7 Mining Social Media for Museum Quality Evaluation

Ingrida Kelpšienė, Pedro Luengo, and Costis Dallas

Introduction

Service quality, perceived value, and visitor satisfaction have been steadily gaining the attention of cultural institutions, including museums, since the last quarter of the 20th century (Kavanagh 1994; Mclean 1994; Rentschler and Gilmore 2002; cf. Weil 1999). In tandem, the recent explosion of digital communication in all spheres of social and cultural life has afforded museums new possibilities to manage and share collections, to communicate with visitors (Drotner and Schrøder 2013; Díaz-Andreu 2017; Lewi *et al.* 2019) and, as we argue here, to gain insights on community and visitor perspectives on museum value, using data analytics and qualitative research. This chapter introduces a mixed-methods approach, based on an analysis of visitor comments on social networking sites, to account for the perceived quality of museum offerings and thus improve museum visitor experience management. The proposed approach combines a software-supported topic modelling analysis of TripAdvisor comments with a qualitative data analysis of Facebook comments. Unlike prior studies in the field of museum service quality assessment, this approach does not require conducting a visitor study, requiring considerable effort and prior expertise, but uses evidence which is publicly available on social networking sites. The methods used for analysis do not require specialised computer skills, and may be served by readily available software, and applied without the need for advanced methodological expertise. This approach provides, we hope, a useful tool for museum professionals to gain a sense of perceived service quality in their institution, allowing for the comparison and sharing of good practices and encouraging improvements in museum quality and value.

A Model for Evaluating Service Quality in Museums

Since the end of the 20th century, the service sector has demonstrated increased interest in models of service quality assessment. The key idea behind service quality assessment is to evaluate the perceived quality of product's services', treating perceived quality as a factor of customer satisfaction – and even of future customer behaviour. In line with this idea, formal models were introduced to provide a systematic way to assess service quality in specific domains and service organisations

(Parasuraman *et al.* 1988; Rust and Oliver 1994). Of these, SERVQUAL, perhaps the most influential generic service quality model, proposes measuring perceived service quality on the basis of five dimensions: (a) tangibles, (b) reliability, (c) responsiveness, (d) assurance and (e) empathy (Parasuraman *et al.* 1988). Initially designed for the service industry, SERVQUAL has been criticised, notably, for the fact that its proposed dimensions are unsuitable for all application domains; for the lack of clarity as to what actually is being assessed by each dimension and, finally, for placing too little emphasis on the actual product or service offered at the expense of functional aspects of service delivery (Carman 1990; Brady and Cronin 2001; Sánchez-Hernández *et al.* 2009).

An additional critique of SERVQUAL concerns the fact that it is a gap metric, i.e., it compares customer quality assessment of some services with expected quality for each assessment item to establish satisfaction. To counter this critique, an additional dimension, i.e., delight, has been proposed in the context of service quality assessment (Asif 2015). The relevance of surprise and delight in service quality is also recognised by Kano's attractiveness model of service excellence, which recognises that to be excellent, a service needs not only to be functional but also attractive (Kano 1984; Gouthier *et al.* 2012). This critique is equally relevant in the context of museum quality evaluation, given that the assumption that visitors come to museums with predefined expectations is not always warranted, and that unexpected discovery, the element of surprise, resonance and wonder may be important contributing factors to the value of museum experience (see, for example, Greenblatt 1991).

Despite its limitations, SERVQUAL was later adapted for use in specific domains, starting from the original five dimensions and specific assessment items but then inductively deriving additional ones applicable in the domain in question. This was typically achieved through, a sophisticated statistical method such as factor analysis, following a procedure recommended by the authors of SERVQUAL themselves (Parasuraman *et al.* 1988). Among those derivative models, particularly relevant for our purpose are four models related to the domains of hospitality, holiday-making and heritage tourism: LODGEQUAL (Getty and Thompson 1994), HOTELQUAL (Falces Delgado *et al.* 1999), HOLSAT (Tribe and Snaith 1998) and HISTOQUAL (Frochot and Hughes 2000). The first, aimed at the hospitality industry, proposes assessing the perceived service quality of hotels on the basis of three dimensions of assessment, derived from the original SERVQUAL dimensions: (a) tangibility, (b) reliability and (c) contact (which combines items from SERVQUAL's responsiveness, assurance, and empathy). The second, HOTELQUAL, also aimed at the hospitality industry, goes beyond SERVQUAL to identify three concrete areas of service quality evaluation: (a) evaluation of service personnel, (b) evaluation of the facilities and (c) service organisation. The third, HOLSAT, identifies six areas for the assessment of organised holiday experiences: (a) physical resort and facilities; (b) ambiance; (c) restaurants, bars, shops and nightlife; (d) transfers; (e) heritage and culture and (f) accommodation. Finally, HISTOQUAL, aimed at service quality assessment of heritage attractions such as historic houses, differentiates between five dimensions, of which (a) responsiveness, (b) tangibles

and (c) empathy are equivalent to those used in SERVQUAL, while (d) communication was one of the early dimensions later dropped from the final SERVQUAL model, and (e) consumables is a new dimension specific to HISTOQUAL.

