes unique personality characteristics in the way it develops various adjectives and nouns based on a person's particular characteristics, psychology scholars subsequently analyzed thousands of words used for self-description or for describing others and grouped the most significant ones for describing the human personality (L. Goldberg, 1992). Psychologists subsequently identified five defining characteristics of human personality, which became known as the 'Big Five'(Agreeableness, Extroversion, Conscientiousness, Emotional Stability, and Openness) (L. Goldberg, 1992). Following this, marketing academics attempted to extend the Big Five to construct a BP scale for brands, as Aaker (1997) did in her pioneering BP study (Davies et al., 2018; Geuens et al., 2009; V. Kumar & Nayak, 2018), or to use the Big Five personality categories to measure brands (Bosnjak et al., 2007; Caprara et al., 2001; Milas & Mlačić, 2007).

However, several scholars (Carvalho et al., 2021; Rojas-Méndez et al., 2019) have found psycholexical theory to be unreliable in establishing BP scales. Davies et al. (2018) explained in detail that empirically, this theory had little theoretical foundation. While the psycholexical approach does provide five common categories that can describe personality (L. Goldberg, 1992), it has not proved possible to replicate Aaker's categories in different contexts (Caprara et al., 2001) or cultures (Rojas-Méndez et al., 2019). Caprara et al. (2001) were among the first to point out that the context of brands was missing and that adjectives should be viewed in a cultural context that awards them different meanings. Some of Aaker's categories have since been recategorized (Davies et al., 2018). Although psychologists agree that the Big Five fit robust personality categories to describe a person, it has been suggested that the existing BP construct does not fully capture the intangible meanings of a brand or product category (Austin et al., 2003).

Scholars agree that a gap exists between academics' and practitioners' use of BP because, when extended to measure brands in different cultures, the empirical limitations encountered in BP scale construction fail to capture the cultural-specific meaning of brands (Davies et al. 2018; Demangeot and Broderick 2010; Lee 2009). Furthermore, Demangeot and Broderick (2010) criticized use of the Big Five to underpin BP, stating that psychologists' primary aim is to represent the characteristics of individuals rather than consider each individual's characteristics. One key difference between academics (e.g. psychologists) and marketers is that the former focus on scales that measure common themes, while the latter aim to establish scales that measure the individual characteristics of each brand or product category. Several other theories have been proposed to explain the construction of BP. For example, Lee (2009) applied consumer perspectives and contexts to interpret BP according to the theory of consumption symbolism, and Davies et al. (2018) found that signaling theory based on human perception is more appropriate for brands. In

tourism studies, Ye, Lee, Sneddon, and Soutar (2020) proposed a new method that relied on the theory of human values to measure DP. However, these different approaches are yet to be extended. In keeping with such approaches, and unlike the case of constructing a BP scale, the current study focuses on a marketing-driven approach to define the personality categories of World Heritage Sites (WHSs) as elements of the destination.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) invited countries to ratify the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 2019) in order to protect WHSs of global significance. Currently, WHSs are seen to serve as catalysts to attract visitors (Buckley et al., 2020; Y. Yang et al., 2019). Indeed, the literature shows a strong correlation between WHS numbers and tourism development (Hosseini et al., 2021; Ivanunik et al., 2021; Perić, Šimundić, Muštra, & Vugdelija, 2021; Su & Lin, 2014). Tourist destinations with many WHSs can therefore increase their visitor numbers (Poria et al., 2011; Wang et al., 2015), since bundling several attractions together promotes the overall image of the destination (B. Liu et al., 2017). When a group of WHSs is promoted together, Mariani and Guizzardi (2020) found that the visitor evaluation of the overall destinations is more positive. Although many studies have focused on the effects of WHSs on destination choice (Kirilenko et al., 2019), there are still gaps in the research on visitor perceptions of WHSs and their potential influence on preferences for visiting destinations (Adie et al., 2017; Poria et al., 2011, 2013). BP studies by Ekinci and Hosany (2006) found that attraction made a direct contribution to defining overall DP categories. Even though much research has been carried out to identify DP categories on a macro-level (C. Zhang et al., 2019), the intangible meanings of attractions such as WHSs still lack investigation at a micro-level (Carvalho et al., 2021).

WHSs represent a good example of tourist attractions, as the WH list includes outstanding sites worldwide that have been examined by UNESCO experts (Buckley, 2018), and a description of all WHSs is publicly available online (UNESCO, 2020). This study defines WH personality categories from digital textual data for the first time. It is worth mentioning here that brands have been perceived as cultural icons because their attributes are constructed in relation to individual beliefs and values (Aaker et al., 2001; Matzler, Strobl, Stokburger-Sauer, Bobovnicky, & Bauer, 2016). This may explain why it has been difficult to replicate Aaker's BP categories when measuring DP in different cultural contexts (Davies et al. 2018). This study presents a mechanism by which academics and marketers can define BP categories from textual data pertaining to the cultural context of their brands. Digital text analysis has been used in this study, as opposed to traditional empirical BP methods that use survey questionnaires to identify WH personality categories. Thus, identifying WH personality categories from digital texts allows most of items that express WH cultural meanings to be included in WH categories.

To the best of our knowledge, this study is the first to have extended the unsupervised learning approach of text mining -which helps with the understanding of hidden themes (Denny & Spirling, 2017)- to help identify WH personality categories. The aim here has been to extract WH items from texts and classify them based on their contextual similarity (Mikolov et al., 2013). To this end, natural language processing (NLP), and in particular, several text-mining preprocessing features and the available pre-trained language models (Devlin, Chang, Lee, & Toutanova, 2019) were employed to generate and classify WH items, while personality dictionaries that rely on the psycholexical hypothesis in psychology studies (L. Goldberg, 1992) were used to validate the WH items as personality items.

1 **3. Literature Review**

2 *3.1 Brand Personality Measures and critics*

As the literature since 1919 confirms, consumers enjoy awarding personal attributes to objects; the concept of BP is based on this (Gilmore, 1919) and underpinned by psycholexical methods (Nunnally & Bernstein, 1978). Over the years, BP has developed from a simple method to more sophisticated empirical approaches within marketing studies. Initially, studies on the symbolic meaning of retail and products led to the use of the term 'personality' in this context. However, this primary research was perceived as lacking robust methodological validations and reliability (Aaker & Fournier, 1995). It was Aaker (1997) who provided the first BP scale, describing it as both reliable and generalizable, and this innovative approach subsequently triggered a stream of interest in BP studies. But the scale is now perceived as having several empirical limitations (Davies et al., 2018), which can be divided into the following two categories: 1) a conceptual ambiguity that emerged between BP and brand identity (Azoulay & Kapferer, 2003), destination image, and BP (C. Zhang et al., 2019); and 2) a lack of generalizability, in that existing scales are not fully replicable (Davies et al., 2018).

In her study, Aaker (1997, p. 347) defined BP as 'the set of human characteristics associated with a brand', a definition that has conceptual overlaps. In 2003, Azoulay and Kapferer argued that the term 'characteristic' allows socio-demographic traits to be identified, and that Aaker's definition therefore places customer-perceived characteristics alongside supplier-proposed features. These authors claimed that, rather than personality, the scale measured aspects of brand identity, redefining BP as 'the set of human personality traits that are both applicable to and relevant for brands' (Azoulay and Kapferer, 2003, p. 151). Some academics consequently limited their studies to only include behavioral traits (Geuens et al., 2009; Rojas-Méndez et al., 2019). In 2018, Davies et al. stated that BP categories emerging from prior studies were not

affected by demographic characteristics, and that including sociodemographic characteristics in a BP scale is thus of marginal importance.

Further confusion has emerged in relation to BP and destination images, since both concepts measure the intangible associations of brands (Ekinci & Hosany, 2006). Most tourism studies perceive these two concepts as being different, but linked (Hosany et al., 2007; Murphy, Moscardo, et al., 2007; C. Zhang et al., 2019), while several studies confirm that BP categories mediate several effects of brand image on visitor behaviour (C. Zhang et al., 2019), such as loyalty (Usakli & Baloglu, 2011), and intention to recommend (Papadimitriou, Apostolopoulou, & Kaplanidou, 2015) or return (Hosany et al., 2007).

Factors limiting the generalizability of Aaker's BP scale are posited to be the size of brands or product categories (Austin et al., 2003), the cultural context (Rojas-Méndez et al., 2019), and meeting validity criteria (Rauschnabel et al., 2016). Although Austin, Siguaw, and Mattila (2003) found that the scale failed to measure individual brand or product categories, most studies extend the BP scale to cover several brands or categories (Davies et al., 2018). Thus, identified personalities include those pertaining to countries and nations (Rojas-Méndez et al., 2019), cities (Kaplan et al., 2010), destinations (V. Kumar & Nayak, 2018), organizations (Davies et al., 2018), stores (D'Astous & Lévesque, 2003), sports clubs (Heere, 2010), and universities (Venable, Rose, Bush, & Gilbert, 2005).

In addition to the above, several studies (e.g. DP studies) have not been able to replicate Aaker's framework due to it deriving from the cultural context particular to the US (Davies et al., 2018). Research has emphasized the importance of cultural context when BP categories are not fully replicated in other brand cultures (Aguirre-Rodriguez, 2014), claiming that brands can be viewed as cultural icons due to their ability to communicate cultural meaning deriving from their abstract

qualities, referred to as BP attributes (Aaker et al., 2001). The intangible meaning of brands relates to cultural values and beliefs, and they can therefore serve as cultural carriers (Aaker et al., 2001; Aguirre-Rodriguez, 2014; Matzler et al., 2016). Thus, the attributes of brand structures are perceived differently according to cultural differences (Anees Ahmad & Thyagaraj, 2014; Gondim Mariutti & de Moura Engracia Giraldi, 2020; Roy & Banerjee, 2021; Shi & Shan, 2019) due to the fact that consumers have different needs and are affected by specific cultures (Aguirre-Rodriguez, 2014). That being said, brands may share universal categories and some cultural-specific categories (Aaker et al., 2001). It has been postulated that when determining the personality categories of nations (D'Astous & Boujbel, 2007; Rojas-Méndez & Hine, 2016; Rojas-Méndez et al., 2019) and destinations (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018), BP categories should relate to a specific culture.

The notion of BP has been extended to destinations to give rise to DP, which is based on incremental competitive advantages between destinations, and ways to communicate, differentiate between, and create positive visitor emotions in this regard (Rojas-Méndez & Hine, 2016). Academics have recognized that the symbolic associations with destinations that comprise DP categories (Saeed et al., 2021; C. Zhang et al., 2019) exert an influence on visitor behavior variables (Eisend & Stokburger-Sauer, 2013a). In explaining this, previous studies have agreed that visitors prefer brands whose personality attributes are congruent with their own (Boksberger, Dolnicar, Laesser, & Randle, 2011; Eisend & Stokburger-Sauer, 2013a; V. Kumar & Nayak, 2018; Luna-Cortés, López-Bonilla, & López-Bonilla, 2019; Sirgy, 1986). For example, academics have found that the greater the congruence between the visitor's personality and the perceived BP category, the more likely there will be an increase in the visitor's intentions to purchase (Stokburger-Sauer, 2011), return or recommend (Bekk, Spörrle, & Kruse, 2016; Ekinci & Hosany,

2006; Papadimitriou et al., 2015; Usakli & Baloglu, 2011; Ye et al., 2020). Such findings have encouraged academics to investigate the latent meanings associated with destinations and provide new methods for differentiating between them according to symbolic associations. For example, extending Aaker's (1997) BP concept to destinations, Ekinci and Hosany (2006) stated that DP is BP as applied to destinations. Since then, BP categories have been perceived as viable for predicting and moderating visitor preferences regarding destinations (Saeed et al., 2021).

Another limitation to the generalizability of Aaker's BP scale is that in subsequent BP scales, emerging items are determined through respondent ratings and a brand's context (Rauschnabel et al., 2016). Items obtaining a non-satisfactory score in a confirmatory factor analysis, which is used to check the construct validity (Churchill, 2006), are usually removed. Lee and Kim (2018) and Tsiotsou (2012) emphasized that this reduction leads to validity issues in several BP scales, while Davies et al. (2018) criticized Geuens et al. (2009) for restricting their scale to very few items as a result of these reduction techniques. Lieven (2017) proposed an approach that correlates the meaning of synonyms to generate items and does not require re-processing due to problematic items. Pitt et al. (2007) introduced the lexical approach in parallel with empirical methods, providing BP dictionary categories and using text-mining features as viable tools for measuring the personality of countries' tourism websites through digital text. This has also been subject to criticism, however (Hassan et al., 2021; Papania et al., 2008).

3.2 The text mining approach to brand personality

Although text mining and BP analysis using online textual data have proven useful in DP analysis (Pitt et al., 2007; Rojas-Méndez & Hine, 2016), they require further development in this regard. Text mining adopts two main approaches: the first uses content analysis in BP studies, the aim

here being to encode a specific corpus based on pre-defined personality categories. The second analyzes themes in the text, such as topic modeling, but without any previously defined categories (Fischer et al., 2020). This entails the use of computational approaches and algorithms to measure the between-words or document similarity (Devlin et al., 2019), words being analyzed based on their appropriateness for describing human-like brands (Fischer et al., 2020). Although theme analysis is not used in BP studies, content analysis is employed in BP lexical approaches via Pitt et al.'s (2007) categories dictionary, discussed below.

Pitt et al. (2007) constructed a BP dictionary to refactor Aaker's five personality categories by means of a synonyms method. They used this 833-item synonyms dictionary (hereafter, the Pitt dictionary) for Aaker's 42 items to measure the tourism website personalities of ten African countries. Although this lexical approach is known for its simple item generation, items relevant to a specific brand context were found to be absent (Papania et al., 2008). Scholars who have used the Pitt dictionary (Masiello et al., 2020; R. Opoku et al., 2006; Papania et al., 2008; Paschen et al., 2017; Rutter et al., 2020; Shi & Shan, 2019) have measured their target BP within the framework of the dictionary, but failed to capture new items relevant to a specific subject of study (Hassan et al., 2021; Papania et al., 2008). Rojas-Méndez and Hine (2016) recognized the importance of content validity when building a BP dictionary, and customized a dictionary to fit their study context. To expand the credibility of personality measures, studies that have extended Pitt et al.'s (2007) BP lexical methods have included a high percentage of items from the Pitt dictionary rather than customizing personality items from their original data (Churchill, 2006).

In the second text mining approach, topic modeling fundamentally relies on the contextual correlation of words, and the word embedding technique is used to visualize the distributed representation of words in a numerical format, technically known as vectors (Mikolov et al., 2013).

This approach has become an integral part of complex modern NLP tasks such as sentimental analysis, topic modeling, and document classification (Bakarov, 2018). Despite being perceived as the most advanced computational technique for carrying out text analysis (Fischer et al., 2020), word embedding is still in its infancy in human psychology studies (Fischer et al., 2020). In this study, the word embeddings developed from Rubenstein and Goodenough's (1965) distributed representation of a word hypothesis, and developed in ongoing studies (Devlin et al., 2019; Mikolov et al., 2013; Wu, Hoi, Socher, & Xiong, 2020), are considered a useful component within an alternative approach to defining the personality categories of WHSs.

As mentioned earlier, researchers have extended traditional empirical (C. Zhang et al., 2019) and lexical (Pitt et al., 2007) BP approaches to tourism destinations in order to better understand the elements of DP, including the yet-unexplored WHSs. DP and visitor perceptions can be inferred from multiple sources, including interaction with citizens, hotel employees, restaurants, destination attractions, and items associated with brand user imagery, which is defined as a set of human characteristics associated with prototypical users of a brand (Aaker, 1997; Hayes, Alford, & Capella, 2008). In the particular case of DP, typical visitor data, such as age and social status, could be used to describe a destination's personality (Azoulay & Kapferer, 2003), as well as indirectly through pricing, advertising, and product category associations (Ekinci & Hosany, 2006; McManus et al., 2021). In an attempt to personify brands, Fournier (1998) explained that they may have partner relationships with consumers. Within this relationship, brand actions such as promotion and pricing may be interpreted as brand behaviors. Due to the interaction between brands and consumers, consumers may then award meanings to brands based on these behaviors. This may also help consumers infer further brand behaviors or actions. Thus, visitors can infer WH personality items from their experience of WHSs (Aaker & Fournier, 1995), and

consequently, WHSs can directly contribute to defining DP (Ekinci & Hosany, 2006) and help better position destinations (Kirilenko et al., 2019).

