Service quality determinants in historic centres: Analysis of User Generated Content from the perspective of the TOURQUAL Protocol

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The present study aims to explore the service quality determinants in historic centres (HC) by applying a user-generated content analysis with indicators of the TOURQUAL protocol for evaluating the quality of tourist services as the theoretical basis. We analyse 7,849 reviews from 9 HC (5 Brazilians and 4 Portuguese), from January 2019 to September 2020, available on TripAdvisor and Google Maps platforms. The findings demonstrate that the dimensions of technical quality, experience, and environment are the most identified among the reviews. Additionally, we noticed a lack of use of Unesco titles as marketing strategy. The research proposes a model of importance for dimensions of quality of service in historic centres that enables managers to improve the quality of tourist services.

Keywords: User-generated content; TOURQUAL protocol; TripAdvisor; Historic centres; Online reviews

1 Introduction

The Covid-19 pandemic accelerated virtualization processes that were already latent in the tourism sector (Sigala, 2020). Virtual environments and information and communication technologies (ICTs) are great allies of the tourism industry (Buhalis & Law, 2008), above all during travel restrictions (Villacé-Molinero et al., 2021) and mobility bans resulting from the disease. ICTs also assist the planning process (Ivars-Baidal, Monzonís & Sanchez, 2016) and help with the tourists' decision-making processes (Wen et al., 2021) by providing a myriad of information before and during the trip (Huang et al., 2020; Zhang et al., 2019).

In Xiang's (2018) essay, he presented the "digitization" era, i.e., where the products and services migrate to the online environment and the "age of acceleration", which is the era with "tremendous growth of user-generated contents [voluntarily or involuntarily] on the internet" (p. 148). Such technological advances and changes in the format of services force managers to adapt quickly to mobile technologies (Buhalis & Law, 2008) and social media (Fontgalland et al., 2022; Law, Leung & Chan, 2019) to insert themselves competitively in the competitive scenario. In this perspective, User-Generated Content (UGC) analysis has drawn the attention of several areas, including the researchers in technology, tourism, and marketing fields (Akehurst, 2009; Buhalis & Law, 2008; Cheng & Jin, 2019; Cheung et al., 2022; Gretzel & Yoo, 2008; Mendes-Filho, Mills, Tan & Milne, 2018).

UGC is any text or visual content created by the population and shared with their peers (Souza, Mendes-Filho, & Buhalis, 2020). UGC analysis allows measuring and evaluating intrinsic elements that need to be fixed in touristic services at low cost and high assertiveness to problems. This analysis is a powerful tool that helps managers to direct efforts to solve quality issues identified in online reviews since it is updated

continuously, enabling the firms to understand customer needs in real-time (Timoshenko & Hauser, 2019).

UGC analysis focuses on online reviews (a type of UGC), which are the main recommendation sources for tourists on a trip (Huang et al., 2020). Researchers all around the globe are applying this method of analysis in several ways due to its convenience, flexibility, and availability of public data (Cheng & Jin, 2019; Souza, Mendes-Filho & Buhalis, 2020). In the Luso-Brazilian context, we identify its use in restaurants (Mondo, Perinotto, & Souza-Neto, 2022; Oliveira & Casais, 2018), hotels (Hu & Trivedi, 2020; Viana, Mayer & Souza Neto, 2020) and Airbnb sector context (Cheng & Jin, 2019). Few efforts are seen in the use of this UGC analysis from the perspective of cultural products and services (Lavandoski & Fraga, 2020; Santos et al., 2016), and its implications for the quality of tourist services (Mondo, Perinotto, & Souza-Neto, 2022).

Cultural attractions have become popular in attracting touristic flows since the 1980s (Qi et al., 2018). Stebbins (1996, p. 948) defined cultural tourism as a search and participation in "deep cultural experiences" against the mass tourism trend, which was dominant in previous decades (Weaver, 2014). This segment rose globally in the tourism market (Su & Teng, 2018). Historic centres (HC) are one of these cultural attractions due to their characteristics and heritage value (Alves et al., 2021). They are configured as tourist product in several countries and is fundamental to local communities' economic development (Barrera-Fernández, Bujalance & Scalici, 2019).

Historic centres are excellent examples of cultural attractions, as their value can be perceived with recognition on a municipal, state, federal, and supranational scale (Santos et al., 2016). Such recognitions (e.g., Unesco World Heritage) are considered critical elements in destinations and enhancers of international tourism demand (Yang,

Lin, & Han, 2010). The relevance of HCs is even more pertinent since they have their particularities (e.g., short-term stays, knowledge-oriented itinerancy, and visitation to places with cultural interest and a strong local character) (Chávez & Chávez, 2005).

Historic centres emerge as a particular interest of analysis for tourism for at least three reasons: First, due to their title as historic, and usually conservated, they attract visitants while recursively improving the historical landscape and creating jobs (Almeida-García et al., 2021). Second, as part of a major discussion, several historic centres are nominated as Unesco World Heritage sites, the study of HC can contribute to a better understanding of the relationship between these places with "outstanding universal value" (Unesco, 2002, p. 2) and the tourism activity, which is considered as a potential threat to heritage sites (Adie et al., 2020). Third, as genuinely open tourist attractions, historic centres can be a vector of tourism development during and after public health crises (e.g., COVID-19), considering the study done by Park et al. (2022), using big data that showed a greater density of tourists' mobility to open areas.