Recent studies of service quality evaluation in the museums and heritage field are written for the most part from the perspective of services marketing. They typically draw from one of the models presented above, rely on conducting questionnaire surveys, and involve sophisticated numerical analysis methods such as factor analysis and structural equation modelling. They include, notably:

a a questionnaire survey analysis of visitors to the Royal Mile, Edinburgh, distinguishing between designer- (museum professional), researcher-, and customer-based conceptualisations of museum service quality and, using an amended version of HOLSAT (Cunnell and Prentice 2000),

b a repertory grid analysis of visitor questionnaires to assess service quality in London museums (Caldwell 2002);

c a focus-group study of service convenience in American art museums (Geissler *et al.* 2006);

d an analysis of visitor questionnaires distributed at a Malaysian museum, using the SERVPERF model of service quality (Mey and Mohamed 2010);

e a structural equation modelling and factor analysis of SERVQUAL questionnaire survey responses on the quality of five South African museums (Radder and Han 2013);

f a questionnaire survey analysis of visitors' expectations and perceptions at the Krapina Neanderthal Museum, Croatia, using a modified version of HISTOQUAL (Markovic *et al.* 2013);

g a structural equation modelling analysis of the relationship between service quality, visitor satisfaction and emotions on the behavioural intentions of visitors to Macau museums, based on a questionnaire survey, and proposing a bespoke multidimensional, hierarchical model (Wu and Li 2015) and, finally,

h the elaboration of a quality seal for Spanish museums which, however, does not align with any of the established service quality models (Norma UNE 302002:2018 Museos).

For the purposes of our study, we combined salient aspects of the HOTELQUAL model with those of other models and our own insights from relevant studies, in order to define a model that addresses dimensions of museum quality evaluation that cannot be accounted for fully by any of the previously defined models when applied separately. As we conceive museum quality from the point of view of museum provision and professionalism (Kavanagh 1994) rather than through the lens of service marketing, we chose to construct our model using assessment dimensions that are directly intelligible to the community of museum professionals and researchers for whom our study is intended, and that could be identified in evidence readily available online to museum professionals. Instead of the inductive approach taken by earlier studies, in which dimensions of service quality are derived by means of sophisticated statistical analysis of a single dataset, we followed a retroductive process (Bhaskar 1979), re-expressing our initial observations as

theoretical dimensions compatible with prior conceptualisations of museum value and service provision from the literature of museum studies. We adopted all three dimensions of HOTELQUAL (assessment of personnel, facilities, and service organisation) since they represent straightforward factors contributing to customer experience in the hospitality industry, which are also directly applicable to generic aspects of museum service and professionalism. This aligns with earlier research confirming that hospitality is an important dimension of heritage visitor experience (Periañez-Cristobal *et al.* 2019). We found it necessary, however, to expand the model with two additional dimensions that were not present in earlier service quality models we examined, in order to account for tangible and intangible aspects of the core museum visitor experience: exhibitions and programmes, which are central to our understanding of the value offered by museums to their visitors. We therefore ended up elaborating a museum quality assessment model consisting of five dimensions: (a) *display*, (b) *subject matter,* (c) *facilities,* (d) *services* and (e) *staff* (Table 7.1).

Unlike other service quality models, the MUSEQUAL model does not depend on a predetermined list of items (attributes) related to each of the five quality dimensions. As each museum and each museum visit is different, we expect that quality assessment by visitors will yield a diverse range of statements. Using the dimension definitions in our model, it is possible to classify all attributes represented by specific visitor statements into one of the five dimensions of *Display, Subject matter, Facilities, Services* and *Staff.* As MUSEQUAL is defined on the basis of a conceptual fit into these five dimensions, rather than inductively on the basis of a dataset derived from a single museum, it may be applicable as it stands to a broad range of museums without the need for constant modifications, and can thus provide a stable instrument for quality evaluation across time in a single museum, or for comparative assessment across institutions. Museum professionals should be able to use the findings from visitor assessment along each of these five dimensions to produce useful policy and practice interventions in specific professional practice domains, listed in the intervention fields part of the model.