3.3 World Heritage Sites and tourism marketing perspectives

Tourism destinations are highly competitive, forcing marketers to focus more on the intangibles of tourism destinations in their promotion strategies, since these are not easily substituted (V. Kumar & Nayak, 2018). Before the Covid-19 pandemic hit, academics were stressing the significance of the WH brand, defining outstanding universal values (OUVs) intangibly linked to WH (Y. Yang et al., 2019). Thus, the countries that ratified the WH convention have attempted to include as many WHSs as possible on the WH list, since this is seen as increasing their international pride and recognition (Frey, Bruno & Steiner, 2011; Su & Lin, 2014). Moreover, tourism practitioners perceive WH as unique tourism branding, boosting a destination's attractiveness (Adie, 2017; Patuelli et al., 2013; Ryan & Silvanto, 2009; Su & Lin, 2014). The central concept of protecting and preserving WHSs in accordance with the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 2019) thus shifted towards promoting tourism, as WH OUVSs attract more visitors (Y. Yang et al., 2019).

Whilst WH is perceived as denoting a prominent tourism brand, research indicates that it has a mixed effect on tourism promotion (Y. Yang et al., 2019), since studies measuring visitor influence and awareness of the WH brand (Adie et al., 2017; King & Halpenny, 2014; Palau-Saumell, Forgas-Coll, Sánchez-García, & Prats-Planagumà, 2013) differ in their conclusions (Ribaudo & Figini, 2017). WH has also become conceptually ambiguous, as the implications of WH marketing are only mentioned in general terms in the literature (Y. Yang et al., 2019), with WHSs differing in terms of their being iconic, well-known, less famous, accessible and located in rural areas, for example (Buckley et al., 2020; Rasoolimanesh, Roldán, Jaafar, & Ramayah, 2017). The effects of

WH may also vary depending on the type (natural, mixed or cultural) and size of the site, and the year of nomination (Huang et al., 2012). Yang et al. (2019) reported that the target sample (international or domestic visitors), the analytical methods applied (Poria et al., 2011), and the country's objectives may affect a site's WH prominence. It is therefore difficult to generalize the effects of WH on tourism (Ribaudo & Figini, 2017; Y. Yang et al., 2019).

A deeper understanding of intangible WH associations adds value to WHSs (Poria et al., 2013). The perception of authenticity and integrity adds economic value and protection (H. Kim et al., 2018; Nian et al., 2019), while visitors accept paying higher entrance fees for the intangible attributes of WHSs (Wuepper, 2017). However, few studies have explored visitor knowledge in this regard, and a robust analysis of how visitors perceive WH associations in a comprehensive and generic way, particularly post-visit experience, is therefore still lacking (Adie et al., 2017; Baral et al., 2017; H. Kim et al., 2018; Nian et al., 2019; Poria et al., 2013; Wang et al., 2015).

Some studies have used expert opinion to measure visitors' perceptions of authenticity in WHSs (Wang et al., 2015), referring to items such as distinction, uniqueness, impact, legacy, value, and allure (Baral et al., 2017; H. Kim et al., 2018; Nian et al., 2019). In contrast, Poria et al. (2013) suggested items favored by the visitors themselves, such as WHSs being famous, authentic, must-sees, and expensive. Most of such studies have confirmed that the greater the authenticity perceived by visitors, the more they are willing to protect and value WHSs. Most previous studies have investigated the authenticity of WHSs, although UNESCO WH experts attribute several other concepts such as Integrity, Protection and Management, and Criteria of Significance to them, ensuring that WHSs have OUVs (UNESCO, 2019).

An inherent challenge in generalizing BP categories lies in distinguishing between their culture-specific vs. universal meaning (Shi & Shan, 2019). The aims of this study are therefore twofold:

First, given the fact that brands inhabit cultural meanings and require a means to facilitate the construction of their personality categories, the aim is to define this mechanism by which WHS personality categories are constructed. Second, since it has been suggested that these categories might be perceived differently by those endorsers who communicate the symbolic meaning of brands and the receivers of these messages (Ranfagni et al., 2016), a further aim is to show differences in how the personality categories of WHSs are perceived by experts and visitors to WHSs. The former are responsible for preparing nomination files for WH-listed sites. Visitor attributes have been taken from an analysis of 9,920 TripAdvisor reviews. This allows for a comparison of how attributes are ascribed to WHSs by experts on the 'sender side' and visitors on the 'receiver side' (Ranfagni et al., 2016). Rauschnabel et al. (2016) claimed that most BP studies use only limited sources when compiling items, while Heere (2010) and Schade, Piehler, and Burmann (2014) considered the absence of expert items in previous studies to be neglectful. The items used by UNESCO experts to describe WHSs can be aggregated to the items used by visitors, allowing marketers to efficiently promote and position WHSs according to well-defined intangible associations. This study is the first to analyze those attributes that experts ascribe to WHSs together with words that visitors attribute to WHSs.

4. **Methodology**

The purpose of this article is to introduce a new technique for identifying the personality categories of WHSs in three phases: 1) item generation; 2) item refinement; and 3) word embeddings and clustering. TripAdvisor and the UNESCO WH Center online platforms have been used to construct brand personality categories for WHSs. Unlike traditional BP methods, this study has analyzed WH personality through digital texts rather than questionnaires, which usually have a limited number of participants answering hypothetical questions, rather than being based on experience (Aaker 1997). Aaker's 1997 study demonstrated that not all items taken from direct sources pertain to brand culture, as some derive from the Big Five and previous marketing studies, posing several limitations (Austin et al., 2003). The present study analyzed 1,400,247,000 words, describing WHSs and providing further data about WH cultural meanings. As Figure 1 shows, the BP Word Embedding Model develops text-mining and machine learning in three phases.
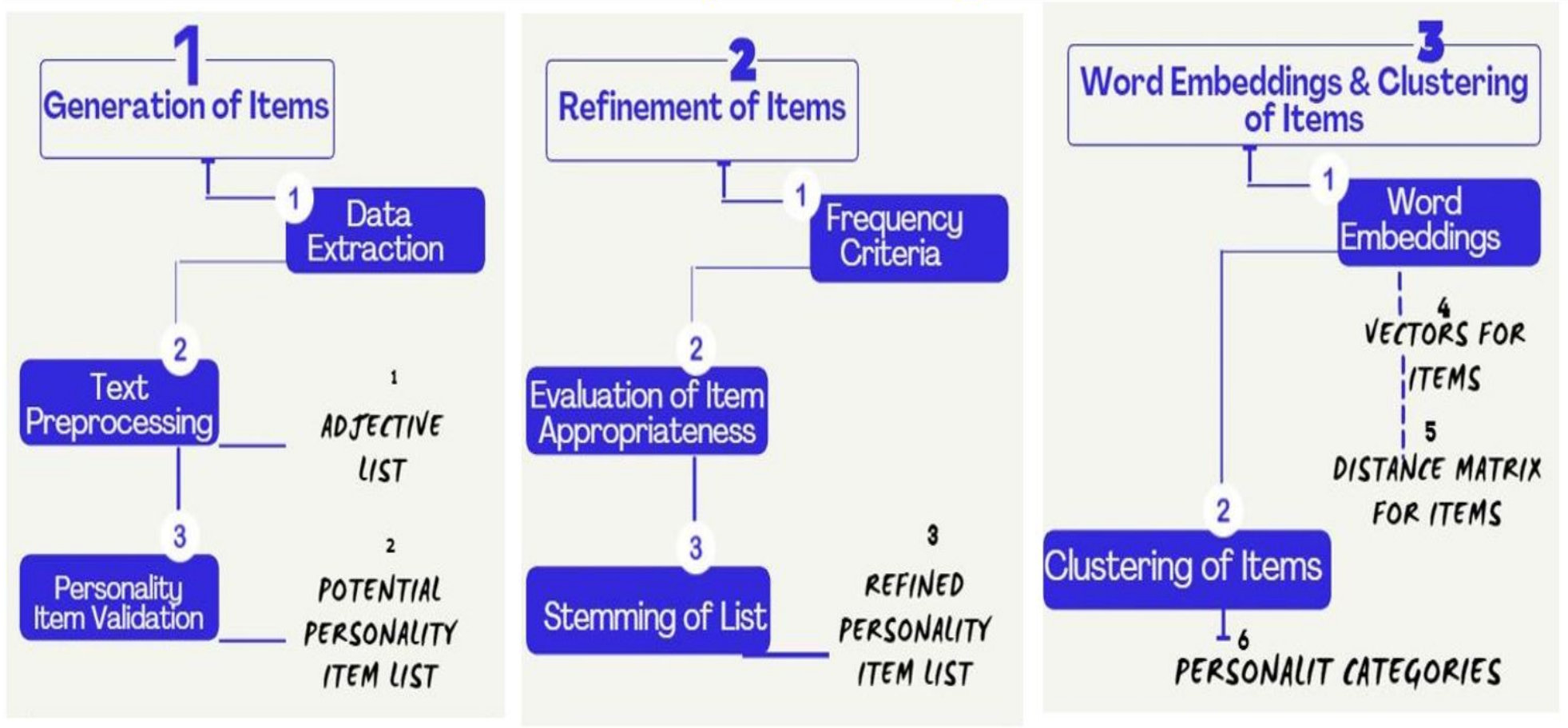
Brand Personality Word Embedding Model

Figure 1. Brand personality word embedding model

4.1 Item generation

4.1.1 Data extraction

WH personality categories can be explored by reviewing the digital texts posted on the UNESCO WH Center (https://whc.unesco.org/en/list/ accessed June 28, 2021) and visitor reviews on TripAdvisor (https://www.tripadvisor.com/ accessed June 28, 2021). Indeed, tourism marketing research has increasingly relied on TripAdvisor's user-generated content in recent years (Xiang et al. 2017). The aim of the study presented here was to define the personality of WHSs as perceived by visitors. To this end, textual data have been used that include attributions describing more than a quarter of the WH lists through the visitor lens for the first time, as well as descriptions provided by experts for all 1,121 WHSs. The latter are described according to the following six sections on the WH website: (1) Authenticity; (2) Integrity; (3) Protection and Management; (4) Criteria Descriptions; (5) Description; and (6) Brief Synthesis (UNESCO, 2020). The UNESCO corpus was chosen, first, because the labels it employs to categorize its texts are based on UNESCO concepts, which can help evaluate and interpret the quality of personality clusters based on semantic similarity (Bakarov, 2018; Curiskis et al., 2020), and second, because the various sources provided by UNESCO experts and visitors improve the way in which the WH personality categories are constructed (Schade et al., 2014), thus enabling a better understanding of the WH concept from both sides.

The work involved the following procedure: In May 2020, the texts of 1,121 WHSs categorized under six labels on UNESCO WH Center webpages (hereafter, the UNESCO corpus), and 9,920 TripAdvisor reviews for WHSs in seven countries (hereafter, the TripAdvisor corpus) were extracted (codes are available from the authors). Hogan (1991) defined personality in two ways with regard to the UNESCO corpus. The first was 'what I say about myself' and the second 'what

others say about me'. The UNESCO corpus was thus perceived as what experts say about WHSs. In total, three text files were prepared: The whole text as an individual unit of analysis (the WH brand); filtered WHSs from seven countries, which are the same as those mentioned in TripAdvisor reviews; and the clusters defined here as personality categories. The third file includes WH personality categories generated from the word embeddings and clustering approach. These categories are used as a measure unit to explore the WH personality distributions in the text file related to the six UNESCO labels. The purpose of this analysis is to help interpret the meaning of the WH personality categories -i.e. the clusters obtained- in relation to their distribution across the six UNESCO concepts. This technique has previously been employed by Curiskis et al. (2020) to interpret the emerged cluster in relation to predefined concepts.

TripAdvisor reviews were extracted for 261 cultural WHSs, which allowed Hogan's second personality definition to be used in the investigation, i.e. 'what others say about me'. This study was limited to cultural WHSs, as they dominate the WH list; of the 1,121 sites listed at the time, 869 (77.5%) were cultural (UNESCO, 2020). The sample was limited to reviews written in English, although visitors were from many different countries, reducing segment bias. Visitor reviews of WHSs located in the Asia and Pacific region and Europe were extracted based on reviews for seven countries: WHSs in the Asia and Pacific region were collected for China (37), India (30), and Japan (19), which represents 32% of all Asia and Pacific WHSs listed. User-generated reviews were obtained for 175 WHSs in Europe, representing 33% of the total: France (39), Germany (44), Italy (50), and Spain (42). These seven countries represented the highest number of sites in the Asia and Pacific region (23%), and Europe (47.19%), and represented 70.19% of the total WH list. The total number of reviews pertaining to sites accounted for 23.28% of the total WH list and 30% of all WH cultural sites.

For the selection of WHS countries, the seven countries were representative of how visitors might acknowledge WH on TripAdvisor. Antonio, Correia, and Ribeiro (2020) found that visitors rarely wrote the keywords WH in their reviews on TripAdvisor. Visitor awareness of the WH brand is perceived to be linked to each individual country's economic capability and willingness to enhance visitors' knowledge of WH (Adie, 2017). The percentages referring to WHS numbers indicate how active the countries within these two regions are in promoting their WHS (Wang et al., 2015; Wuepper & Patry, 2017). UNESCO left the responsibility for promoting WH to the host countries themselves, and they reached differing conclusions regarding how to measure visitor awareness (Adie et al., 2017; King & Halpenny, 2014). Despite the original aim being to collect data from four countries in each region, most of the WHSs in Iran (Asia and Pacific region) did not have webpages on TripAdvisor. Reviews related only to WHSs were therefore collected within seven countries, since the main objective was to collect as many reviews attributed to overall WH personality as possible.

The user-generated reviews were extracted by identifying the WHSs in these seven countries on TripAdvisor, since many official names of WHSs are not clearly labeled on TripAdvisor. An example of this would be the cathedral, Alcázar and Archivo de Indias in Seville, which comprise one WH site, but have three different URLs on TripAdvisor. Thus, a total of 402 URLs were identified for 261 WHSs. As for individual reviews, the keyword search engine and English language filter were used on TripAdvisor to search for the words 'World Heritage', yielding 9,920 reviews. A total of 1,400,247,000 words were extracted from user-generated TripAdvisor reviews (452,270 words) and experts from the UNESCO WH Center (947,977 words). To reduce the complexity of the text and conduct further analysis, text-mining preprocessing was used.

4.1.2 Text mining preprocessing

Text-preprocessing is an essential tool in text analysis (Denny & Spirling, 2017). The authors used this method to reduce the complexity of the data file, performed dictionary analysis, such as measuring the distribution of personality categories, and defined the descriptors attributed to WH. The three previously mentioned text files were prepared. Several preprocessing features -called nodes- were employed to identify linguistic features (Denny & Spirling, 2017; Stewart & Grimmer, 2013) using Knime Analytics Software 4.1.2. These were:

1. Punctuation, Numbers, and Stop words: A built-in list in the Knime software that includes most irrelevant words such as nouns and pronouns -removing punctuation, numbers, and stop words that were unlikely to provide meaning.

2. Case Convertors: The analysis of digital textual data in the present study relied on the match between WH category items or dictionary items and the prepared text files. In order to obtain accurate frequency when applying the analysis, it was essential to employ case convertors to all files, WH categories and dictionaries. This ensured that all the content of digital texts included the same text format in terms of upper or lower cases.

3. Stemming and Lemmatization: Reduced the WH personality category items to a more manageable set of items by truncating them to their origin.

4. Part of Speech (POS): Assigned grammar types to each word throughout the entire data file.

5. Dictionary Tagging Filters: Enabled the filtering of all adjectives from the data file after the POS had been defined. This node defined the match between psychology dictionaries and the entire adjective list used.

6. Frequencies Filters: Allowed frequencies of each adjective to be counted in entire documents, and filtered the WH personality items according to their frequencies.

4.1.3 Personality item validation

The traditional approach of consulting psychologists or language experts was used for item validation (Geuens et al., 2009). The adjectives list was matched to personality items in psychology and BP studies used for this purpose, following the method employed by Fischer et al. (2020). This study added WHS-relevant personality lists from BP studies. Allport and Odbert (1936) scanned

thousands of adjectives to select the best stable personality items to describe a person, resulting in a list of 17,954 personality descriptors (hereafter, the Allport List). The Allport List has been described as the longest established and most comprehensive personality list in English (Azoulay & Kapferer, 2003; Fischer et al., 2020). Moreover, 2,800 items were taken from Norman (1967), who refined and structured items on the Allport list. Furthermore, Goldberg (1982) provided 1,710 personality items, which Fischer et al. (2020) deemed to be more appropriate for their study, as they did not include appearance or physical characteristics. Later, Saucier (1997) provided a 500-item list that captures the most commonly used personality items, including appearance and physical items.