Moreover, as managers and tourist destinations face a lack of marketing and competitiveness skills to deal with this massified trend (Tscheu & Buhalis, 2016), this search for cultural tourism attractions was optimised with the advent of cutting-edge technologies and their byproducts (such as UGC platforms). In the context of cultural tourism, UGC has gained notoriety as "cultural tourists have various levels of ambitions for a serious learning experience about the culture(s) of a destination" (Qi et al., 2018, p. 219). Therefore, the ease of access to information becomes a decisive element for travelers when choosing a tourist attraction that meets their quality standards and interests, hence improving the experience's quality during their trip (Tscheu & Buhalis, 2016).

For this reason, it is crucial to comprehend the determinants of service quality that influence cultural tourists. Based on this theoretical background, the following question arises: What determinants of service quality influence cultural tourists-generated content? Hence, the primary purpose of this study is to explore the service quality determinants in historic centres by applying a user-generated content analysis with indicators of the TOURQUAL protocol for evaluating the quality of tourist services. This protocol provides a set of indicators to diagnose the quality of tourist services, whether in destinations, events, or equipment (Mondo, 2022; Mondo, Perinotto, & Souza-Neto, 2022).

The structure of the study follows: (i) ~~this~~ introduction; (ii) theoretical foundation on service quality and UGC; (iii) methods and techniques employed adopted; (iv) analysis and discussion of results; (v) final considerations.

2. Theoretical Framework

2.1 Service Quality in Tourism

In the last four decades, management researchers developed service quality studies a priori (Grönrooos, 1984; Parasuraman, Zeithaml & Berry, 1985). Researchers developed metrics based on such studies. This sub-field of studies has the Servqual scale as the seminal work (Koc, 2019). Servqual scale is rooted in the disconfirmation paradigm, which is quality deriving from comparing consumers' perception of the service provided and the performance (Oh & Kim, 2017). Under this perspective, customers' expectations serve as a point of reference (Oliver, 1980).

Servqual dimensions of analysis remain the core of the studies focusing on quality management (Brady & Cronin Jr., 2001; Frochot & Hudges, 2000; Ismail & Jiang, 2019); moreover, it is considered "the most reliable and relatively versatile

[service quality] scale" (Anabila et al., 2021, p. 4). The Servqual scale's relevance is so significant (P.J. et al., 2021) that Oh and Kim (2017) presented it as a theoretical framework, even though they acknowledged that Servqual is not a theory but rather the implementation of the disconfirmation paradigm. However, despite its theoretical importance, there are several strands of criticism towards the quality assessment model (Ladhari, 2009).

Unlike the quality of products, the quality of services is created with a perception-oriented approach toward customers, which provides management with great challenges (Han & Radder, 2011). In heritage sites, quality management is a key factor in building and maintaining a positive image of historical tourist destinations. For instance, Gulíling and Aziz (2018) concluded that providing higher-quality service to tourists is an important element of historical attractions' marketing. Similarly, Wu and Li (2017) also argued that heritage managers should take advantage of quality service studies to increase travelers' revisit intention. Moreover, Wijetunge (2016) said that service quality is no longer a competitive differential and has become an essential condition for the survival of most services.

The perception of the quality of service is critical in promoting successful businesses or destinations (Habibi & Rasoolimanesh, 2020). Therefore, many models, like Dineserv (Stevens, Knutson & Patton, 1995), Hotelqual (Delgado et al., 1999), Histoqual (Frochot & Hughes, 2000), and integrative models such as the one proposed by Tuncer, Unusan & Cobanoglu (2021), attempted to apprehend the quality of services in specific sectors related to travel, tourism and leisure sectors as previously exposed.

One recent model that is gaining attention for measuring the quality of services in tourism is the TOURQUAL protocol (Mondo & Fiates, 2017; Mondo, 2022), which derives from an extensive bibliometric study (Mondo, Perinotto, & Souza-Neto, 2022)

of 36 international service quality models (Mondo, 2014). The TOURQUAL protocol integrates six dimensions of quality and twenty-six analysed indicators (Mondo, 2022) - shown in Table 1.

Table 1: TOURQUAL protocol dimensions and indicators.

[INSERT TABLE 1 HERE]

Source: Adapted from Mondo (2014)

Several applications of the TOURQUAL protocol were later on, developed in tourism and hospitality subsectors such as mega-events (Mondo, Marques & Gândara, 2020), museums (Mondo, Silva & Martins, 2016), historic districts (Mondo, Hallmann & Burg, 2018), lodging facilities (Mondo & Fiates, 2017), tourist destinations (Cruz & Dilao, 2019; Feger, Souza Júnior, & Gândara 2016; Khawash & Baksi, 2017), religious temples (Widyawati; Ira-wan & Ghina, 2021), and wineries (Cortina-Urena, 2019). Furthermore, the TOURQUAL protocol was adopted by the Brazilian Network of Tourism Observatories (RBOT) as the national protocol for assessing the quality of tourist services throughout the Brazilian territory (RBOT, 2021). In addition, TOURQUAL has a wide range of applications around Brazilian destinations and abroad that provide empirical support for the validity of the TOURQUAL protocol as an excellent tool for managing the quality of services specific to tourism.