**Researching Assessment of Museum Quality
on Social Network Sites**

Social network sites are virtual user communities on networked digital platforms (e.g. Facebook, Twitter, Instagram, TripAdvisor, etc.) which enable the creation of personal profiles and foster interpersonal communication and content sharing. The use of social network sites as a digital tool for museum communication is a widely discussed subject. Studies focusing on community perspectives on social network sites are split along two main lines: firstly, studies researching existing possibilities for user engagement, and secondly, studies evaluating the effectiveness of a museum's performance on social media (Trolle Gronemann *et al.* 2015). While research on audience engagement seeks to explain the most common social network site strategies for museum communication (MacArthur 2007; Russo *et al.* 2010; Pett 2012; Kelly 2013;

Table 7.1 MUSEQUAL dimensions, dimension definitions, source and field of museum management interventions

Dimension	Dimension definition	Source	Intervention fields
Display	Assessing tangible aspects of exhibitions (including lighting and other physical dimensions of exhibition galleries), as well as digital exhibits, educational programmes and materials produced by the museum	New	Museography, physical exhibition design, digital exhibit design, programme materials, gallery accessibility design, user experience design
Subject matter	Assessing intangible aspects of exhibitions and programmes, identified in the subject matter of exhibitions, narratives, labels and panels, audiovisual content, guide tour scripts and representing museum messages, storylines, meanings and discourses	New	Exhibition planning, interpretation and representation, curatorial research, programme content
Facilities	Assessing museum facilities outside the gallery space, including visitor access areas, elevators, stairs, foyer, museum bookstore, shops, restaurants and cafes, visitor seating areas, restrooms and more generally the museum building	HOTELQUAL	Facilities provision and management, plant management, security, accessibility in the museum building
Service provision	Assessing the provision and delivery of visitor services such as front desk information, exhibition guiding and orientation, educational programme delivery and gallery photography	HOTELQUAL,	Visitor-side Museum procedures, front desk operation, guides, visitor information and communication, Customer Relationship Management (CRM)
Staff	Assessing the professionalism, friendliness, and ability of visitor-facing museum staff to provide useful and effective service responding to visitor needs	HOTELQUAL	Staff training and evaluation, Human Resource Management (HRM)

Padilla-Meléndez and Águila-Obra 2013; Suzić *et al.* 2016) especially in light of three fundamental functional communicative contexts identified as marketing, inclusivity and collaborative frames (Kidd 2013), studies focusing on effectiveness seek to evaluate the potential of social network sites in reaching audiences and obtaining feedback from visitors in order to better manage museums'

relationships with them (Fletcher and Lee 2012; Chung *et al.* 2014; Spiliopoulou *et al.* 2014; Lazzeretti *et al.* 2015).

Collectively, these studies provide a well-grounded, evidence-based overview of how museums and users interact with each other on social network sites. However, they do not fully take into account museum visitors' perspectives on the overall museum value, as perceived and expressed through social media in the form of personal opinions or shared experiences. The creation of an 'interconnected opinion space' (Charitonos *et al.* 2012, p.803), where online discourse can help us recover important aspects of visitor experience contributing to the meaning-making process, is associated with the use of social and mobile technologies in museum encounters, and indicates the potential of technology-enhanced learning. The use of social network sites enables museum visitors to re-curate museum exhibitions and to engage with museums in meaningful ways (Weilenmann *et al.* 2013). However, the ways in which museum visitors choose to communicate their experiences vary and depend on the affordances and character of each platform, which play an important role in extending the dialogue beyond the physical space of the museum. The main challenge for museums remains to be able to respond to emerging visitor behaviours induced by digital technologies (Weilenmann *et al.* 2013).

Previous studies have turned to content analysis of websites and blogs to gauge the value of visitor experiences such as travel to tourist destinations (Choi *et al,* 2007). Among social network sites, TripAdvisor has also become a common source of evidence for analysing hospitality service quality (Flôres Limberger *et al.* 2014). More recently, visitor comments on TripAdvisor have been used to analyse complaints on museum service failure based on a model expanding SERVQUAL to encompass as many as 12 dimensions: (a) convenience, (b) contemplation, (c) assurance, (d) responsiveness, (e) reliability, (f) tangibles, (g) empathy, (h) communication, (i) services cape, (j) consumables, (k) purposiveness and (l) first-hand experience (Su and Teng 2018); moreover, and more closely aligned with our approach, it allows for the analysis of service quality in heritage hotels on the basis of an adaptation of the HOTELQUAL model (Periañez-Cristobal *et al.* 2019).

Like these studies, our approach to museum quality assessment is based on statements made spontaneously by visitors on social network sites, rather than on questionnaires or interviews designed specifically for service quality evaluation. While our model is driven by considerations of relevance to museum value and experience as illustrated in museological literature, comments freely submitted by actual visitors as they communicate with peers provide, in our view, more reliable evidence of how visitors truly perceive museum service quality. It does not restrict potential responses to a pre-defined number of items associated with a standard model, and it allows for the collection of much larger datasets for the purpose of confirming findings and providing for fuller interpretation of results: in other words, satisfying what is known in qualitative methodology as the principle of saturation.