The following items were taken into account from BP studies: forty-two items from Aaker (1997), as they are the most widely used; twelve items from Ekinci and Hosany (2006), the first scholars to extend Aaker's (1997) BP scale to destinations; thirty-eight items were taken from D'Astous and Boujbel (2007), who extended the BP scale to countries; Pitt et al.'s (2007) 833 items are known as a BP dictionary; two hundred and nine items were used from Rojas et al. (2013, 2016), who measured nation brands and country tourism websites; seventy-eight items came from Kaplan et al. (2010), who measured place personality; twenty-three items were from Kumar and Nayak (2018), who measured Indian DP; and thirty-three items were taken from Zhang et al. (2019), who measured urban DP. Lastly, the four psychology lists were also merged together. Two lists were therefore established: after removing any redundant items, the list of BP studies accounted for 1,080 personality items (BP dictionaries), while the four psychology studies lists accounted for 18,337 (psycholexical dictionaries).

The literature shows that the demographic or social characteristics used in BP studies do not influence existing BP scales (Davies et al., 2018). This study relies on existing psycholexical and

BP dictionaries that include demographic or social characteristics. Following the arguments posited by Davis et al. (2018), Grohmann (2009) and Aaker (1997), the personality of WHSs was defined as 'the set of personality characteristics associated with WHSs, which are attributed by UNESCO experts and perceived by visitors' post-experience'. Knime was used to compare the adjective list to the collected personality dictionaries, thus obtaining a list of *Potential Personality Items*.

4.2 Refining items

One of the aims of the study was to reduce the number of potential personality items and ensure that the list would retain meaningful items that expressed attributes relevant to the overall WH brand. For selection of the most relevant items from the potential personality list, the following three criteria were applied: (1) frequency criteria; (2) stemmed lists; and (3) evaluation of item appropriateness.

According to the text-mining frequency criteria, items should be considered if they average between 0.01 and 0.05 of the processed text (Denny & Spirling, 2017; Wiedemann, 2018). Here, LIWC software was used as it includes a psychological process analysis known as 'category analysis'. This transforms the entire potential personality list into a dictionary, where each item is perceived as an individual category. Based on the frequencies of each category (item) extracted from the UNESCO and TripAdvisor corpora, LIWC was used to conduct a separate category analysis, analyzing items with at least 0.01 and at least five frequencies from each corpus. By reducing the list of potential personality items, a frequency criterion makes the process more manageable, and this reduces the number of items that require stemming and evaluations. Stemming or lemmatization can be useful in reducing a complex list in which words with the same roots may emerge.

Schade et al. (2014) suggested evaluating item appropriateness for constructing robust BP categories by eliminating words that do not contribute to the meaning of the brand. Prior to applying the frequency criteria, words signifying colors, shapes, directions or locations emerged from the potential personality list. However, these are attributed to specific elements at a particular WH site and not the overall WH brand. They should therefore be eliminated, as was the case with Ranfagni et al. (2016). Most of these words come from Allport and Odbert's (1936) list of adjectives, with items being classified into four categories: Personal Traits, Temporary States, Social Evaluations, and Metaphorical and Doubtful. The last category produced most of the irrelevant keywords in need of evaluation.

4.3 Word embeddings and item clustering

In order to categorize the personality items, traditional BP methods relied on respondent ratings, which may be biased. Also, to satisfy the standard criteria of psychometric methods, many important brand attributes may be removed, which Rauschnabel et al. (2016) and Lieven (2017) perceived as problematic. An alternative approach to categorizing the items was adopted in this study sample based on their correlated meaning, which can be defined by means of word-embedding methods using pre-trained language models (Devlin et al., 2019), widely employed in text and topic categorization (Curiskis et al., 2020). This study used customized programming codes (available from the authors) to extract scores for word similarity, construct a features matrix calculating the similarity distance between each pair of WH items, and test the pre-trained language models' ability to define the best similarity scores. Defining the similarity distance matrix allowed the WH personality items to be clustered using K-means methods (Saxena et al., 2017).

Word embedding was used to cluster WH personality items into meaningful groups. It has been commonly used in neural network language models such as Word2Vec (Mikolov et al., 2013), GloVe (Pennington, Socher, & Manning, 2014) and Fasttext (Bojanowski, Grave, Joulin, & Mikolov, 2017), and is used for vector representation of words in a numerical format (Mikolov et al., 2013). These vectors are real-valued representations of words that can capture lexical semantics, such as word similarity and predictions; for example, vector Spain - vector Barcelona + vector Germany = close vector to Berlin (Mikolov et al., 2013). From the previous example, similarity scores can be obtained based on the distance between the two words in a specific context, known as cosine similarity, where the score refers to the distance of similarity between words (Mikolov et al., 2013). Semantic similarity accuracy can thus be investigated by exploring the closest words to a specific target word resulting from the cosine similarity score. Word embedding therefore enables the computer to understand words with homogeneous features. Vectors enable existing mathematical methods to be used to study the distance in similarity between words (Devlin et al., 2019). By these means, *Vectors of Items* were obtained and a *Distance Matrix of Vectors* was generated.

Cosine similarity accuracy of words depends on the amount and quality of data, size of the vectors, and training algorithms (Mikolov et al., 2013). One of the available language models was used to this end: the Fasttext crawl-300d-2M-subword model. Similarity scores between 'exceptional' and 'extraordinary' and 'exceptional' and 'outstanding' were obtained. The sum of the similarity scores obtained for both sets of words was calculated to define the best language model (Table 1) (codes are available from the authors). Fasttext crawl-300d-2M-subword, which is pre-trained on two million words (Bojanowski et al., 2017), provided the best similarity scores for 192 items.

Table1. Pre-trained language model word similarity comparison

Pre-trained language model similarity scores

Language Model	Exceptional Outstanding	Exceptional Extraordinary	Scores
Fasttext-crawl-Sub_300d-2M	**0.84**	**0.82**	**1.66**
Glove.6B.50d	0.79	0.83	1.62
Fasttext-wiki-news-300d-1M	0.75	0.85	1.60
Fasttext -wiki-news-300d-1M-sub	0.75	0.83	1.58
Fasttext-crawl-300d-2M	0.79	0.79	1.58
Glove.6B.100d	0.71	0.76	1.47
Glove.6B.200d	0.65	0.75	1.40
Word2vec-google-news-300	0.60	0.7	1.30
Glove.6B.300d	0.58	0.71	1.29

Fasttext crawl-300d-2M-subword provided the cosine similarity scores representing the distributed similarity between the 192 WHS items. Those scores were then used to cluster said items. K-means clustering algorithms were preferred for word embedding (Curiskis et al., 2020; Sia, Dalmia, & Mielke, 2020). In the K-means algorithm, the top words in each cluster depend on the distance to the cluster center (Sia et al., 2020). Clustering the refined 192 items allowed the *Personality Categories* to be extracted.

5. Results analysis

The main objectives of this study were to contribute to the development of BP measurement and define perceived WHS personality categories. An item generation, item refinement, and word-embedding and item clustering approaches are taken to define three steps for generating a categorical BP dictionary. The results are discussed in relation to the outcomes from these steps and the analysis of UNESCO and TripAdvisor corpora for WHS perceptions.

5.1 Item generation

The UNESCO and TripAdvisor corpora were used separately to select the most salient personality item attributed to overall WH, as the frequency criterion was applied when refining items. This meant that prominent frequency items could be included for both corpora. Two sets of adjective lists were defined: one for all adjectives included in each of the UNESCO (7,257) and TripAdvisor (5,296) corpora. Based on the match between the adjective lists and the personality dictionaries, the following items were validated as personality items: 1,256 items from the TripAdvisor adjective list overlapped with the dictionaries, and 1,255 from the UNESCO adjective list. When these potential personality item lists obtained from UNESCO and TripAdvisor corpora were compared, 600 items were found to be unique to UNESCO and 572 to TripAdvisor, while 718 items overlapped between the two lists.

5.2 Refining items

The respective lists of 1,256 (TripAdvisor) and 1,255 (UNESCO) potential personality items were filtered to provide a more manageable list. To this end, criteria were applied in relation to frequency, stemming, and appropriateness evaluation. For the frequency criteria, LIWC was used to convert the potential personality item lists into two dictionaries (one TripAdvisor, one UNESCO), where each item was treated as a category in each dictionary. Category analysis was

then performed on both corpora individually to obtain the relative frequencies of items after text pre-processing. A list of 269 items was thus selected, with a minimum of 0.01% and five frequencies from UNESCO (156) and TripAdvisor (113). These items were combined in one list, where 43 items overlapped between both corpora, 113 items were unique to UNESCO, and 70 to TripAdvisor. After removing redundant items, a list of 226 high frequently items was obtained. The terms 'protective' (frequency 78) and 'protected' (frequency 306) occurred in the stemming, both with the same root word, 'protect'. Of the two, protected was retained.

Evaluation of item appropriateness aimed to ensure that the remaining items in the WH personality categories contributed to overall WH brand meaning. These 226 items were compared to the Metaphorical and Doubtful category in the Allport dictionary; when evaluating item appropriateness, 33 items were removed. Only words related to the overall WHSs were kept, such as 'protected', 'unchanged', and 'preserved'. Caprara et al. (2001), Azoulay and Kapferer (2003), and Ranfagni et al. (2016) were followed to carry out item elimination. These authors demonstrated that not all human personality items can be applied to describe brands, such as those relating to neurotic fatigue (Aaker, 1997), since items with ambiguous meaning are not applicable to describing brands (Rauschnabel et al., 2016; Schade et al., 2014). Aaker (1997) only considered positive items in construction of the personality categories, since the ultimate goal is to enhance a brand's competitive advantages.

With regard to item removal, those in verb forms, such as 'closed' and 'open', may refer to a specific WH site's opening and closing times, while items such as 'sound' do not deliver an absolute meaning in themselves. Other inappropriate items were then removed, like noun forms such as 'ranging' or 'following'. If stemming is performed during a dictionary analysis, these types of verbs and nouns are extremely frequent, which may affect cluster distributions. Other words

may contribute to individual WHSs or an element within WHSs, such as words indicating a particular monumental design, like 'orthodox', or referring to a shape, like 'circular'. These types of words were not perceived as being appropriate for inclusion in the overall WH personality items. However, words like 'protected' were kept, because they referred to the primary objectives of the WH concept, and 'protection' is included in the title of 'the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage'. Words such as 'unchanged' and 'preserved' are used to describe the concepts of integrity and authenticity (UNESCO, 2019). All three authors agreed on the eliminated items. Following refinement of the items, a list of 192 items remained describing the overall WH brand.

In order to define the most efficient personality dictionary of those collected from psychology and BP studies, the 192-item list was compared with words in these dictionaries. It was observed that the Allport dictionary covered 92.20% (177 items) and the other three psychology dictionaries added 5.20% (ten items after removing redundant items listed in Allport), with all four psychology dictionaries covering 97.6% of the items. Moreover, 85 of 192 items were matched with BP studies, 80 of them overlapping with psychology dictionaries, thus adding 2.6%, while 'contemporary' (86 frequencies) comes from Aaker (1997) and Kumar and Nayak (2018), and the other four words are from Pitt et al. (2007): 'industrial' (186), 'pristine' (44), 'recent' (106), and 'typical' (91). Therefore, due to the fact that psychology dictionaries covered 97.6% of this study items, it can be concluded that this method constitutes an easy way of validating personality items (Fischer et al., 2020). This is particularly true of analyzing BP categories from digital textual data, because in digital text analysis more items may require validation than those emerging from the use of the traditional empirical approach using survey questionnaires.

5.3 Word embeddings and item clustering

A list of 192 items was grouped into categorical clusters using Fasttext crawl-300d-2M-subword to define similarity scores among the items on the refined 192-item list. These 192 items were then assigned a cosine similarity score to determine their similarity distances. The 192 items on the list were then assigned a cosine similarity score to determine their similarity distances using Fasttext crawl-300d-2M-subword, before the similarity distance scores were arranged in a feature matrix. Following the clustering approach, K-means cluster methods were then employed to cluster the items based on their scores as arranged in the feature matrix. Lastly, the obtained clusters were interpreted in relation to their frequencies in the UNESCO concepts expressed under the six labels.

5.3.1 Clustering methods and validation

The method of K-means clustering was used (Curiskis et al., 2020; Hamodi, Hussein, & Yousir, 2020), since it provides the best performance for word vectors. The goodness of the clusters perceived as being more accurate in determining the optimal number of clusters was confirmed by means of internal criteria (Patibandla & Veeranjaneyulu, 2018; Saxena et al., 2017). This simply measures the inter-cluster separation, which is the distance between clusters, and the intra-cluster homogeneity, which is the distance between items in the clusters, known as compactness and separation (Saxena et al., 2017). The Sum of Squared Errors (SSE) is the most frequently used index for clustering validation (Saxena et al., 2017). The values and percentage change in SSE from K-means clustering methods were compared for the separation of overall clusters, homogeneity and size of items within each cluster (Thinsungnoen, Kaoungku, Durongdumronchai, Kerdprasop, & Kerdprasop, 2015). In the end, five was found to be the optimal cluster number obtained from 192 items, according to these internal criteria (Saxena et al., 2017); this method was also applied by Rojas-Méndez et al. (2019). More specifically, the sum of square distances to the nearest cluster center was 0.023 (inertia), meaning that the distance of the items within the 'intra-

cluster-compactness' cluster was homogenous. Significant differences were found between the five overall clusters (inter-cluster separation), as shown by one-way ANOVA F (4, 187) = 17, 29, p<0.005. Finally, the number of items within the cluster fell between 35 and 45 cases (Table 2).

Table 2. One-way ANOVA for the optimal number of clusters

ANOVA					
Distance between case and its classification cluster centre					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,604	4	,401	17,299	,000
Within Groups	4,334	187	,023		
Total	5,938	191			

5.3.2 Cluster interpretations

Cluster analysis provided five clusters, interpreted in two ways. First, the meaning of items within the clusters in terms of homogeneity within the cluster could be identified from the distance between each cluster item and the cluster centroid (Curiskis et al., 2020). The shorter the distance to the centroid, the more significant the meaning of the items to the cluster. Table 3 shows 192 items based on their distance from the centroid, which helps interpret clusters and define a title for each. Second, the text containing the six UNESCO labels was used to run a category analysis, where each cluster was perceived as a category to define the frequencies of the five clusters in relation to these six labels. A confusion matrix (Table 4) was generated, which was useful for interpreting the clusters obtained according to the labels (Bakarov, 2018; Curiskis et al., 2020). To this end, the text of six UNESCO labels was split into six files. A dictionary analysis was performed using Antword-Pro software to obtain the confusion matrix. The resulting five clusters attributed to WHSs were Responsibility, Identification, Exceptionality, Prominence, and Attractiveness.