With the advancement of technology, online travel reviews emerge as a tool to supply managers with immediate actual tourists' thoughts (Lee & Kim, 2020) regarding services (Browning, So & Sparks, 2013), products, places, or destinations. Thus, the present research examines the service quality determinants in online reviews of historic centres' tourist experiences. Concluding, the accurate service quality assessment of touristic services is "increasingly important" (Shi & Hu, 2020, p. 2); understanding the online perception of tourists across cross-cultural research in Brazil and Portugal provides managers of HC with insights for the improvement of the service quality.

2.2. UGC in Tourism

User-Generated Content (UGC) refers to media content created or produced by the general public and distributed mainly on the Internet (Souza, Mendes-Filho & Buhalis, 2020), i.e., it has the perceived independence of the message's source as a key characteristic (Litvin, Goldsmith & Pan, 2008). Although the creation and dissemination of content are already secular, the potential of an ordinary consumer to communicate and influence a mass audience is recently dated (Daugherty, Eastin & Bright, 2008). UGC platforms provide an enabling environment for "facilitating interactions between users in online communities" (Cheung et al., 2022, p. 154).

The emergence of ICTs and Web 2.0 has resulted in consumer communication changes (Xiang, 2018). Electronic word-of-mouth (eWoM) has become a new vehicle for product and service recommendations among consumers (Buhalis, 2020), forcing traders to improve the quality of products and services in search of favorable recommendations (Lu & Stepnochenka, 2015). In the context of tourism, "UGC is known as one of the most influential sources of information" (Leung, 2022, p. 661), and it is already the most important topic in technological research in tourism and hospitality[1](Chiang, 2020) since tourists have access to hundreds or thousands of online reviews before and during the trip (Zhang et al., 2019).

The importance of UGC in tourism surrounds three considerations: (i). The hedonic character of the experience (Dolnicar, 2020; Souza-Neto et al., 2022), resulting in consumers thirsting for better decision-making and optimising experiences; (ii). the impossibility of experiencing tourism before consumption, making other users'

[1] According to a bibliometric study developed by Chiang (2020), “customer engagement behaviors” is the second hotspot in emarketing literature on tourism, only behind “tourism essence”, that comprises words as “Tourism”. In this sense, we understand as the as the second hotspot as the most related to technology.

experiences provide a ground basis for choice (Liang et al., 2018); (iii). online reviews are seen as reliable (Bolzán & Mendes-Filho, 2022) and honest (Ukpabi & Karjaluoto, 2018). Based on this, there is a need to develop a quality culture in services (Butnaru & Miller, 2012) grounded on the publicly accessible UGC (Cheng & Jin, 2019).

The rapid adoption and generation of user-generated content show an increase in attention given by the companies to the services' consumers and can be verified by the growing number of consumer-generated data. However, despite a small portion of users creating content (Van Dijck, 2009) (e.g., 1% rule; Van Mierlo, 2014), more than 86% of accommodation service guests read online reviews, and 89% of online users usually research destinations' activities and restaurants before the trip (TripAdvisor, 2018). Under this perspective, "user-generated content provides massive potential inspiring sources, resonating with people's diverse tastes and preferences" (Dai, Wang, & Kirillova, 2022, p. 2).

Furthermore, in a systematic literature review of UGC studies in tourism, Lu and Stepnochenka (2015) identified hot topics of research: (i) quality of services; (ii) destination image and reputation; (iii) UGC as eWoM; (iv). experiences and behaviour; (v) Mobility patterns. In this study the authors mention that the user-generated content analyses provide useful feedback to private and public managers, making it possible for "firms gather customer intelligence" (Huang et al., 2019, p. 327), identify the quality aspects valued by customers, and redistribute resources effectively.

Past research has been applying UGC analysis in several contexts. For example, Liang et al. (2018) researched the helpfulness of online reviews applied to the hotel industry. Similarly, Liang et al. (2020) identified the impact of social norms in increasing the perception of online reviews' helpfulness and producing higher-quality reviews. On the other hand, Huang et al. (2019), grounded on cooperative and

competitive feedback discussions, showed motivation factors for consumers to produce more online content. Finally, regarding service quality, Su & Teng (2018) extracted and classified online tourist complaints from 25 museums published on TripAdvisor.

Additionally, studies focusing on service quality usually applied survey methods to comprehend tourist satisfaction (Brady & Cronin Jr., 2001; He, Su, & Swanson, 2020; Tuncer, Unusan & Cobanoglu, 2020), which is prone to social desirability bias (Bahja & Hancer, 2021). These methodological issues can be reduced by applying other or multi-method approaches. For instance, González-Rodriguez et al. (2020) applied a user-friendly facial recognition tool to support their survey findings. In the case of UGC, big data and the analysis of a large amount of data, such as online review analysis, permit researchers to overcome sampling bias (Li et al., 2018) with no need for ethical clearance (Cheng & Jin, 2019). In this sense, UGC analysis seems a proper way to address issues related to the quality of services because actual "travelers can express their satisfaction and dissatisfaction toward tourism products, generating a rich mine of online reviews data" (Li et al., 2018, p. 305), hence, providing firms with customer intelligence (Huang et al., 2019).

3. Methodology

Our quantitative analysis started with the selection of historic centres to retrieve the online reviews. These centres were selected due to their national and abroad touristic importance and online relevance[2]. The established criteria was that the centres should be located within Portugal or Brazil, with reviews written in Portuguese (due to the limitation of the data collection platform). We identified nine HCs, five of which are

[2] Six of the HC are World Heritage or they are based on a World Heritage territory, with exception of three of them (Albufeira [PT], Cascais [PT] and Porto Seguro [BR]). We retain them due to online relevance (the three HC have more than 1,000 reviews).

Brazilian (Paraty - Rio de Janeiro, Porto Seguro - Bahia, Salvador - Bahia, São Luís - Maranhão, and Olinda - Pernambuco) and four Portuguese (Albufeira, Cascais, Évora and Guimarães) (Figure 1) with high representativeness of comments on TripAdvisor and Google platforms. Then, we collected online reviews posted from January 2019 to September 2020[3], as we understand that this period could provide us with tourists' perceptions regarding the touristic service quality, and it will allow us to verify changes in service quality since the quality of service is constantly being updated (Timoshenko & Hauser, 2019).

Figure 1: Geographical location of the HC analysed.

[INSERT FIGURE 1 HERE]

Source: Adapted from Google Maps (2021)

To achieve the objective proposed in the research, we adopted the quality indicators proposed in the TOURQUAL protocol (Mondo, 2014) to measure the quality of services in tourist destinations because it is a more detailed model from the theoretical-empirical point of view and adapted to the context of tourism. Furthermore, the TOURQUAL protocol integrates the dimensions and indicators from a wide range of service quality models focusing on the quality of service since it was based on ostensible bibliometric analysis and later empirically validated (Mondo, 2014). In this way, TOURQUAL protocol can be considered a protocol that apprehends the reality of the quality of touristic services.

The TOURQUAL's protocol is a proper analytical framework for analysing tourism service quality that fits our goal for several reasons: the present study took into account the analysis of online reviews (Mondo, 2022), and the protocol was firstly

[3] Due to the fact that the data collection process was developed in September (2020), we achieved a 21 months period, but the sample was compensated by the law of large numbers (Manes & Tchetchik, 2018).

validated on the TripAdvisor platform (Mondo & Fiates, 2017). In addition, historical tourist attractions lack specific approaches to verify the service quality. For instance, studies using Servqual (Gunasekar et al. 2021) do not meet the specificities of the tourist service in historic centres. The Histoqual (Frochot & Hughes, 2000), i.e., a re-modified Servqual (Su & Teng, 2018), presents indicators for historic buildings. While Su & Teng (2018) attempted to extract service quality dimensions when a service failure occurs in museums. Nevertheless, the TOURQUAL protocol arises as a good instrument for analysing historic, cultural, and public sites (e.g., Feger, Souza Junior, & Gândara, 2016; Mondo, Hallman, & Burg, 2018; Tavares, Santos, & Mondo, 2022).

From the methodological point of view, the TOURQUAL protocol has plenty of adoption in user-generated content analysis. For instance, Widyawati, Irawan & Ghina (2021) evaluated the comments of the largest Buddhist temple in the world in Indonesia, while Mondo, Perinotto & Sousa Neto (2021) evaluated more than 30 thousand restaurants in Brazil. Additionally, Mondo & Fiates (2016) applied the TOURQUAL indicators in assessing Brazilian attractions, among others.

Regarding the data extraction, we input the data in the Microsoft Excel worksheets (Rasoomalinesh et al., 2021) following Santos et al.'s (2016) proposed review cataloguing process. ~~Then~~, with the help of a platform of online reputation management (Harmo[4]), we catalogued 9,818 reviews, of which 7,849 had comments, but 6,868 comments made it possible to extract the user's final sentiment (Table 2), from which we collected the following information: i. destination; ii. review; iii. year and month of the review. Such data generated by users represents one of the greatest strengths of TripAdvisor (Miguéns, Baggio, & Costa, 2008) and partly of Google. In

[4] Fort more detailes: https://harmo.me/.

addition, the Harmo platform allows us to identify the valence of online reviews (positive, neutral, and negative) (Liu, 2015), and the stratification of comments is made by year and month.

Afterward, we applied a textual analysis with the support of the software T-LAB. The software allowed the construction of the Sammon projection, where the resulting mapping helped us to detect and identify the data structures effortlessly (Sammon, 1969) and in the context of online reviews on tourist attractions, its scarcity use (Mazanec, 2010; Mondo & Fiates, 2017). Moreover, the T-LAB generated key terms identified in the total sample of comments and predecessor and successor terms. After extensive analysis by the researchers, we identified the terms related to TOURQUAL's indicators presented and discussed in the next section.