Table 3. WH personality category K-means clusters

World Heritage personality categories				
Responsibility	**Identification**	**Exceptionality**	**Prominence**	**Attractiveness**
affected	domestic	brilliant	serious	authentic
protected	continental	spectacular	real	rich
preserved	industrial	marvelous	critical	romantic
concerned	ancestral	impressive	worthy	harmonious
responsible	imperial	superb	particular	scenic
controlled	royal	stunning	vital	attractive
reduced	alien	amazing	broad	quaint
respected	public	delightful	common	dynamic
unchanged	secular	fascinating	essential	complex
free	civil	exquisite	valuable	rugged
vulnerable	social	wonderful	significant	natural
involved	universal	fantastic	specific	wild
aware	artificial	splendid	substantial	cool
exposed	spiritual	magnificent	strong	charming
restricted	concrete	remarkable	integral	creative
inspired	religious	outstanding	limited	lush
sustained	formal	extraordinary	important	modern
proud	remote	exceptional	tangible	intricate
accessible	autonomous	astonishing	extreme	peaceful
developed	defensive	unique	ideal	typical
fortified	eastern	awesome	difficult	decorative
undisturbed	permanent	glorious	considerable	quiet
marked	holy	exciting	fine	serene
sufficient	political	unforgettable	comprehensive	popular
competent	provincial	great	complete	elegant
surprised	primary	excellent	notable	tranquil
clean	invasive	unusual	systematic	ancient
knowledgeable	entire	rare	consistent	contemporary
happy	scientific	beautiful	effective	friendly
calm	immovable	lovely	sensitive	picturesque
renowned	principal	striking	massive	comfortable
favorite	independent	distinctive	careful	dense
painted	grand	perfect	vast	innovative
stained	european	powerful	technical	classical
erected	strict	dramatic	enormous	original

	recent	gorgeous		dominant
	ornate	memorable		artistic
		nice		pleasant
		majestic		traditional
				pretty
				coherent
				famous
				monumental
				pristine
				informative
				sunny

Table 4. Confusion Matrix for the new k-clusters and UNESCO concepts for WHS

	K-clusters				
ESCO Concepts	Responsibility %	Identification	Exceptionality	Prominence	Attractiveness
ienticity	14.26	11.20	19.99	11.00	16.71
grity	16.95	14.43	10.38	15.27	13.80
ection and Management	29.29	21.65	05.61	22.55	11.76
eria Descriptions	13.95	15.92	23.97	17.78	18.10
f Synthesis	17.21	26.07	37.79	24.23	28.53
criptions	08.32	10.70	16.68	09.15	11.08
word total Frequencies	16.24	22.62	17.88	19.47	23.77

Table 4 presents the cluster meaning derived from the confusion matrix: (1) **Responsibility**. This includes items referring to the importance of protecting and preserving WHSs: 'protected' and 'preserved'; and items related to WHS accessibility: 'accessible' and 'restricted'. The cluster items fit with the UNESCO concept of sustaining WHS, where the text files on Protection and Management, Brief Synthesis, and Integrity are highly attributed by its items. (2) **Identification.** This refers to the 'continental' and 'universal' WHS identities and types, and is presented extensively in the Brief Synthesis, and Protection and Management text files. (3) **Exceptionality**. In the Criteria Description, Description and Brief Synthesis text files, these items refer to the

outstanding qualities and uniqueness of WHSs, such as 'outstanding' and 'extraordinary'. (4) **Prominence**. Items such as 'valuable', and 'significant' refer to how valuable WHSs are; this category also includes integrity items such as 'integral' and 'complete'. These items are found more frequently in Brief Synthesis, Protection, and Management text files, and in all other corpora to some degree. (5) **Attractiveness**. This refers to WHS authenticity and originality, 'original' and 'picturesque', for example, and is best attributed in the Brief Synthesis, Criteria Descriptions and Authenticity text files.

Correspondence analysis (CA) is used widely in BP lexical studies (Pitt et al., 2007; Rojas-Méndez & Hine, 2016). In this study, it was used to gain a deeper understanding of relationship patterns between UNESCO labels and the five WH personality categories, specifically as a tool for visualizing this relationship in a two-dimensional space (Greenacre, 2017). The significance test confirmed a relationship between the six UNESCO labels and the five WH personality categories: p value > 0.05, with good quality representation, given that accumulative inertia accounted for 98% of the first two categories. Figure 2 shows that the categories Prominence, Responsibility and Identification agree closely with the concepts of Authenticity, Integrity, and Protection and Management. The graph also shows that the corpora items Description and Brief Synthesis are related. Description, Brief Synthesis and Criteria Description all comply with Exceptionality and Attractiveness. To a certain extent, the five WH personality categories thus capture the main ideas behind the concepts of UNESCO 'labels' and can be used for several other managerial operations.

Correspondence map for UNESCO labels and clusters of WH personality items

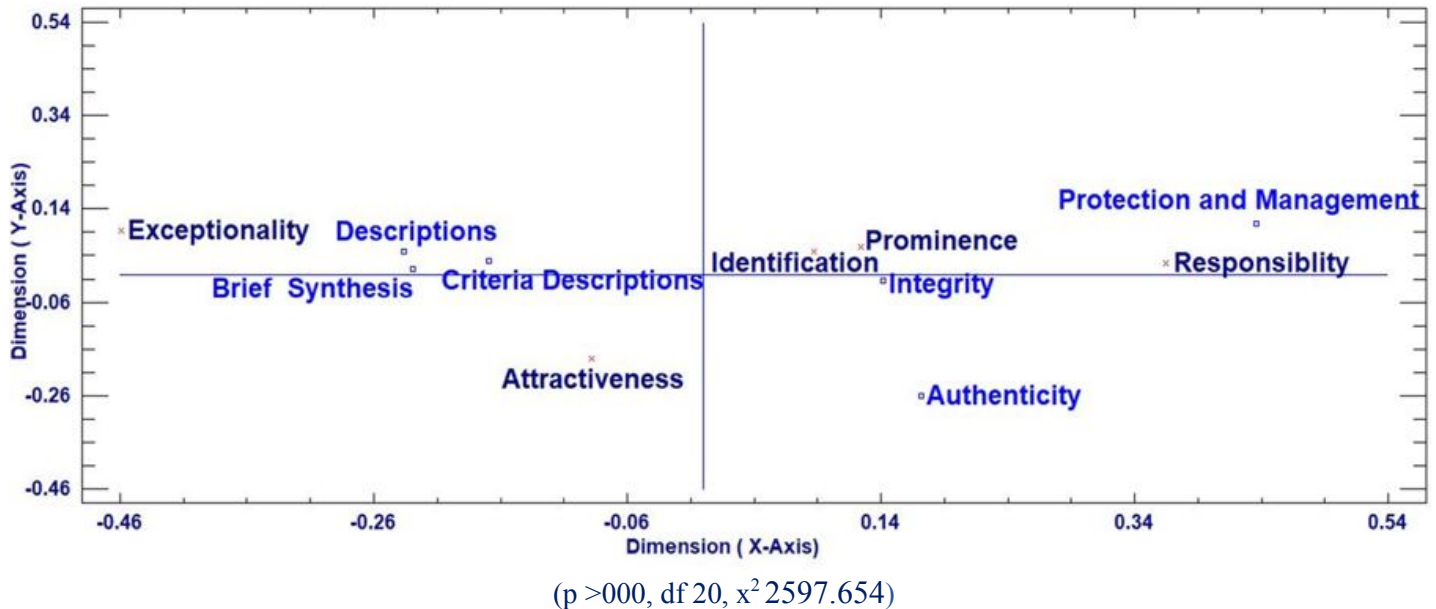(p >000, df 20, x^2 2597.654)

Figure 2. Correspondence map for UNESCO labels and clusters of WH personality items

5.4 Personality category distributions for all 1,121 UNESCO World Heritage Sites

This constituted the first time that the overall WH personality category distributions were measured for all 1,121 WHSs using the UNESCO corpus. These WHSs are distributed among 167 countries and classified into six regions (UNESCO, 2020). Measuring the UNESCO WHSs in such a comprehensive way increases the knowledge of both academics and professionals regarding all types of WHSs (cultural, natural and mixed, countries and regions). These personality distributions also reflect all the concepts behind WH through the six labels describing each WHS. Figure 3 shows that the distribution of WHSs across the five personality categories was moderate, with no extreme outliers. Attractiveness (23.90%) and Identification (22.68%) were found to be the highest distributed categories, followed by Exceptionality (18.37%). The last two categories were

Prominence (19.41%) and Responsibility (16.14%). These five personality categories can thus

be extended to measure WHSs or similar attractions as micro-elements of tourism destinations.
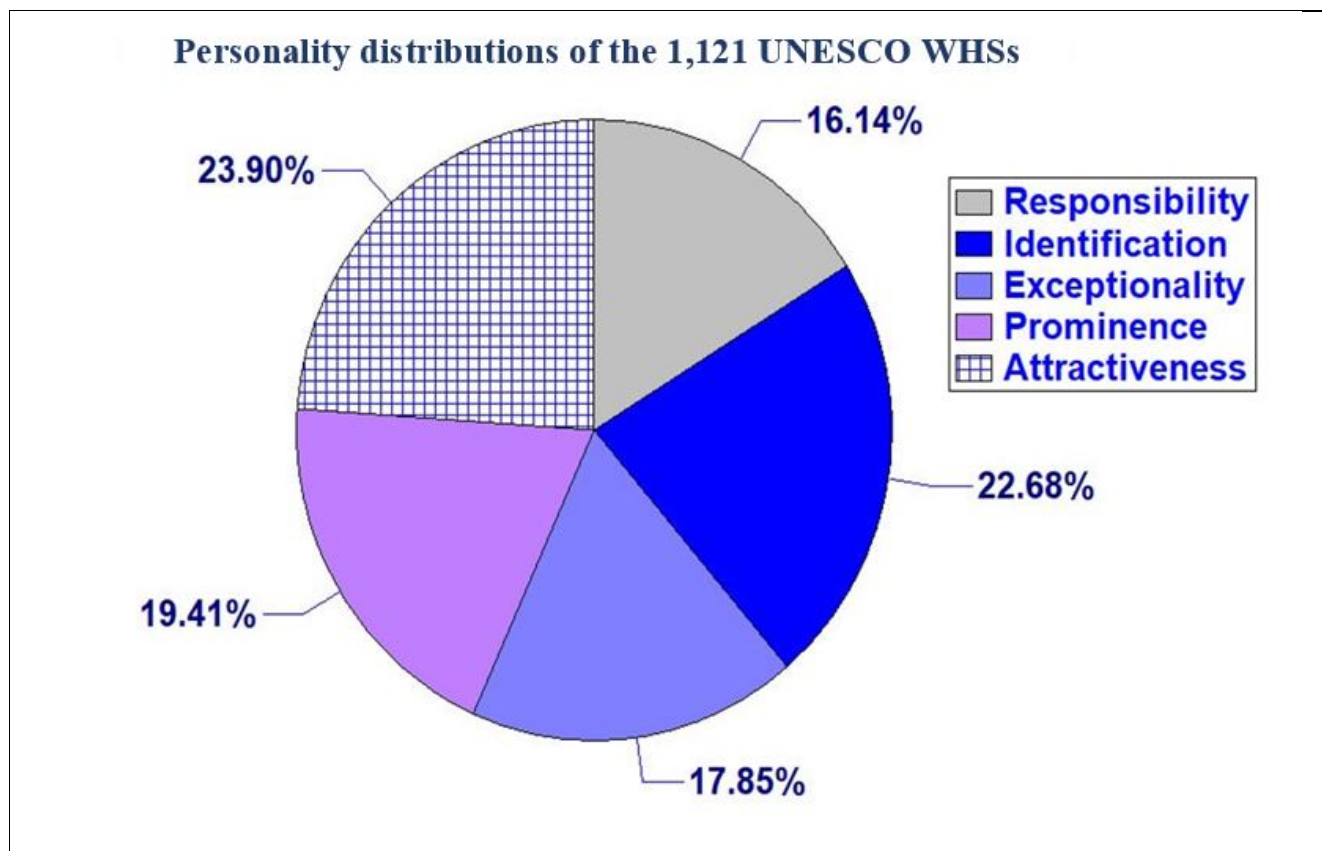

Figure 3. Personality distributions of the 1,121 UNESCO WHSs

5.5 A comparison of WHS personality distribution between visitor and expert attributions

 Practitioners can develop promotional materials to attract target visitors by understanding how

visitors perceive the WHSs' attributions. Comparing the attributions of senders (UNESCO

experts) and the descriptions perceived by receivers (visitors) can help UNESCO experts choose

the best WH attributions. Figure 4 shows the comparative distribution of WH personality

categories between the UNESCO and TripAdvisor corpora. TripAdvisor visitors attributed

Exceptionality to 55.59% of WHSs, indicating that they valued WHSs' OUVs. The second most

distributed category was Attractiveness (21.84%), which refers to the high value visitors award to the authenticity of WHSs. Responsibility (9.24%), Identification (6.9%), and Prominence (6.42%) were rarely expressed by visitors. In contrast, Figure 4 shows that the WH personality categories distributed by UNESCO experts were moderately balanced. These were Identification (24.36%) and Attractiveness (24.21%), Exceptionality (18.37%), Prominence (17.63%) and Responsibility (15.4%).

Figure 5 shows the CA map, which also confirms that visitors and experts perceive WHSs differently. Whereas visitors largely attributed WHSs with Exceptionality and Attractiveness, the experts described them using the items Identification and Attractiveness, followed by Exceptionality. The third most attributed category was Exceptionality, with a moderate distribution in the UNESCO corpora, both in the subsample of the seven countries (18.37%) and throughout the entire corpora (17.85%). This category was also the most favored by visitors (55.59%). Although the categories Prominence and Responsibility were adequately represented in both of the UNESCO samples (seven and 167 countries, respectively), the same was not true of visitors' perceptions in the TripAdvisor reviews. These two categories therefore appear near the UNESCO experts' attributions and far from visitors' attributions in Figure 5. To emphasize this fact, Figure 4 shows that the sample of reviews from TripAdvisor is larger than that of the UNESCO expert seven-country subsample. However, it is worth noting that even if this study compared the TripAdvisor data to those of all WHSs for all counties instead of using filtered data for the seven countries from UNESCO webpages, there would likely only be a minimal change in the findings. The personality category distributions in the seven countries (Figure 4) are very similar to the personality distributions for the data related to all 1,121 WHSs (Figure 3).
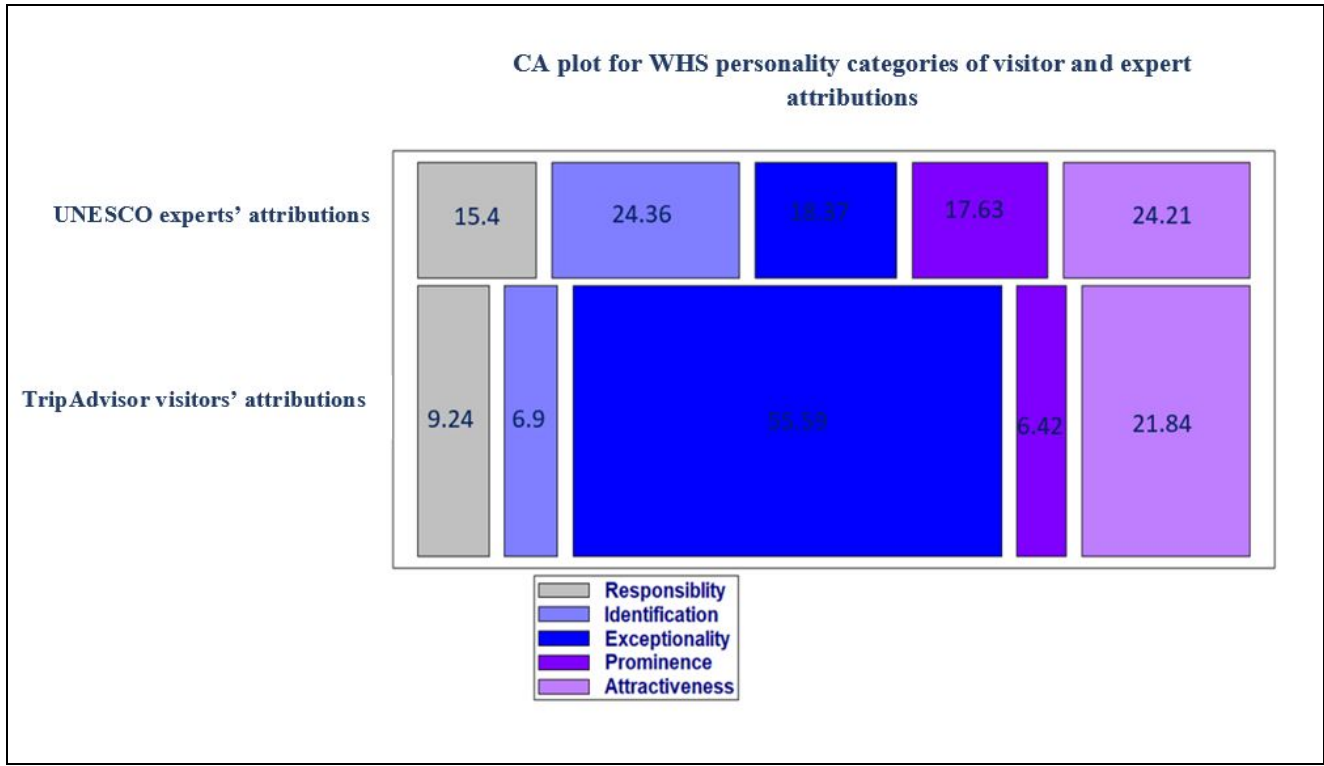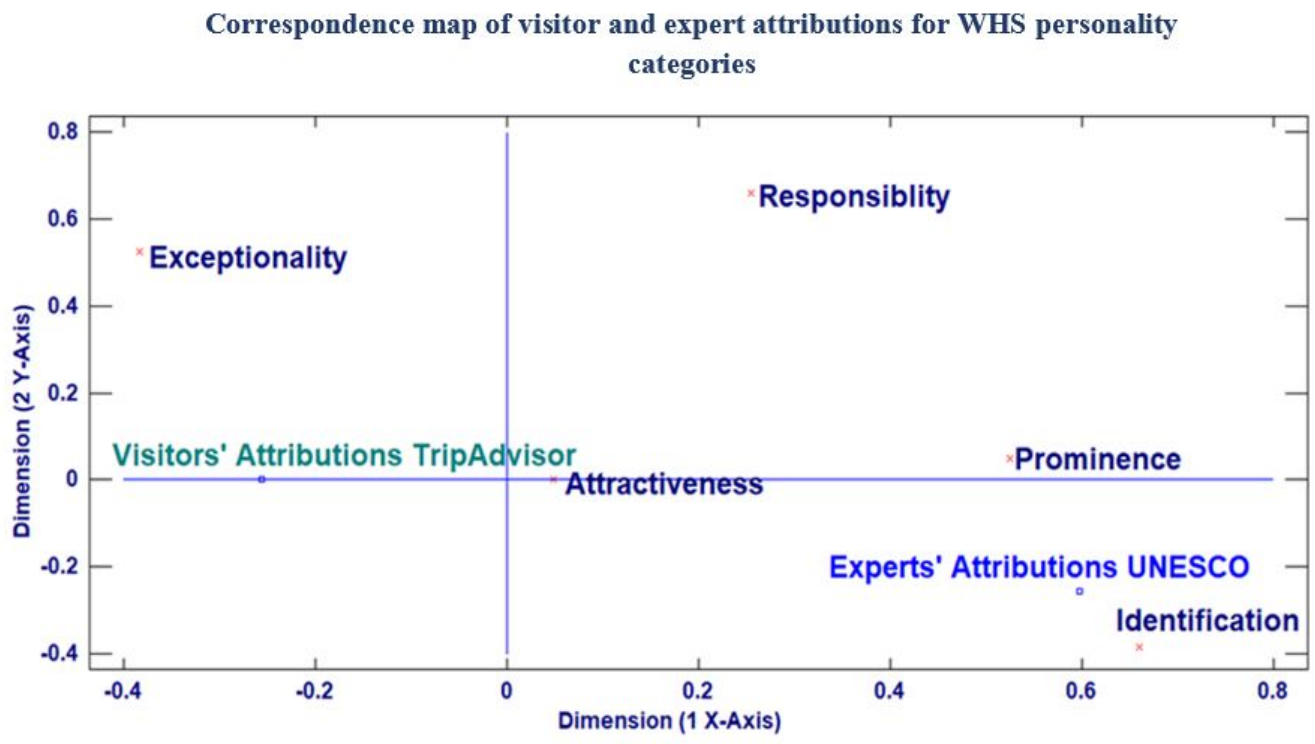
Figure 4. CA plot for WHS personality categories of visitor and expert attributions

(p >000., df 4, x^2 3718.480)

Figure 5. Correspondence map of visitor and expert attributions for WHS personality categories

6. Discussion and Conclusions

6.1 Brand Personality Contributions

The Aaker (1997) BP scale has attracted significant attention from academics, despite its limitations when used in different cultural contexts and how these reduce its practical implications in marketing due to the scale's complicated construct. In fact, academics have previously pointed out the shortcomings of the scale for predicting visitor behavior and called for its further development, showing that its five categories are insufficient to measure DP (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; Murphy, Moscardo, et al., 2007). Thus, tourism scholars have paid very little attention to the scale to date (Radler, 2017), and Saeed et al. (2021) recently found that few studies had been dedicated to constructing BP scales.

Several meta-bibliometric analyses of BP conducted by Radler (2017), Vinyals-Mirabent and Koch (2020), and Carvalho et al., (2021) found that the literature on tourism behavior considered both direct and indirect effects of BP (Saeed et al., 2021; C. Zhang et al., 2019). Even though they agreed on the prominence of BP categories in moderating other visitor behavioral variables, most of these studies used Aaker's five BP categories and the traditional methods without any update or modification (Murphy, Moscardo, et al., 2007; Saeed et al., 2021; Usakli & Baloglu, 2011; C. Zhang et al., 2019). Few updated DP personality scales have been constructed (V. Kumar & Nayak, 2018; Saeed et al., 2021; Ye et al., 2020) since the first DP scale developed by Ekinci and Hosany (2006), widely extending Aaker's (1997) categories to tourism behavior studies (C. Zhang et al., 2019). This may be due to the traditional limited empirical approaches used to capture the cultural context of brands (Davies et al., 2018). Improving the way in which BP categories can be identified by ensuring that the emergent categories pertain to their specific brand culture may thus assist in positioning WHSs, as in this case and with tourism destinations. This research approach would

indicate that different destination elements can be aggregated and analyzed to explore overall DP, which may facilitate the construction of specific cultural personality categories for future tourism behavior studies.

This study concurs with several others (Carvalho et al., 2021; Demangeot & Broderick, 2010; Lee, 2009; Rojas-Méndez et al., 2019; Ye et al., 2020) in asserting that the BP concept still needs further development, as do various approaches to underpinning its construct. The practical implications of BP are complex, due to gaps in the objectives for constructing a scale drawn up by academics; specifically, there is a disconnect between those who want to construct a generic scale for all brands and practitioners, who wish to define their own individual BP categories. Demangeot and Broderick (2010) noted that the main aim of psychologists when constructing the Big Five was to come up with a scale that represented the common characteristics of an individual rather than considering each individual's characteristics; this would be different in the case of brands. Thus, in this study, the following three steps were developed to bridge the gap between academics and marketers in order to construct WHS personality categories: generating items; refining items; and word embeddings and clustering items.

In line with the above, WH personality categories were constructed from more than one source based on item generation, as the most available scale (Aaker, 1997) may not encompass a full understanding of brand associations. This argument is consistent with other studies (Heere, 2010; Rauschnabel et al., 2016; Schade et al., 2014) in pointing out that the items on the scale should be defined from a number of sources, and should include both sender and receiver information. When generating items, the UNESCO and TripAdvisor corpora have items which are unique to each corpus. Thus, it was deemed that an analysis of how the target audience (visitors) perceive messages in relation to sender messages (UNESCO experts) could not be adequate if item

generation was restricted to only one side. This was also an important consideration when defining the items, as it allowed for the inclusion of cultural context, and an understanding of the difference in the perceptions between visitors and UNESCO experts in this regard.

The standard technique used to evaluate scale items to determine whether they are appropriate as personality items is to consult language experts or psychologists. In this study, available personality dictionaries from psychology and BP studies were used to validate WH personality items. Although Fischer et al. (2020) also used this technique, in the present study items were collected from several BP studies. While these items were for validation purposes, WH personality items were extracted entirely from the study data and their content validity was determined using frequency criteria that agree with text-mining studies (Denny & Spirling, 2017). The use of psychology dictionaries alone was enough to provide a faster and easier approach to validate items. These dictionaries make it easier for practitioners to validate items, avoiding addressing at least three psychologists or language professionals, and make the process less time-consuming compared to BP traditional approaches (Geuens et al., 2009). The four psychology dictionaries consulted covered 97.6% of WH items; however, attention must be paid to the fourth category of the Allport dictionary, namely 'Metaphorical and Doubtful', which includes words that need to be evaluated for appropriateness.

Different cluster results were obtained when different pre-trained language models were used to define word similarities. This helped with the analysis of the cosine similarity score for 192 items from the most commonly used pre-trained language models, and comparison of the scores. In this study, Fasttext was found to be the most suitable pre-trained language model for items related to WHSs, in line with Faathima Fayaza and Ranathunga (2020). If an author's own language model cannot be generated due to the language model construction criteria designed by Mikolov et al.

(2013), such as the amount and quality of data, it is recommended that the scores obtained from various pre-trained language models be compared prior to clustering, since the score may affect the numbers of optimal clusters and their goodness of fit.

6.2 World Heritage contributions

There is a large body of literature that agrees that the state of the art on the tourism demand effects of the WH brand is controversial (Buckley, 2018; Poria et al., 2011, 2013; Poria, Reichel, & Cohen, 2015; Ribaudo & Figini, 2017; Y. Yang et al., 2019). Previous studies have concluded inconsistent results due to the presence of a high degree of variation that may influence WH outcomes, such as geographical locations (Buckley et al., 2020; Rasoolimanesh et al., 2017; Wuepper, 2017) or marketing strategies (Y. Yang et al., 2019). Poria et al. (2011, 2015) proposed that one way to understand WH's effectiveness as a tourism brand is to look at its brand equity effect such as its influence on visitation intentions and willingness to pay extra fees. These authors acknowledged that understanding visitors' perception of WHSs may contribute to boost its influence on visitor loyalty and perceived quality. In their research, Palau-Saumell et al. (2013) agreed with (Poria et al. (2011) that visitor perception of the WH brand increased visitor emotions toward the listed WHSs. In addition, Lacher, Oh, Jodice, and Norman (2013) explored how understanding visitor perceptions of heritage sites, in general, could provide insight into how they influence destination preferences. In this sense, Poria et al. (2011) argued that the term 'Heritage', in the criteria of WHS designation identified by UNESCO experts, is absent, because visitor perception was not taken into account in identifying these criteria of designation. In line with these previous studies, the aim of this study was to fill a gap in WH literature and to examine the perception of WHSs. Therefore, by extending the BP concept to WH studies, this study identified the most frequent intangible meanings associated with the WH brand which may assist in improving the marketing of WHSs.

The new method applied in this study helps define the five personality categories attributed to all 1,121 WHSs. These attributions are a reflection of the 192-item personality categorical dictionary selected from 12,526 (7,257 from UNESCO and 5,269 from TripAdvisor) unique adjectives with 116,818 occurrences (UNESCO: 69,741; TripAdvisor: 47,077). UNESCO experts attributed the items to WHSs in the categories Attractiveness (23.9%), Identification (22.68%), Prominence (19.41%) and Responsibility (16.14%). However, in the seven-country subsample from the UNESCO corpus, distributions by experts were the same as for all 1,121 WHSs in 167 countries. In contrast, the distributions of 9,920 visitor-generated reviews relating to the same seven countries notably differed: visitors attributed the categories Exceptionality (55.59%) and Attractiveness (21.84%) more frequently to WHSs, while Responsibility (9.24%), Identification (6.90%) and Prominence (6.42%) were mentioned less frequently.

Most of the items in the Exceptionality category described by visitors concurred with the Sophistication category on Aaker's scale. In this context, the high occurrence of Exceptionality is congruent with a study by Hassan et al. (2021), which concluded that visitors strongly attribute WHSs to the Sophistication category in European countries. In her BP model, Aaker (1997) described the items in the Sophistication category as being more related to the extrinsic features of brands, such as 'elegant', 'beautiful' and 'brilliant', which visitors may consider desirable, but not necessary. These items are mostly used by advertising agencies such as Mercedes and BMW to promote sophisticated brands (Aaker, 1997), confirming that visitors perceive WH as a top brand, as pointed out in several WH studies (Buckley, 2004, 2018; Ryan & Silvanto, 2014; Y. Yang et al., 2019). The five defined WH personality categories included items attributing all the UNESCO WHS concepts.

In contrast to previous WH studies, which have focused on exploring the concept of Authenticity, the present study investigated the other concepts related to WHSs described in the six UNESCO labels: Authenticity, Integrity, Brief Synthesis, Protection and Management, Criteria Descriptions, and Descriptions (H. Kim et al., 2018; Nian et al., 2019; Poria et al., 2013; Wang et al., 2015). The results show that Authenticity items were expressed in the category Attractiveness (21.84%), with frequent items such as 'original', 'typical', 'authentic' and 'traditional'. The Criteria Descriptions and Brief Synthesis were found to be attributed to items relating to Exceptionality, such as 'outstanding', 'unique', 'exceptional' and 'remarkable', which were also valued by visitors (55.59%). This shows that visitors appreciate items associated with Authenticity and Criteria Description concepts, which are also associated with WHSs' OUVS in reviews.

In contrast with the above, the concepts of Integrity and Protection and Management were most frequently described with items in the Responsibility category, such as 'protected', 'preserved', 'vulnerable', 'responsible', and 'developed', while the findings show that visitors rarely referred to the category of Responsibility (9.24%). Identification (6.90%) and Prominence (6.42%) were attributed with only moderate percentages (Table 4) in the Brief Synthesis and Protection and Management text files, and these categories are therefore also considered infrequently distributed by visitors in their reviews describing WHS. This would suggest that UNESCO experts should further analyze the way in which visitors perceive intangible WH meanings (Poria et al., 2011, 2015).

6.3 Empirical implications

The present study has established a new model for identifying and measuring the personality of WHSs, thus enhancing developments in the distributed representation of words, available language

models, and advances in NLP (text mining) and big data analysis. This method facilitates the construction of WH personality categories by extracting items from WH context and culture. It attempts to bridge the knowledge gap between academics and practitioners who perceive BP implications as sophisticated. The only available BP scale to date has been limited to measuring one product category, and cannot be generalized (Davies et al., 2018), while academics have criticized this as being unsuitable for measuring individual brands or individual product categories (Austin et al., 2003). The methods in the present study may help to measure the personality of one product category, since they were applied to the WH brand. It is thought that these methods may be more effective in measuring DP using BP scales that were constructed in different contexts rather than the specific destination context, as each destination is unique (V. Kumar & Nayak, 2018; Skinner, 2018).

Specifically, the present study methods offer a new technique for defining the BP categories of WHSs as micro-elements of tourism destinations extracted for the first time entirely from textual digital data pertaining to cultural context. Thus, the generation and refinement of WH personality were customized so as to ensure that cultural context was included when collecting and selecting the most frequent items. Compared with traditional BP methods (Aaker, 1997), first, the identification of the items of the WH personality was customized from the entire corpus of digital texts under analysis, not from a small external sample. And second, the word-embedding technique was adopted for the first time to categorize items and assist in defining the similarity between WH personality items. The use of this technique and the available language models helped categorize items based on their correlated similarities driven by the contextual representation of words (Mikolov et al., 2013). In general, this research adds a new approach that broadens understanding of the practical implications for BP in marketing.

6.4 Practical implications

The BP category identification methods used in this study efficiently define the attributions of any specific brand and product category from the extensive body of text available online. The BP concept can define the personality categories of a specific brand, which can influence many behavior variables like customer loyalty or attachment (Usakli & Baloglu, 2011; C. Zhang et al., 2019). It can also be used to position brands based on desired personality categories, and compare perceived personality categories with competitive brands in the same product categories (Pitt et al., 2007; Rojas-Méndez & Hine, 2016; Rojas-Méndez et al., 2019). Extending these study methods enables academics and managers to identify and analyze BP using digital textual data. In the brand creation process in particular, managers can collect digital texts related to brands in the same product category and study the textual data for better brand positioning (Pitt et al., 2007).

Designing a WHS personality strategy when promoting sites may effectively improve the attractiveness of the destination to visitors (Pitt et al., 2007; Rojas-Méndez et al., 2019). WH personality categories may assist destination managers and UNESCO experts in improving the design of a WH BP strategy to enhance the position of WHSs. This study confirms that cultural context affects BP identification. Therefore, the influence of specific WH categories may differ according to the target visitor, as Rojas et al. (2019) found. When addressing visitors, destination managers can thus customize the textual promotional content, taking into consideration that a visitor's post-experience is found to be more oriented to the categories of Exceptionality and Attractiveness. As for UNESCO experts preparing the textual data for WHS descriptions on the UNESCO WH Center website, this study showed that visitors and experts see WHSs differently, and experts should therefore examine the relationship between WH categories and the different UNESCO concepts as reported in this study (Table 4) when designing a WH personality strategy.

WH personality categories may also enable a deeper understanding of target customer perceptions and interpretations of the received communications analyzed by contrasting visitor perceptions with UNESCO expert descriptions regarding the WH brand. Destination managers can bundle the entire set of WHSs within their destinations and investigate the WH personality distributions attributed in their digital materials, such as on TripAdvisor, the UNESCO WH Center, and their own online websites. These study methods can also be used to investigate how their communications are perceived, allowing them to frequently monitor BP perception. A comparative analysis of WHSs within destinations in the same country, or between countries, may help in understanding similar perception differences, and assist in defining specific BP positioning strategies. Rojas-Méndez et al. (2019) clustered the visitor segments according to destinations on the personality categories, and explored whether specific visitor segments are more attracted by specific personality categories. Understanding WH visitor types based on their personality dimensions in a similar study may thus assist in better positioning WHSs.