For inter-coder reliability (Manoharan & Singal, 2017), two researchers underwent thirty training sessions between September and October 2020 to analyse the data from the TOURQUAL protocol's perspective. Subsequently, they categorised a random subset (Münscher, Vetter, & Scheuerle, 2015) of 10% of the online reviews' sample to quantify how well the indicators enable independent others to ascribe service quality determinants in the sample. After the analysis, an expert checked the comments, categories, and indicators presented (Prasad, 2008).

4. Results

The results section is presented in three subdivisions. We first apply Sammon Mapping to make a general analysis of the comments. Subsequently, we analyse qualifying adjectives (i.e., key terms related to the valence of reviews, such as good and bad) and conclude by applying TOURQUAL dimensions and indicators to the main terms presented in the online reviews. Table 2 presents the number of reviews per HC (final

and with sentiments), their respective countries, valence according to the Harmo platform, and the final mean.

Table 2: Information about the reviews catalogued about the historic centres.
[INSERT TABLE 2 HERE]

Note 1: Percentage of positive (POS), neutral (NEU), and negative (NEG) reviews. **Note 2:** Total number of reviews per historic site. **Note 3:** Final mean rate of the HC.

Although somewhat tangent to the study's objective, the reviews' valence is an important part of reviews since it might mediate tourists' experiences (Sigala, 2018). Additionally, the valence reflects the rating of a place, "thereby capturing tourists' preferences" (Hu et al., 2022, p. 10) towards a destination. The reviews' valence also permits us to make inferences about consumers' attitudes (Purnawirawan et al., 2015) toward these destinations' quality indicators. At this point, we identified that 89.59y% (6,153) of the comments have positive content, with 7.15% (491) of neutral comments and 3.26% (224) of neutral comments. A similar proportion is identified in other online reputation studies on TripAdvisor (Mondo, Perinotto, & Souza-Neto, 2022; Viana, Mayer & Souza Neto, 2020), and it is consistent with the "vast majority of postings on review sites [that tends to] to be positive" (Litvin, Goldsmith, & Pan, 2017, p. 318).

4.1 General Comment Analysis - Sammon Mapping

The review sample allowed the elaboration of the Sammon Mapping (Figure 2). The mapping graph makes it possible to analyse the relationship between the "objects" (i.e., the reviews' textual elements) and the dimensions that organise the space in which they are represented. The correspondence between the distances among words on the map is measured (inversely) by a Stress function. We consider the Stress Value 0.1507[5] suitable for the one proposed in the study because our study analyses a high amount of

[5] The lower the stress value (e.g., <0.10), the greater the fit or relationship between words.

reviews across multiple sites with diverse cultures. Hence, it is a handy method in exploratory data analysis, as in this study (Mondo, 2014).

The Sammon mapping provides us with two forms of analysis. The first one refers to the circles' size, where the larger the size, the greater the representativeness of that term in the general set of the analysed text. The second refers to the proximity of terms. The closer the terms are in the figure, the closer they are. Thus, we realised that the HCs have significant terms (i.e., terms of greater prominence according to Sammon's analysis) for tourists who review the general environmental issue since the terms "Lugar" + "Interessante" ("Place" + "Interesting") were two of the most conspicuous terms and they were close to each other. Also, places like churches and restaurants are presented on the map and represent important elements during tourists' experiences in HCs. This result converges with Atsız, Cifci and Rasoolimanesh (2021) regarding food can be seen as a motivational factor for cultural and food tourists due to its cultural value.

Figure 2: Sammon mapping developed by T-LAB software[6].

[INSERT FIGURE 2 HERE]

Source: Authors.

Another interesting issue that we analysed were the terms "Vale" + "Pena"[7] demonstrating the consumers' perceived value in visiting historic centres (which is supported by the overall evaluation of the HCs) and validating the level of tourist perceived quality of the HCs (overall average of 4.48 out of 5). In fact, tourism in

[6] The Sammon Mapping generates the map with raw data, hence, the words are in Portuguese, but we present the most relevants in table 3.
[7] In a close translation it can be defined the junction "vale a pena" as "worth it".

heritage site is considered one of the most significant segments due to the "economic and social value of tangible and intangible" (Rasoolimanesh et al., 2021) elements.

These perceptions and subsequent reviews represent what Beecham (2009) concluded. Their findings exposed that the experience and consumption of the service give the visitors an objective perception of quality. However, at the end of consumption, they make an individual subjective calculation and form their perception of value based on the sum of the simple average of the consumed service experience (Chark, King, & Tang, 2021).

The other significant terms with less weight within the Sammon test are discussed in the following sub-sections, in the light of TOURQUAL's dimensions and indicators, directing our analysis toward these tourist facilities' quality management.