Limitations to this study included the amount of data available, which forced the authors to use the Fasttext pre-trained language model. Although word similarity accuracy can be obtained from a trained model using subject-specific data, this requires a larger sample size, as the language models currently available are pre-trained on millions of words (Mikolov et al., 2013). The Fasttext model has techniques that enable data to be combined with those of the pre-trained model to obtain better scores. Future studies may generate their own BP categories, and with an adequate amount of text to establish their own language model, or extend their data into the Fasttext model. Obtaining the best similarity score may improve the performance of the cluster methods.

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CHAPTER 3

6. General Discussion and Conclusions

This doctoral thesis aims to bridge several knowledge gaps in WH and BP studies. Firstly, the current study explored visitors' and experts' perceptions of WH perceived intangible qualities, focusing on the alignment in describing natural and cultural WHS, as well as providing generic perspectives on WH perceived soft meanings. Secondly, this study intended to expand and develop the BP lexical approach (Aaker, 1997) toward the cultural context of WHSs attraction as microelements of destinations. This thesis developed three studies which together achieve the overall objectives of the thesis. Table.1 offers insight into each of these studies by providing the following information; State of the Art, Questions, Objectives, Methods, Empirical Implications, General Findings, and Limitations within the studies.

1.1 World Heritage Sites Contributions

According to this doctoral thesis, WHSs were attributed to multidimensional personality categories ranging from four to five dimensions. It is in agreement with tourism studies in DP where academics concluded that places (Skinner, 2018) such as cities (Kaplan et al., 2010), countries (D'Astous & Boujbel, 2007; Rojas-Méndez, Murphy, & Papadopoulos, 2013); and destinations (Chigora, Ndlovu, Mutambara, & Muzurura, 2019; Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; C. Zhang et al., 2019) can be attributed by multidimensional personality categories three (Chigora et al., 2019; Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; C. Zhang et al., 2019). This study agreed with previous studies and made a contribution to the field by extending the construct of BP to WHSs as microelements of destinations for the first time in order to identify WHSs intangible attributes. As a result, three WH personality categorical dictionaries were identified in three studies, which were used to measure WH visitor and expert perceptions. The emerged WH personality dimensions are thus identified and interpreted as follows:

The first study used a 222-item WH personality dictionary attributed to cultural WHSs post-experience on TripAdvisor. In the second study, a 389-item WHSs personality dictionary attributed to natural and cultural WHSs from visitors' reviews for both natural and cultural WHSs on TripAdvisor and UNESCO expert descriptions on WHC. Both dictionaries were identified into five personality categories; Competence, Excitement, Sincerity Sophistication, and Ruggedness as

these studies were underpinned by Aaker's five personality dimensions. The first identified WH personality dictionary was limited only to the cultural attractions as they dominated the WHSs listed sites. In the second study, the importance of including expert attributions and natural WHSs in the WH personality dimensions was recognized to improve the identified dimensions, as recommended in several studies (Chigora et al., 2019; George & Anandkumar, 2014; Ranfagni et al., 2016; Schade et al., 2014). Although the first and second studies developed WH personality dictionaries that assist in identifying WH attributions and can be used as a tool for measuring and positioning WHSs, the third study developed further a 192-item WH personality dictionary categorized into five clusters: Exceptionality, Attractiveness, Identification, Responsibility and Prominence. The use of this dictionary is the result of the development of a new WHSs lexical approach provided by this PhD dissertation in order to ensure that the overall WHSs personality categories' items are drawn entirely from sources that pertain to WH cultural contexts and are not taken to some extent from other studies. The third study developed several other techniques, such as evaluating the appropriateness of the items, to ensure that the emerged items related to the overall WH meaning.

In the second study, the sample was different from the third because it consisted of 3500 user-generated reviews related to natural WHSs. Reviews from natural sites were included to improve the identification of the WH dictionary by ensuring that WH cultural meaning is included. The second study is underpinned by BP's different dictionaries related to Aaker's scale as they have been published previously. In the third study, outcomes from the comparison of 9,971 reviews related to cultural WHSs and 3,500 reviews related to natural WHSs showed little difference apart from significant differences in the distributions of items where Excitement is attributed more towords natural WHSs than Sophistication is attributed to cultural WHSs (Study.2; Figure.1). The third sample is therefore restricted to reviews for cultural WHSs and UNESCO expert descriptions. Additionally, a difference is found in the items attributed by UNESCO experts and all the visitors' reviews, since both corpora included items specific to their related cultural contexts (Study.2; Table.1). Generally, in the identification of WH personality categories, this doctoral thesis noted significant differences in items attributed between visitors and experts. As a result, the identified WH categorical dictionaries are used to measure the WH personality category distributions and alignments of WH perceived qualities between visitors and experts.

According to the first and second studies, Competence, Excitement, Sincerity, and Sophistication are all strongly associated with WHSs, whereas Ruggedness does not qualify as a definition of WHSs. Ruggedness is commonly perceived in most BP studies as a USA cultural specific dimension (Aaker et al., 2001) thus its replication in other contexts was absent (Anees Ahmad & Thyagaraj, 2014; Davies et al., 2018; V. Kumar & Nayak, 2018). By using CA in text mining to measure and visualize the WH personality distributions in the first study, it was found that visitors expressed WH significantly by Sophistication and Excitement. Furthermore, the second study agreed with the first study in the sense that visitors highly mentioned WH in cultural and natural WHSs by Sophistication and Excitement. In contrast, the second study illustrated that experts attributed WHSs mostly to Sincerity and Competence. In the third study, through the WH 192-item personality categorical dictionary, most of the items of Exceptionality agreed with items in Sophistication dimensions. Hence, the dimensions of Sophistication and Exceptionality are found to be the most frequently attributed dimensions by visitor reviews. The second most attributed category in the third study is Attractiveness which included items also related to the attractiveness and authenticity of WHSs. In contrast, in a comparison between visitors and UNESCO experts in how they attributed WHSs, Exceptionality was found to be the least attributed by experts. Identifying the meaning of WHS personality categories and investigating how they relate to UNESCO concepts was useful for understanding the differences in UNESCO experts' and visitors' perceptions of WHSs.

This study drew on the following concepts to interpret the meaning of the WH dimensions and how these categories are perceived by visitors and UNESCO experts. In both the first and second studies, Aaker's (1997) dimensions were used as a foundation. Therefore, interpretations of these dimensions are related to Aaker's interpretations, as well as links between these dimensions and UNESCO concepts, such as Authenticity, Integrity, and Protection and Management. The third study used a confusion matrix to illustrate the relationships among UNESCO concepts including Authenticity, Integrity, Protection and Management, as well as further aspects such as Criteria of Description and Descriptions and Brief Synthesis. The meaning was derived from grouping the words according to their correlated meaning and proximity to the cluster center (Curiskis et al., 2020) which was regarded as the core of the WH category meaning. Understanding the meaning of WH personality categories and their link to UNESCO concepts allows for a better comprehension of how visitors and experts perceive WHs, and how visitors

recognize the various UNESCO concepts for WHSs. In interpretations, the Sophistication dimension with items such as Beautiful, Stunning, and Magnificent, refers to inspiration, and Excitement items such as Wonderful, Impressive, and Unique items refer to social activities. These two dimensions are frequently attributed by visitors in the first and second studies. In contrast, Sincerity items agreed with the items attributed to Authenticity's concept, while, due to Aaker (1997), Sincerity referred to items of warmth and acceptance such as Good, Nice, Real and Original. Competence items concurred with items expressed in the Protection and Management and Integrity that referred to responsibility, dependability and security, in items such as Great, Outstanding and Complete. In the second study, these two dimensions are attributed frequently by UNESCO experts to describe WHSs to fulfil UNESCO criteria for WHSs' OUVs.

Further on, the WH categories from UNESCO textual data in the third study, according to the UNESCO Experts, in a 192-item WH personality dictionary, the categories Attractiveness Identification, Prominence and Responsibility are moderately attributed. Exceptionality and Attractiveness are more commonly attributed to visitors, while Responsibility, Identification and Prominence are the least frequently attributed. According to the results, when examining the meanings of these WH categories in relation to UNESCO concepts, Authenticity items are expressed in the category of Attractiveness, which includes items such as Original, Typical, and Authentic. It was found that the Criteria Descriptions and Brief Synthesis were attributed to items of Exceptionality such as Outstanding, Unique, Exceptional, and Remarkable, which are also valued by visitors. This shows that visitors acknowledged in their post-experience reviews items associated with Authenticity, and Criteria Description concepts linked to the OUVS of WHSs. Integrity and, Protection and Management are attributed with the most frequent items in the Responsibility category with items such as Protected, Preserved, Vulnerable, Responsible, and Developed. The findings show that visitors rarely express the dimensions of Responsibility. While UNESCO experts found these dimensions to be moderately distributed, they are regarded as infrequently distributed by visitors.

In general, this doctoral thesis identified WH's intangible perceived meanings. The first study showed that visitors attributed WH to Sophistication and Excitement items, and the second study agreed with the first one in that visitors attributed cultural and natural WHSs to Sophistication and Excitement. Additionally, in the third study, most of the items in the

Exceptionality category described by visitors agreed with the Sophistication category in Aaker's scale. Hence, visitors attributed WH with high occurrences of items of Sophistication and Exceptionality, indicating that WH is a top brand. This category is being related more to the attributions of the external features of brands in items such as Elegant, Beautiful and Brilliant. These items are mostly used by advertising agencies such as Mercedes and BMW to promote sophisticated brands (Aaker, 1997). This confirms that visitors perceive WH as the top brand, as pointed out in several WH studies that described WH as a significant tourism brand (Buckley, 2018; Buckley et al., 2020; Ryan & Silvanto, 2009, 2011, 2014).On the other hand, this thesis found that UNESCO experts attributed WH to items of Sincerity, and Competence in the second study, these two dimensions are attributed frequently in Authenticity and Integrity Protection and Management.

The third study illustrated also that the experts attributed WH due to these concepts wherein Authenticity is expressed in Attractiveness and Integrity and Protection and Management are attributed to Responsibility. This thesis found that visitors acknowledged items related to OUVs concepts expressed in the Criteria of inscriptions that are attributed in Exceptionality and Sophistication, and also noted items related to Authenticity concept expressed in Sincerity and Attractiveness. Visitors ignore items related to other concepts such as Integrity Protection and Management which are attributed to Competence in the first and second studies and Responsibility in the third study. Visitors' expressions of UNESCO WHSs in terms of sophistication or exceptionality agree with Aaker's (1997) interpretation that these items relate to external characteristics of WHSs that visitors may desire. This explains visitors describing WHSs with Exceptionality and Sophistication with less on other WHSs dimensions concurred with Marcotte and Bourdeau, (2006, 2012) in that the communications of WH to visitors by DMOs are more marketing-oriented approaches, ignoring to communicate the role of WH in sustaining these WHSs. By contrast, describing WHSs by experts with Items from Categories attributed frequently in texts pertained to UNESCO Concepts and UNESCO Criteria for WHSs explained that these categories' items related to internal aspects of WHs, which was aligned with Aaker's (1997) interpretation of Competence, Sincerity, and Excitement. In conclusion, the development and extension of the BP construct to WHSs attractions assists in identifying and determining how WHSs are perceived from huge textual data that enlarge the sample as compared to most traditional

approaches in previous studies (Adie & Hall, 2016; Buckley et al., 2020; King & Halpenny, 2014; Y. Yang et al., 2019).

2.6 Theoretical Contribution to Brand Personality

This doctoral thesis extended for the first time the construct of BP and developed its lexical approach to measure WHSs. Herein, BP was perceived as a new tool used to examine WH intangible attributions. This agrees with tourism studies which extended BP for measuring DP intangible meaning (Saeed et al., 2021). In several bibliometric analyses of BP studies, academics reported changes to the construct (Carvalho et al., 2021; Eisend & Stokburger-Sauer, 2013a; Radler, 2017; Vinyals-Mirabent & Koch, 2020) while recognizing the importance of BP consequences such as enhancing visitor variables towards destinations (Eisend and Stokburger-Sauer 2013b; Saeed et al. 2021). Thus, they acknowledged that the existing BP scale still needs further development (Austin et al., 2003; Caprara et al., 2001; Rojas-Méndez et al., 2019; Saeed et al., 2021).

Additionally, most of the previous studies in the tourism domain have focused on studying the effects of BP (Eisend & Stokburger-Sauer, 2013b; Usakli & Baloglu, 2011; C. Zhang et al., 2019). Understanding the antecedents of BP (Aaker, 1997; Azoulay & Kapferer, 2003; Saeed et al., 2021; C. Zhang et al., 2019) such as the element that can constitute the overall BP dimensions, as a direct element of DP (Ekinci & Hosany, 2006) is highlighted as a knowledge gap (Saeed et al., 2021; C. Zhang et al., 2019). Extending BP to WHSs as elements of destinations adds to this knowledge gap, as demonstrated and agreed with previous studies that BP is a prominent approach that assists in defining WHSs intangible meanings after taking into consideration the several limitations reported in BP previous studies (Davies et al., 2018; Demangeot & Broderick, 2010; Geuens et al., 2009; Radler, 2017; Rojas-Méndez, Murphy, et al., 2013; Rojas-Méndez, Papadopoulos, et al., 2013; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020) and updating the BP construct to enhance the WHSs' BP dimensions construction.

BP dimensions are subject to the specific field of study or cultural context (Anees Ahmad & Thyagaraj, 2014; Papania et al., 2008; Rojas-Méndez et al., 2019) In explaining this, Aaker et al. (2001) described that brands are cultural icons and they are culture carriers, where the formation of brand dimensions' items pertains to the individual belief and values within the specific culture (Aguirre-Rodriguez, 2014; Anees Ahmad & Thyagaraj, 2014; Matzler et al., 2016). Extending

Aaker's five personality dimensions to WHSs, this study explored that Ruggedness is not suitable for WH, and agreed with other studies that BP dimensions pertained to specific cultural contexts (Davies et al., 2018; V. Kumar & Nayak, 2018). Ruggedness that emerged in Aaker s' (1997) five dimensions scale (1997) cannot be replicated in the first study where the sample related only to cultural WHSs, and also in the second study even when the sample is widened for both natural and cultural WHSs. These dimensions also did not appear in the UNESCO expert description. In DP studies, academics recognized that Aaker's five-dimensional needs updating as destinations' attributions pertain to specific cultural contexts (Chigora et al., 2019; Ekinci & Hosany, 2006; Hosany et al., 2006, 2007; V. Kumar & Nayak, 2018; Murphy, Benckendorff, et al., 2007; Murphy, Moscardo, et al., 2007; C. Zhang et al., 2019).

Hence it explored the cultural context of WH when using the BP lexical approach (Pitt et al., 2007) was absent (Papania et al., 2008; Ranfagni et al., 2016). In explaining this, Aaker et al. (2001) confirmed that BP has specific and universal dimensions and this is also recognized in the context of tourism destinations by Ekinci and Hosany (2006) when they used the traditional empirical approach to BP derived from the psychometric methods (Churchill, 2006) in the context of DP. When Pitt et al. (2007) measured South African website-based dimensions, they restricted their measurement to synonyms expansions of Aaker's (1997) five dimensions, without considering that BP dimensions have culturally specific meanings when they constructed the first BP dictionary. Thus, the context of South African destination items can be perceived as absent. Therefore, as in other studies, this thesis agreed that the use of Pitt et al. (2007) lexical methods and the BP dictionary are paramount to the development of the BP lexical approach, although an update was required to include the cultural context pertaining to specific brand cultures (Ranfagni et al., 2016; Rojas-Méndez & Hine, 2016).