4.2 Valence Analysis of the UGC

After generating the key terms and near terms (e.g., preceding and following terms), we started the qualitative analysis using the TOURQUAL framework as our theoretical lens. Figure 3 presents the first data analysis related to the valence terms. After thoroughly reading the key terms, their predecessors, and successors' terms, we categorised them into the TOURQUAL dimensions and indicators. Then, we presented them in 6 levels of valence (Good [Bem[8]], Good [Bom], Great, Amazing, Wonderful, and Negative[9]) and crossed them with their predecessors and successors to generate the list of terms tied to the levels of valence.

Figure 3: Valence analysis of the key terms, predecessors, and successors according to TOURQUAL protocol.

[8] In a literal translation, the word "Bem" would better translate to "Well". Often, these words are used interchangeably in Portuguese, we prefer to adopt the two terms together in the analysis.
[9] This categorisation is in accordance with the terms presented in our analysis.

[INSERT FIGURE 3 HERE]

Source: Authors.

For definition purposes, we will adopt the following hierarchical order of terms: "Negative", "good" ("bem" or "bom"), and "excellent", for understanding the quality of services, and 'incredible' and 'wonderful' as adjectives characteristic of memorable experiences (i.e., the feeling of being present in a place, feeling, experiencing and absorbing the moment) (Coelho, Meira, & Gosling, 2018; Souza Neto & Marques, 2021).

Furthermore, it was necessary to analyse the key terms associated with their predecessors and successors to classify them in the categories and indicators of quality. As a result, it is possible to identify the six categories of TOURQUAL. The categories Environment and Experience are the most perceived in the reviews (n = 6). They both are succeeded by Technical Quality (n = 5), Access (n = 4), Safety (n = 3) and Human Element (n = 2). Following the idea of complexity during the tourism experience proposed by Hu et al. (2022), our study shows that the service quality assessment in HCs is influenced by an amalgamation of components/aspects linked to all of the quality dimensions.

Among the categories of negative valence, only "access" was not identified. This counterfactual result goes against previous studies that identified elements inherent in this category, such as accessibility for people with disabilities, as deficient in historic centres (Evcil, 2018), and particularly with one of the Brazilian centres analysed in this study (Santos et al., 2016).

4.3 Determinants of Historic Centre Service Quality according to *TOURQUAL Indicators*

Following the same analysis format, turning to the other relevant key terms, Table 3 provides a general view of the terms, their occurrence, and the dimensions and indicators identified in the manual analysis of their antecessors and successors terms. "Lugar" (place), "local" (local), "conhecer" (to know), "passeio" (tour) and "ruas" (streets) are the most identified terms in the sample.

Table 3: Key terms, their predecessors and successors and the TOURQUAL dimensions and indicators identified**.**
[INSERT TABLE 3 HERE]

Note 1: OCC refers to the occurrence numbers of the terms and their derivations (e.g., seller, sell), except for "Insurance" and "Safety" which appeared as separate terms in the analysis. **Note 2:** The Dimensions and indicators are based not only on the key terms exposed but also related to their predecessors and successors (following table 2). The material can be requested to the authors.

Table 4 summarises the dimensions and indicators identified after analysis and reassessment by an expert. Once again, the top three dimensions followed the same order in the full sample. The dimensions "access" and "human element" were the least identified. As for the analysis of the indicators, in total, we have catalogued 16 indicators, with "Cosy place" and "Safety" (n = 22) as the most present. Although "Safety" is the fourth quality dimension most cited, their expressiveness is significant. This importance converges previous findings regarding safety issues in Brazilian historic centres (Santos et al., 2016).

Further comparison of cross-countries can identify if this issue is geographically located since Portugal usually has low crime rates (Overseas Security Advisory Council [OSAC], 2020), and Brazil has a negative image (Lohman et al., 2022) due to its higher rates of violence (Tomé, 2018). Furthermore, the indicator "Aesthetics" (n = 17) comes in third place, indicating the need to preserve and conserve historical places. Even more,

such indicators call our attention as there is a fluctuation of emotions and well-being (Mayer et al., 2019) during visitation in HC that could explain such different indicators.

Table 4: Quantity of TOURQUAL dimensions and indicators identified.

[INSERT TABLE 4 HERE]

Source: Authors

It is worth noting that we identify more than half (16 out of 26) of the TOURQUAL protocol indicators among the key terms' analysis, their successors, and predecessors. The analysis of the key terms provides us with the indicators of greater and lesser attention given in online reviews. However, they limit us to more quantitative assessments. Therefore, future research should evaluate their importance using other forms of analysis, such as content analysis and information triangulation.

5. Discussion

The results show that although unusual events can increase online reviews, especially negative ones, the data supports the empirical evidence that most consumers' reviews are positive (Litvin, Goldsmith, & Pan, 2018). It also corroborates with the conceptual framework developed by Viana, Souza & Mayer (2020) about motivations to review a touristic place (e.g., altruism, social benefits, own benefits, consumer empowerment, outburst, functional comments, reciprocity) that can be analysed in the future studies.