This study agreed with these previous studies in the sense that the BP dimensions identifications should be identified from various sources that pertain to the brand culture (Chigora et al., 2019; D'Astous & Boujbel, 2007; George & Anandkumar, 2014; Heere, 2010; Rauschnabel et al., 2016; Schade et al., 2014). The first study included only items designed from reviews of visitors related to only cultural WHSs. In fact, the identified 222-items dictionary was very useful for measuring the perception of visitors and comparing how WH is perceived by visitors in different countries. Measuring the difference between visitors' perceptions and experts'

perceptions of WHSs by the dimensions identified completely from visitors' perceptions may contribute to uncertainty. This study noted an alignment in visitor and expert perceptions of WHSs, this doctoral study agrees that the beliefs, values, and needs influence the BP dimensions construction (Aguirre-Rodriguez, 2014), which was evident from experts' attributions to WH that compile WH to the UNESCO concept. Thus, this study supported that BP dimensions pertain to specific cultures and the perceptions of endorsers of the BP such as the expert in the case of this study enhance the BP dimension construction.

This doctoral thesis concurred with other studies that BP construction requires further approaches to underpin the construction of BP dimensions (Davies et al., 2018; Demangeot & Broderick, 2010; E.-J. Lee, 2009; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020). According to recent studies in bibliometric analysis for BP, the traditional empirical approach based on psychometrics is the most widely applied one. However, it has been perceived with several limitations, such as the generalizability of the BP dimensions (Carvalho et al., 2021; Davies et al., 2018; A. Kumar, 2018; McManus et al., 2021; Vinyals-Mirabent & Koch, 2020). These urged academics to call for new approaches to enhance the application of BP (Davies et al., 2018; Demangeot & Broderick, 2010; E.-J. Lee, 2009; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020). In explaining this, academics highlighted in the literature that the BP underpinned by the Big Five is limited (Davies et al., 2018; Saeed et al., 2021). In regards to the limitations of the Big Five to support the BP, academics argue that the antecedents of trait generation in the Big Five are completely different from those in the BP (Caprara et al., 2001; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020). Hence it was not easy to replicate all the big five to BP (Bosnjak et al., 2007; Caprara et al., 2001; Geuens et al., 2009; Milas & Mlačić, 2007). Accordingly, this doctoral study presented a new approach based to identify WH from its cultural context and for the first time identifying the dimensions from the digital textual data taking into consideration the cultural contexts in order to enhance the construction of BP dimensions.

3.6 Empirical Contributions

This doctoral thesis aims to construct WH personality categories that capture most of WH meanings when extending the BP concept to WH. This thesis agrees with several other studies in that the BP concept still requires various approaches to underpinning its construct (Carvalho, Demo, and Scussel 2021; Davies et al. 2018; Rojas-Méndez, Kannan, and Ruci 2019; Demangeot

and Broderick 2010; Lee 2009). Academics noticed discrepancies in the objectives for constructing a scale based on the generalizability of the Big Five in psychology studies (Mccrae and John 1992), and practitioners attempting to measure individual categories of BP (Demangeot and Broderick 2010; Lee 2009). Three studies were thus conducted to bridge the gap between academics and marketers in order to construct WHS personality categories where the identified WH items pertain to WH cultural specific context. The development of WH personality categories in these studies is developed, whereas the several approaches applied can open new avenues for facilitating the construction of BP dimensions from digital materials for tourism and other fields of study.

Hence, this study introduced a new lexical technique that assists in identifying and measuring WHSs in texts. The idea of introducing the BP dictionary to the concept of BP instead of tailoring personality categories from the use of traditional BP methods that were underpinned by psychometric approaches (Aaker 1997; Davies et al. 2018), aimed to facilitate measuring brands from digital texts (Pitt et al. 2007). This doctoral thesis acknowledged that the BP dictionary by Pitt et al. (2007) is significant to developing BP lexical approach and that using text mining advances BP. The new BP dictionary technique was identified to assist in constructing BP dimensions for other studies, these doctoral studies technique was built on Pitt et al. (2007) and previous studies in BP lexical approaches (Paschen et al. 2017; Ranfagni et al. 2016) as well as advances in text mining (Denny and Spirling 2017; Wiedemann 2018) in order to identify WHS personality categories and develop BP lexical approaches.

In the context of the first and second studies, this doctoral thesis presented several techniques from the development of text mining features (Denny & Spirling, 2017) and advances in psychology studies (Fischer et al., 2020) that are used to include the most relevant and frequent attributes that capture the intangible meanings of WHSs in the BP dictionary. This doctoral thesis was first inspired by the pioneering methods introduced by Pitt et al. (2007) defining the first BP dictionary, and constructing four new BP dictionaries (namely, the Four-Thesaurus BP dictionaries). In contrast to Pitt et al.'s (2007) BP dictionary, the technique applied for constructing these four dictionaries used more sources of dictionaries as advances in thesaurus dictionaries have been made several thesaurus dictionaries available online, to define the synonyms of Aaker's (1997) forty-two items. The use of these four BP dictionaries as one dictionary assists in identifying items that were absent from Pitt et al. (2007) and frequently attributed to WHSs. By

using four different dictionaries, the Four-Thesaurus dictionary allows us to categorize specific new items according to Aaker's five dimensions. By using these four dictionaries, synonyms for Aaker's items can be included and new items not included in the Pitt BP dictionary can be classified under Aaker's five dimensions of BP. The Four-Thesaurus dictionaries can be therefore used by other studies to define their BP dimensions, the technique used for establishing these four dictionaries can be examined to construct dictionaries of synonyms for other domains.

Despite the fact that these 4-dictionary items are constructed in a way to ensure that their items have correlated meaning to Aaker's five dimensions, this study validates that these 4-dictionary items, as well as the items in Pitt et al. (2007) as personality items, are dependent only on their correlated meaning. The process of validating items in the traditional empirical approach is conducted by consulting at least three language experts or psychologists to study whether these emerged items in the BP categories are personality items (Geuens et al., 2009). In contrast to the small items that can be identified using the traditional approach (Geuens et al., 2009) because the BP lexical approach depends on analyzing large amounts of digital textual data as in this thesis, initial items are composed of thousands of terms which may require huge efforts for language and lexical experts to verify and validate these lists. A new technique to validate items from digital textual data related to WHSs, and examined their effectiveness is developed here. Fischer et al. (2020) take advantage that Allport and Odbert (1936), Goldberg (1982), and Saucier (1997) scanned thousands of adjectives to choose the best stable personality traits that can describe a person, and validated their study's items. When extending this technique in this doctoral thesis, in addition to the three studies' items used by Fischer et al. (2020), this doctoral study also used 2,800 items from Norman (1967), who refined and structured the Allport traits. A list of 18,337 non-redundant personality items was collected from these psychology studies. In contrast to Fischer et al. (2020), this present study also considered items defined and examined in BP studies relevant to attractions as useful to be added when validating items as this may enhance the construction of WH categories. The use of psychology and specific-field of study previously examined items as sources to validate new studies' items may be further examined and developed to ease the process of item validation.

For example, the third study focused on the effectiveness of psychology dictionaries and BP studies' items. It agreed with Fischer et al. (2020), and Azoulay and Kapferer (2003) that

Allport and Odbert's list was described as the longest-established and most comprehensive personality list in English (Fischer et al. 2020; Azoulay and Kapferer 2003). This study explored that the psychology dictionaries covered 97.6% of WH-defined items, and suggests the use of the psychology dictionaries as a fast and saving-cost tool to validate items. However, this study found that when using the Allport dictionary as Fischer et al. (2020) recommend, attention is required to its fourth category named Metaphorical and Doubtful which includes words that should be evaluated for their appropriateness. Therefore, the item appropriateness evaluation was crucial to ensure that the items in WH dictionaries are appropriate to describe the overall meaning of WH. Evaluating item appropriateness for constructing robust BP categories by eliminating words that do not contribute to the meaning of the brand is recommended by several studies (Ranfagni et al. 2016; Rauschnabel et al. 2016; Schade et al. 2014). Hence, this doctoral study encourages future psychology and BP studies to refine Allport and Odbert's fourth category. To notify, Pitt et al. (2007) items in the second study were used together with the Four-Thesaurus dictionary to select items from WH that were underpinned by Aaker's (1997) dimensions; thus Pitt et al. (2007) items were not included for validation in the second study.

The methods applied in the second study are designed in three step-technique to identify the WHSs personality dictionary underpinned by Aaker (1997). The following steps are involved: first, pre-processing of the text with several linguistic features is used to manage and define all items that are assigned to WHSs. The use of Pitt et al. (2007) and the Four-Thesaurus dictionary identified in the first study allowed items that fall within Aaker's five dimensions to be extracted when identifying potential WHSs personality category items. It is important to note that even though the first and second studies provided several techniques for identifying WHSs personality categories and constructing the Four-Thesaurus dictionaries, these methods were still based on Aaker's five BP dimensions. The three steps techniques designed in this doctoral study can be examined and furtherly developed in other fields of study to construct BP categories under Aaker's (1997) five dimensions. Despite the fact that Aaker's BP pioneer approach has opened the way for further development, and it is up-to-date the widely used BP scale, this doctoral thesis believed providing a new approach to underpin the construction of BP categories adds to the knowledge of BP (Carvalho et al., 2021; Saeed et al., 2021; Vinyals-Mirabent & Koch, 2020).

Using the third study's method, a new model was constructed to identify and measure the personality categories of WHSs entirely from the digital text for the first time. To identify a new approach with a model designed in 3-step techniques, this PhD thesis used developments in the distributed representation of words, available language models, NLP (text mining) and big data analysis. These 3-step techniques; 1) item generation, 2) item refinement, and 3) word embeddings and clustering, can be improved to identify personality categories from digital textual data. The methods applied assisted in identifying the 192-items WH personality dictionary in five categories, conducted by the use of the K-means clustering approach (Curiskis et al., 2020). In addition, this study introduced a new technique to interpret the identified items based on pre-defined categories as here the defined clusters are compared to their distributions in UNESCO WH concepts textual data. Another technique for the interpretation of clusters is provided, relying upon the meaning of items to the center of clusters, which is used by Curiskis et al. (2020). The latter technique of cluster interpretation may be useful in the case that previous knowledge or categories is not available.

The third study' new methods identify BP categories based on brand-specific cultural meaning rather than focusing on identifying categories that can be generalized. In this perspective, this approach can be described as a more marketing-oriented approach where it bridges the gap between academics who aimed to construct generable BP categories (Aaker, 1997; Davies et al., 2018; Geuens et al., 2009; Lieven, 2017; Rojas-Méndez et al., 2019) and marketers who aimed to identify BP dimensions pertained to their brand cultural contexts (Demangeot & Broderick, 2010; E.-J. Lee, 2009) (Demangeot and Broderick 2010; Lee 2009) as highlighted in DP studies (Ekinci & Hosany, 2006; V. Kumar & Nayak, 2018; Murphy, Moscardo, et al., 2007). The use of this method can support identifying BP categories for one product category or specific brand as the case in this thesis which identified the BP categories of WHS attractions as micro-elements of tourism destinations. In addition, several techniques particularly the use of a specific language model to define the correlated meaning scores, selecting the appropriate clustering methods and the interpretation of the identified clusters approaches used in this doctoral study can be extended and developed to enhance the identification of BP categories.

In general, this doctoral thesis provided several methods within three studies; all of these methods were constructed in order to enhance the identification of WH personality dimensions

and ensure that the identified items within this WH covered all WHSs cultural specific- meanings. Three WH personality dictionaries are identified. The aims here were congruent with Milas and Mlačić (2007) in that BP dimensions and items required that academics in BP should tailor dictionaries relevant to BP the same way psychologists designed the early psychology dictionaries. Therefore, linking BP to the dictionary approach and the advances in text mining features adds to the body of knowledge on BP theory. In the first and second studies, the methods applied are underpinned by the use of Aaker's (1997) and Pitt et al. (2007) BP dictionary with further development attracted from the advances in text mining linguistic feature approach and suitable for analyzing BP from digital textual data. This doctoral thesis perceived these methods as useful to cover a gap in the use of the early BP dictionary provided by Pitt et al. (2007), and still, these methods are underpinned by the well-recognized Aaker's (1997) BP dimensions. In this context, this doctoral thesis encourages studies that aim to design their BP dimensions from digital textual data and may prefer to be underpinned by Aaker (1997) to take into consideration the different techniques it provides to improve the identification of BP categories.

This doctoral thesis also developed in the third study a new method that assisted in defining WH categories within their cultural context. The approaches applied in this study were prominent in managing and analyzing the WH personality categories. Furthermore, the third study's methods could lead to further research that could add to our understanding of BP theory. These methods can be used to identify BP categories in other domains and extended to measure further elements of DP, or to measure overall DP from digital textual data, by aggregating text attributed to different aspects of tourism destinations. In general, these doctoral thesis methods provide a new approach that broadens the understanding and simplifies the practical implications of BP in tourism marketing.

4.6 Practical Implications

This is the first study to our best knowledge which examines the implications of BP to WHSs attractions as a microelement of tourism destinations and identified and measured the WHSs personality categories. The three studies that form the overall aim of this doctoral dissertation provide several practical implications based on the knowledge of WHSs and BP constructs. For BP, understanding the antecedents and consequences of BP increases the effectiveness of BP in promoting brands based on their intangible meanings (Zhang et al., 2019; Saeed et al., 2021).

Methods used in this doctoral thesis help identify the personality categories associated with specific brands or product categories from the antecedents of the BP construct. Defining the personality categories of specific brands further assists in understanding the consequences of BP. For example, DP academics explored that some DP categories influence many behaviour variables, and specific DP dimensions may increase the emotional tie and preference for destinations (Saeed et al. 2021).

An understanding of the antecedents and consequences of BP may assist marketers in better positioning their brands, and academics to better develop the theory of BP. These study methods can be extended to several other domains to facilitate the ways practitioners and academics can design their BP dimensions and consequently use the emerged dimensions in better marketing their brands (Pitt et al. 2007; Rojas-Méndez and Hine 2016; Rojas-Méndez et al. 2019). Once the BP dimensions of a specific domain, brand or product category are identified, investigating and comparing the positioning of these BP dimensions to the competitive brands can be performed. Studying the alignment in perception between how communications of specific brands are communicated and perceived can also be done. As this doctoral thesis developed analyses of BP based on digital textual data, these research methods may allow academics and practitioners in the brand creation process to analyze other brands' digital texts related to their product categories for better brand positioning (Pitt et al. 2007).

For WHSs practical implications, investigating the positioning of WHSs on the BP categories identified in these studies aimed to assist and encourage marketers, UNESCO experts and academics, to promote WHSs due to BP strategies. When a WHS personality strategy is designed as one of the prominent elements influencing visitors to a destination (Kirilenko, Stepchenkova, and Hernandez 2019), it can enhance the WHS's attractiveness to visitors (Pitt et al. 2007; Rojas-Méndez, et al. 2019). The WH personality categories identified in these studies may assist destination managers and UNESCO experts also to improve the design of a WH BP strategy enhancing the position of WHSs. Different practical implications for the identified WH dictionaries in the three studies were demonstrated. In the first study, the use of the first WH personality dictionary 222-item limited to cultural WHSs assisted in understanding how cultural WHSs, from visitor post-experience user-generated reviews on TripAdvisor, helped in the investigation of the positioning of forty WHSs in four European countries that dominate the WHSs

list (France, Germany, Italy and Spain). This study compared the positioning of the forty WHSs within these four European countries by the use of CA. Hence, this study encouraged marketers and UNESCO experts to investigate the positioning of the WHSs in other countries or regions by extending the methods applied. The finding reported in the first study can be useful for destination managers for WHSs located in the four focused countries of investigation. The 222-item WHSs personality categories are, however, relatively small in comparison with the other WH categories dictionary identified here in the further studies. This 222-item dictionary may be useful in case of analyzing only cultural WHSs and visitors' perceptions of these cultural WHSs.

The 389-item, five-WH personality categories identified in the second study may also enable a deeper understanding of the interpretations of attributions for the natural and cultural WHSs. In the second study, methods illustrated how natural and cultural WHSs are attributed, as well as how visitors and UNESCO experts attribute WHSs. The CA graph here also demonstrated how these WHSs are positioned. When destination managers and UNESCO experts are aware of the differences in positioning WHSs based on the visitor post-experience reviews and descriptions of all 1121 WHSs, this broadens their knowledge about WHSs in these areas. Furthermore, the methods applied in this study and the identified 398-item can be extended by destination managers and academics to investigate WHSs' perceived attributions in other UNESCO regions. The WH personality categories identified in this study are more comprehensive in the sense they include items related to natural and cultural WHSs from both visitors and experts. The study encourages practitioners and experts to consider that these WH categories may be useful for measuring the alignment of perception between what destination managers attributed to WH on their own websites, and how visitors perceive these attributions.