Moreover, the tourists possibly acquire benefits during their visit to historic centres beyond the perceived costs (e.g., financial, time, etc.). The terms in the Sammon Mapping (Figure 2) demonstrate that visitors of the historic centres perceive value in consuming cultural public places and equipment. Furthermore, the high evaluation scores show that the perception of value supported tourists' perceived service quality during their experiences in HCs.

The analyses of the key terms, their predecessors, and successors (Table 3)

corroborate the results of Souza Neto et al. (2019), in which physical, aesthetic elements of leisurely contemplation are the most identified in online assessments of a public space landmark in Rio de Janeiro (one of the main international attractions of Brazil).

The valence analysis shows that the "human element" dimension is the least valuable in historic destinations' online reviews. These findings contradict the perspective of high touch or high interaction activity as the main element in tourism activities (Buhalis, 2020), at least under the service quality lens. Possible studies or more in-depth analyses are needed to understand their relationship and not appear among the comments.

The terms displayed in Table 3 provide us with the perspective that tourists do not necessarily need the human element dimension to achieve higher levels of perceived quality in HCs. However, TOURQUAL protocol (Mondo, 2014) considers the human element a critical component in learning while travelling (i.e., when the tourist learns about a touristic destination).

Regarding the quantitative analysis of the dimensions and indicators of quality of service (Table 5), many of the indicators in the "access" dimension are subject to spatial and structural issues, which is usually considered a limitation or barrier (Evcil, 2018) to the include/change in historical destinations due to particularly protection legislations. Concerning the "human element" dimension, we infer that this dimension does not appear since HCs are public places. Therefore, people see the indicators of this dimension as psychologically distant (Marques & Souza Neto, 2022) and a tourist's cognitive abstraction (Kim et al., 2020). More studies are needed applying the Construal Level Theory framework to understand how tourists construct their psychological distance on social domains in public places.

5.1 Model of the importance of the dimensions of quality of tourist services in historic centres

Our data analysis exposes the importance given by the visitors of historic centres about what they most perceive during their experiences. This sub-section presents a hypothetical model based on the number of appearances of the indicators of service quality dimensions (Figure 4).

Figure 4: Model of the importance of the dimensions of quality of tourist services in historic centres.

[INSERT FIGURE 4 HERE]

Source: Authors.

The main element of the model consists of an inverse pyramid containing all of the dimensions based on the online review's assessment applying the TOURQUAL protocol. According to the figure, the second element is a side arrow named "arrow of importance" insofar the tourists' importance to a specific dimension of service quality increases, their desire to produce content about an HC through online reviews increases.

Moreover, the dataset showed that the public managers of cities that historic centres should first focus their attention on developing the visitors' experiences. More precisely, tourists list aesthetics as the leading indicator of this dimension. Therefore, the conservation, preservation, and requalification of these spaces become paramount in the pursuit of increasing the quality of the visitation in Historic centres. In addition, since most of the Historic centres in our sample are World heritage recognised by UNESCO, the relevance of this dimension is comprehensible since conservation demands arose due to this designation (Pérez Guilarte & González, 2018).

Following the descent through the pyramid, the importance of cosiness in the area became the most relevant indicator (environment dimension). ~~So~~, comfortable areas in HCs are needed to provide tourists with increasing satisfaction regarding the quality of the historical sites.

Even more, the indicators of the "technical quality" dimension are well distributed, with the "price" and "maintenance (equipment and infrastructure)" indicators being the most codified ones. In this sense, maintenance is strictly related to the aesthetics in the "environment" dimension, being considered essential for increasing the perceived quality of a given HC. On the other hand, the price might be managed with fair price politics since the perception of price unfairness is identified in the literature as an antecedent of negative WoM (Santos & Souza-Neto, 2022).

Additionally, safety is an important dimension for both positive and negative reviews, as displayed in Figure 3, and plans and actions to produce safer environments (human, physical and financial) are an intermediary way to enhance the quality of the visitation in historic centres.

The easiness of purchasing gifts and souvenirs is the main indicator in the "access" dimension. This implies that visitors of HCs think that centres are accessible for people with disabilities or mobility restrictions, or the public that attends does not care about this particularity. Given the authors' experiences with historic centres supported by several studies and news about the physical state of the infrastructure of the HCs, we infer that their legal restrictions make historic centres hostile environments for these segments of visitors and, therefore, not a place in which they usually visit and subsequently review.

At the bottom of the pyramid, we find the human element as the category. As presented in the results section, it may be possible to produce a social distance due to the public nature of historic centres. This information is an interesting outcome of our study that public managers must pay attention to since they tend to focus on the "high touch" aspects of tourism activity. On the other hand, our result proposes that managers of historical sites should focus their attention on conservative, cosy and safe

environments first and go down the quality pyramid as they meet the demands of the dimensions on the top.

6. Conclusions

The present study adopted the TOURQUAL model indicators (Mondo, 2014) and analysed publicly accessible online reviews on TripAdvisor and the Google Platform. This is the first attempt to apply user-generated analysis grounded on the TOURQUAL protocol's framework in cross-country study, and to the best of our knowledge, we comprise the bigger sample (in terms of reviews and quantity of destinations analysed at once) about quality service in HCs. Our results extend the TOURQUAL protocol's usability (Mondo, 2014) by applying user-content generated analysis and historical tourist destinations.

The results show that the dimensions of service quality determinants in online reviews are experience, environment, and technical quality. However, despite great discussions about such services' human element, it is a peripheral category in the analysis. A possible inference may be that online reviews focus on historic centres as tourist attractions, which gives a degree of abstraction and impersonality when commenting, needing more in-depth research. Nevertheless, the research paves the way for future investigations to understand the categories, indicators, and relationships.

Additionally, by proposing an importance model that measures the quality of services in historic centres (e.g., open-air, historic appeal, UNESCO seal), we expand the discussions on the quality of service in historical tourist destinations. As well, the most quantified indicators (e.g., "cosy place", "safety", and "aesthetics") suggest that visits to historic centres generate passive participation by tourists, i.e., implies that tourists do not affect performance meaningfully, but instead more passively listen to or watch whatever is occurring (Teichert, Sun, & González-Martel, 2021). Therefore,

future studies can profile tourists according to their service quality preferences and passive/active participation in the tourism experience, in this sense, enhancing the knowledge regarding service quality studies in HC.

Even more, by exploring the service quality determinants in historic centres, this research attempts to guide three major discussions: First, the trade-offs between tourism development and the conservation of the centres. The attempt to the perceived service quality can mitigate any potential threat to the conservation of the place. Second, regarding the title of Unesco's nominated world heritage sites. Different world heritage sites might have a starting point of elements they could focus on to improve the service quality of their territories. Future research is needed to verify if the hierarchy of service quality indicators holds to other groups of world heritage. Third, historic centres as open areas showed an enhanced competitive advantage compared to closed doors tourist attractions. The need to constantly evaluate the service quality of these places offers a chance for tourist managers to position their destinations as role models for the recovery of the tourism sector.

Understanding the indicators' hierarchy regarding service quality in historic centres constitutes one of the managerial contributions. More specifically, the pyramid of importance proposed here helps heritage management better understand the tourists' needs. For instance, managers (public or private) may be given great attention to enhancing service providers' soft skills in historical and public places, but as our analysis shows, the human element is the least reviewed dimension across both countries. This result also raises attention to context specificities, and the TOURQUAL framework should be extended across other places of tourist interest to generate a more accurate forecast about what a decision-maker needs to prioritise during the policy formulation.

Moreover, our results go against the "high touch" tourism trend (Buhalis, 2020) that favors human contact as a critical part of the core of the human experience. Unlike this trend, our research shows that public managers dealing with the management of historic centres must focus on more relevant dimensions of service quality, such as the experience in the historic environment. In line with new research on robots and hospitality, public managers of such places and private owners of businesses in historic centres might add service robots (Choi et al., 2019) to improve the perceived quality of these spaces. Also, as a theoretical contribution, our data demonstrate that, in the context of historic centres as heritage recognised by Unesco, such titles were not significantly identified per se, corroborating the results of Antônio, Correia, and Perdigão (2020). This result suggests the need for managers to strengthen the Unesco brand attached to their cultural destinations.

There are some study limitations regarding the methods of analysis used. For instance, Sammon mapping is an explanatory approach, i.e., a practical tool to work pragmatically, but it lacks a more critical perspective, which can be compensated with deeper analysis. Moreover, it is worth noting that, as predominantly quantitative analysis, it forces us to more superficial analyses of the themes, despite this limitation having been circumvented by the laws of large numbers. As for sequential analysis, only presenting the predecessors and successors does not demonstrate the relationship between them, for example, both "culture" and "houses" are successors to the key term "full", but it does not show the relationship of them in a sentence.

In addition, both the UGC and lexical analyses were based on the full sample, with cultural and contextual variations between Brazil-Portugal centres being ignored. A denser analysis is suggested, such as thematic or content analysis, to understand better what was proposed by the present study. Researchers might also compare the

results with countries that have different cultural roots (e.g., Anglo-Saxon or Asian countries) due to differences in perspective found in these countries. For instance, the Chinese tend "to view themselves as part of a group or team" (Wen et al., 2020, p. 77). Last, we recognise the relevance of the TOURQUAL protocol as well accepted in the market and academy. We might wonder if text mining approaches could generate a precise outcome regarding the critical elements managers use to improve the service quality of their destinations or attractions. We suggest future comparisons could be made to verify the explanatory power of TOURQUAL contrasting with text mining models.

Future research should also compare tourist destinations and areas in the same cities. Such comparisons may provide a rich understanding (local and regional) of tourist destinations' peculiarities and can be the underlying bases for private and public policies (Bertochi, Camatti & Van der Borg, 2020). Lastly, our study aggregated online reviews pre and during the pandemic of COVID-19. Unfortunately, since the collection made by the online reputation management platform comprised these two periods, it becomes impossible to compare both time ranges. However, future studies can deal with this limitation of our study since COVID-19 is a clear disruptor of tourists' behaviours (Abraham et al., 2021; Matiza, 2022; Souza Neto & Marques, 2021).

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