Though the 222 and 389-item WH dictionary helped explain the positioning of WHSs, this dictionary's items are still supported by Aaker's (1997) five dimension items' synonym expansions by Pitt et al. (2007) and the Four-Thesaurus dictionary identified in the first study. Therefore, the 192 items identified in the third study may capture more of the cultural meanings associated with WHSs, as they were identified from only the sources that pertained to WHSs. Additionally, the third study provides more practical implications, agreeing with other studies that the BP categories are culture-specific (Ahmad and Thyagaraj 2014). In order to understand the interpretation of identified WH categories in the second and third studies, the identified WH

categorical dictionaries are compared to data describing different WH concepts for OUVSs. Add to the fact that the identified 192-WH personality categories may assist destination managers in promoting WHSs, the interpretation of WH categories in link to UNESCO WH concepts may also be of interest to UNESCO experts when describing further WHSs on the UNESCO WH centre website. Therefore, this doctoral thesis encourages destination marketers and UNESCO experts to consider the results reported in this study when communicating WHSs.

5.6 Limitations of Study

Added to the several limitations discussed in the three studies, the generalizability of this doctoral thesis results is limited to the samples and methods applied in the three studies presented. The aim of this study, however, is to provide a deeper understanding of the intangible meanings of WHSs by expanding the sample to include attributions related to as many of them as is possible in different regions. The first study was limited to the context of European French, German, Italian, and Spanish WH, visitor perceptions and user-generated reviews attributed to cultural WHSs. Even though the second and third studies aimed to widen the sample, they were limited to digital textual data describing 1,121 WHSs on UNESCO WH centre websites. The context of WHSs in China, Japan and India was added to the sample used in the first study to include total cultural WHSs post-visitor reviews in two UNESCO WH regions Europe and North America, and Asia and the Pacific. The second study includes post-visitor reviews on TripAdvisor related to 101 natural WHSs in most UNESCO regions. All the visitor-generated content and UNESCO expert descriptions for all 1,121 analyzed in this doctoral thesis were in the English language. In addition, the reviews and text describing WHSs also limited to specific online platforms; TripAdvisor and UNESCO WHC webpages.

Hence, understanding WH intangible meanings as perceived by visitors describing WHSs in other languages may enhance the generalizability of identifying WH personality categories from visitor-post experiences related to different cultural contexts. This doctoral study perceived TripAdvisor as a prominent source for tourism marketing research (Xiang et al. 2017). It provides search engine options for visitor user-generated reviews related to WHSs for the selection of various available reviews in different languages. By extracting and analysing visitor reviews made in various languages, it could enhance how the cultural context of WHSs is taken into account when defining personality categories and expand understanding of WHSs among academics and

destination marketers using the methodology applied in this Thesis. This may assist in examining whether the language of visitors may provide more specific WH items and categories.

Additionally, visitors' reviews describing WHSs on different tourism social networks can also be considered. Moreover, in this study, the extracted texts were restricted to Authenticity, Integrity, Criteria, Criteria Description, Description and Brief Synthesis text data. Thus, one of the sources suggests more analysis of the WHSs as described by UNESCO experts would be to investigate the attributions of WHSs as provided in other data available on the UNESCO WH Center, such as the vision and mission related to each WHS. The UNESCO expert views on describing WHSs were taken into consideration for this thesis since they are the most organized and also offer the perspectives of the organizations who provided the descriptions of WHSs on the UNESCO WH center. This is viewed as a limitation in this study because there are multiple distinct actors communicating the WHSs in the destination. Thus, a number of intermediaries, including DMOs and tour operators, must be used by cultural destinations who wish to increase visitor flow, according to Richards, Goedhart, and Herrijgers (2001). Gaining a better understanding of how WHSs are attributed through various other internet sources that offer other intermediaries opinions, such as travel agencies, other heritage groups, or social media platforms, may help to expand our WHS knowledge.

WHSs were perceived by the study as types of attractions within OUVSs as icons for attractions within tourism destinations (Buckley, 2018; Ryan & Silvanto, 2011), it may be prominent to understand other attraction soft meaning attributions and compare how WHSs and non-WHSs are perceived within tourism destinations. In this study, TripAdvisor is utilized to identify the top-ranked attractions around the world, and the post-experience reviews of visitors can help provide insight into how these best attractions are perceived. As TripAdvisor categorizes attractions into several types, such as Historical Cities, Sacred and Religious Buildings, this may help investigating the BP of specific types of WH on micro-element level as elements of destination attractiveness. Whereby, defining the difference in the WHSs' intangible attributions for particular WH attraction types will assist destination managers in better communicating and positioning WHSs. In evidence, the first study found that there is a relationship pattern between the types of attraction in the WHSs and the WH personality categories; most of the cathedrals (as an attraction type) are grouped around the Competence dimension and near to each other.

Additionally, visitor reviews were collected from all 213 listed natural WHSs. Of these, we examined 3,500 reviews related to the 101 natural WHSs available on TripAdvisor. In explaining this, the 1,121 WHSs are dominated by 869 (77.5%) cultural WHSs. The study encourages giving more attention to investigating other types of natural attractions in general from visitor reviews on TripAdvisor. In particular, visitors are more attracted to these types of natural attractions post-covid-19 (Afifi and Negm 2020; Mestanza-Ramón and Jiménez-Caballero 2021; Qiu, Ji, and Utomo 2021; Seraphin and Dosquet 2020). In other words, identifying the personality categories of other types of attractions compared with those of WHSs and a deep understanding of the attributions of specific types of attractions and natural attractions would contribute to a better understanding of how these attractions are preferred by visitors, which would improve their promotion and visitor preference to tourism destinations.

This doctoral thesis is also limited to BP lexical approaches as it aimed to investigate the attributions of WHSs from digital textual data. Hence, it focused more on identifying WH personality dictionaries and investigating the positioning of WHSs due to these identified WH categorical dictionaries. This study is thus more oriented toward investigating the antecedents of BP in the context of WHSs as microelements of destinations. Hence, a detailed analysis of the consequences of the identified WH personality categories on several visitor behavior variables towards the destination is still required (Saeed et al., 2021; C. Zhang et al., 2019). The prominence of studying BP implications was explained by the fact that the more the match between the visitor's personality and specific BP dimensions while communicating the brand, the more the visitor will be attached to it (Aaker & Fournier, 1995; Sirgy, 1986). Research such as Rojas-Méndez et al. (2019) explored that different DP dimensions have differing influences on specific target visitors. This doctoral thesis encourages investigating to what extent specific WH personality dimensions may have more influence on visitors' feelings towards several visitor behaviour variables. Additionally, this can propel the study of the WH visitor categories and increase the knowledge about the types of visitors attracted to WHSs, as in the study by Rojas-Méndez, Kannan, and Ruci (2019).

According to Aaker (1997), when establishing the first BP categories, the BP aims were to improve consumers' emotional ties to brands. Therefore, the vast majority of the BP studies adopted Aaker's (1997) argument. Wherein the presence of negative items was rarely taken into

account in BP (Bosnjak et al., 2007; Haji, 2014; Jiao & Jane Machin, 2011; V. Kumar & Nayak, 2018; Rojas-Méndez et al., 2019). The aim of WH intangible meaning identification, according to this thesis, is to increase visitors' positive feelings towards WHSs. This thesis thus agreed with Aaker (1997) on this point. Additionally, visitor reviews of WHSs that were of a negative nature were rarely explored. This doctoral study found that 95% of TripAdvisor visitor ratings for Spanish WHSs gave them a rating of four to five stars. The ranking is viewed as a quick overall evaluation of the visitor experience (Fang, Ye, Kucukusta, & Law, 2016). In sentimental analysis (Mehraliyev et al., 2022), Geetha, Singha, and Sinha (2017) explored that there was a consistency between visitor rankings and their actual sentiments (Negative, Positive, or Neutral). Moreover, De Ascaniis and Cantoni, (2017) came to the conclusion that in the argumentative analysis of visitor online reviews, WHS was rarely given a negative attribution. Even though this thesis and De Ascaniis and Cantoni's (2017)'s study explored that the possibility that the cultural WHSs may only rarely be attributed with negative attributions, they are nonetheless limited by the samples used in their studies. Therefore, a further research on investigating to what extend the BP categories of WHSs may include negative attributions is still required.

This doctoral thesis provided several techniques to identify WHSs from textual data. The third study method is a pioneer in the sense it assists in identifying WHSs categories from digital text. These methods may open new ways to analyse other brands or product categories. This third study approach is limited to investigating one element of destination attractiveness, which is based on cultural and natural WHSs. Expanding this study method to include other elements of destinations from digital texts or investigating all elements of destinations (Kirilenko et al. 2019) may enhance this third study approach further and add to the BP lexical approach construct. The BP Word Embedding Model, which is designed in the third study, develops text-mining and machine learning through three phases. The development of these three phases can be further developed and improved particularly in the Word Embedding and Clustering approaches. Whereby, this study was limited to the K-means clustering approach, thus other clustering approaches may be examined in the context of word correlated meanings. In addition, this study approach was limited to the use of available language models. Other studies may therefore examine constructing their own language model. Overall, developing a way to identify the similarity between items of BP and clustering them by examining several other clustering methods may improve the identification of overall BP dimensions.

Table. 1 Overview of the World Heritage Personality Dimension Identification Studies

	State of Art	Questions or Objectives	Methods	Empirical Implications	Some of the Findings	Limitations
	Brand Personality Traits of World Heritage Sites: Text Mining Approach					
WH	The WH perceived personality qualities from visitors' perspectives through their digital reviews still required investigation.	What are the WHS visitors' perceived personality dimensions and their distribution in relation to the five BP dimensions of Aaker's (1997)?	Extending Aaker's five BP dimensions to measure WHSs for the first time	a 222-item WH personality trait dictionary is defined in five dimensions; Sophistication, Excitement, Sincerity, Competence, and Ruggedness	WHSs are distributed by visitors highly in Sophistication and Excitement.

Practical implications show the positioning of WHSs in France, German, Italy and Spain. | Limited to Cultural WHSs; 5579 reviews of 175 French (39), German (44), Italian (50), and Spanish (42). |
| BP | The existing BP lexical scale still requires further development to capture the attributes of all WHSs | How can all the items that capture the significant meanings of WHSs be included in the BP Lexical scale? | Using Pitt et al. (2007) BP dictionary; 833 items Synonyms expansions of Aaker's (1997) dimensions items to measure WHSs | Four-Thesaurus BP dictionaries; 9460 items Synonyms expansions of Aaker (1997) dimensions items are defined to measure WHSs) | The identification of the Four-Thesaurus BP dictionaries allowed the most frequent items related to cultural WHSs to be included in the 222-item WH dictionary.

Ruggedness explored to be not suitable for WHSs | Underpinned by Aaker's five dimensions and their synonyms Expansions |
| | **Brand Personality Dictionaries and World Heritage Natural and Cultural Sites: Text Mining Approach to Visitor and UNESCO Expert Perceptions** | | | | | |
| WH | The identification of the WH personality dimensions by ensuring that the different items of WH dimensions are derived from most of its cultural contexts needs further development. | What are the most significant WHS personality items, and how can these items be categorized under Aaker's (1997) five personality dimensions in order to construct a comprehensive WHSs BP dictionary? | Extending Aaker's five BP dimensions to measure WHSs and defining the relationship between them and Authenticity, Integrity and Management and Protection UNESCO concepts. | A 389-item WHSs personality dictionary was identified into five personality categories: Sophistication, Competence, Excitement, Sincerity and Ruggedness. | A significant difference in the ways visitors and experts attributed WHSs is investigated; A significant difference is explored in items attributed by visitors and items by experts.

Practical implications showed that WHSs is positioned by visitor | Limited to cultural and natural WHSs; 9,971 reviews for 261 cultural WHSs located: China (37); India (30); Japan (19), France (39); Germany (44); Italy (50); and Spain (42). |

					towards Sophistication for cultural WHSs, and Excitement for natural WHSs. Experts attributed cultural WHSs to Competence and natural WHSs to Sincerity	3,500 reviews related to the 101 natural WHSs. 1,121 WHSs descriptions on the WH centre
BP	The relationship between the WH personality dimensions' items attributed by visitors and experts and the UNESCO concepts still requires investigation. Ensuring that the overall items of WH are validated as personality items in BP lexical approach needs further enhancement.	What are the WHSs personality distributions? Here we have three hypotheses: 1)There are significant differences between how visitors attribute WHSs and how experts attribute WHSs; 2) There are differences in the WH personality dimension distributions between the natural and cultural sites; 3) There is a link between the WH personality dimensions and the various Authenticity, Integrity, Protection and Management UNESCO concepts.	Using Pitt et al. (2007) BP dictionary; 833 items and the Four-Thesaurus BP dictionary; 9460 items Synonyms expansions of Aaker's (1997) dimensions items to measure WHSs). Using psychology and BP's studies' previous validated items as tools for validating WHSs' items.	Items from psychology and BP studies relevant to WHSs are designed as a dictionary to validate WH items. (A list of 18,337 non-redundant personality items was collected from psychology dictionaries) and BP studies relevant to WHSs (393 non-redundant items were collected)	Using most of the sources attributed WHSs, such as visitors vs. experts and natural vs. cultural descriptions assists in first, including most of the items related to WHSs cultural meanings, second measuring the alignment in perceptions. Sincerity and Competence are explored to be linked to Authenticity, Integrity, and Protection and Management. Sophistication and Excitement are linked to the external aspects of WHSs, and social activities. This agrees with this Aaker's (1997) five-dimensional interpretation and UNESCO concepts. Using psychology and previous studies items for validation may improve the overall WH items. Ruggedness was explored to be not suitable for WHSs.	Underpinned by Aaker's five dimensions and their synonyms Expansions
Brand Personality Word Embeddings Model: UNESCO World Heritage Personality Categories Identification						

| BP | Aaker's BP scale construction was underpinned by the Big Five, which occurred several. When BP has extended to measure DP (Kumar and Nayak 2018) or brands (Davies et al. 2018) in different cultural contexts is still required further development | Two objectives are therefore targeted. Firstly, there is an acknowledgement that brands inhabit cultural meanings that require a means to facilitate the construction of their personality dimensions. This study aims to define this mechanism by which the WHS personality dimensions will be constructed. | This study provided a new technique for identifying the personality categories of WHSs in three phases: 1) item Generation, 2) item Refinement and 3) word Embedding and clustering.

The new approach is underpinned by the hypotheses of psycholexical representation and distributed representation of words

Using psychology and BP studies previously validated items as a tool for validating WHSs' items. | A new model is designed namely; the BP Word Embedding Model explained the analytical procedures in this approach is provided.

Items from psychology (A list of 18,337 non-redundant personality items were collected from psychology dictionaries) and BP studies relevant to WHSs (1,080 items included BP dictionary of Pitt et al. (2007) are designed as a dictionary to validate WH items and determine that the use of psychology study items covered 97 % from WH items | This study approach facilitated the construct of WHSs dimensions completely from their textual data pertaining to its cultural context.

The use of previous examined personality items from the psychology dictionaries is explored to ease the validation of personality items from large textual data. | Limited to WHSs' cultural context in the English language and the used size of textual data; WHSs; 9,971 reviews for 261 cultural WHSs located: China (37); India (30); Japan (19), France (39); Germany (44); Italy (50); and Spain (42). 1,121 WHSs descriptions on the WH centre |
|---|---|---|---|---|---|---|

| WH | Defining the WHSs personality dimensions entirely from textual data pertaining to its cultural context and measuring the difference in WH perception between the visitor and expert attributes requires further development. | Secondly, it is suggested that these personality dimensions might be perceived differently by the endorsers who communicate the symbolic meaning of brands, and the receivers of these messages. The Study show how the symbolic meanings or personality dimensions of WHSs are perceived between experts and visitors to WHSs. | | A 192-item WH personality dictionary was categorized into five clusters: Exceptionality, Attractiveness, Identification, Responsibility and Prominence, is defined.

This study provided a confusion matrix explaining the different relationships between the identified dimensions and the different UNESCO Concepts; Authenticity, Integrity, Protection and Management, Criteria Descriptions, Brief Synthesis and Descriptions. | The study explored visitors describing more WH in terms of Exceptionality, and Attractiveness and UNESCO experts attributed WHSs more to Identification, Responsibility and Prominence.

A significant difference in the way visitors and experts attributed WHSs in relation to different UNESCO concepts is also investigated. | Underpinned by a new approach; this approach still needs examination and expanding the elements of destination and other brands in different cultures and domains. |

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