Two of the most popular social network sites globally, Facebook and TripAdvisor, were chosen in this study to evaluate museum quality on the basis of user reviews. Both platforms allow visitors to express their opinions and to reflect on personal experiences by providing reviews and recommendations.

TripAdvisor, as an online community focused on travel, is explicitly dedicated to sharing reviews and impressions of hotels, restaurants, and tourist destinations, including cultural attractions. Facebook is a more versatile social network platform fostering different kinds of interactions, but it also allows users to write reviews, an important Facebook business page feature directly relevant to our approach.
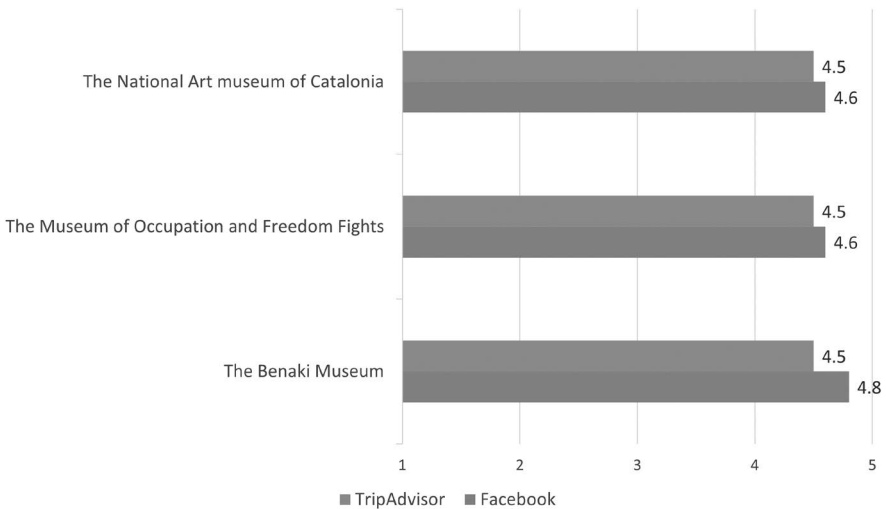
Quality Evaluation of Three European Museums

Three museums from three different European countries, Greece, Lithuania and Spain, were chosen as subjects for this study. When selecting museums to evaluate, the following criteria were considered: geographical coverage, the significance of the museum in its respective country, thematic diversity of its collections, and the number of reviews available for the museum on both TripAdvisor and Facebook. The final selection included the Benaki Museum (gr. Μουσείο Μπενάκη),[1] the largest independent museum foundation in Greece, with a main Museum of Greek Culture spanning Greek material culture and art from the Bronze Age to the 20th century, and several satellite sites including a Museum of Islamic Art, the vibrant Pireos 138 temporary exhibition and cultural events building, and the Ghika Gallery housing the collection of a notable Greek 20th-century visual artist; the Museum of Occupation and Freedom Fights (lt. Okupacijų ir laisvės kovų muziejus, henceforth Museum of Occupation, or MOFF),[2] which, while formally professing a wider scope, focuses for the most part on crimes during the Soviet occupation and the history of anti-Soviet resistance in Lithuania and, the National Art Museum of Catalonia (cat. Museu Nacional d'Art de Catalunya, henceforth the Art Museum of Catalonia, or NAMC),[3] one of the best-recognised and most-visited art museums in Spain. These museums are different in scope, size of collections and purpose in their respective national context. This diversity of selected museums contributes, in our view, to a more inclusive framework of museum quality evaluation on social network sites. We should note, however, that the comments we collected and analysed from these three museums' TripAdvisor and Facebook pages date to 2018; therefore, we did not witness, nor can we anticipate potential changes in the criteria by which visitors assess these museums, nor any future evaluations or possible patterns of visits that may be connected to the Covid-19 pandemic.

The three museums differed with respect to the number of reviews they receive on TripAdvisor and Facebook (Figure 7.1). The biggest difference between platforms was observed in the case of the Museum of Occupation, which garnered a significantly higher number of reviews on TripAdvisor and a very low number on Facebook (we do not, however, have access to information on whether any of the three museums studied have been removing critical visitor comments from their Facebook pages). The Benaki Museum shows a similar pattern, but the difference between social media platforms is not as marked as it is in the case of the Museum of Occupation. Finally, the Art Museum of Catalonia represents the most balanced museum presence among the two social networking sites examined, in that the number of reviews for the museum on TripAdvisor and Facebook are comparable.
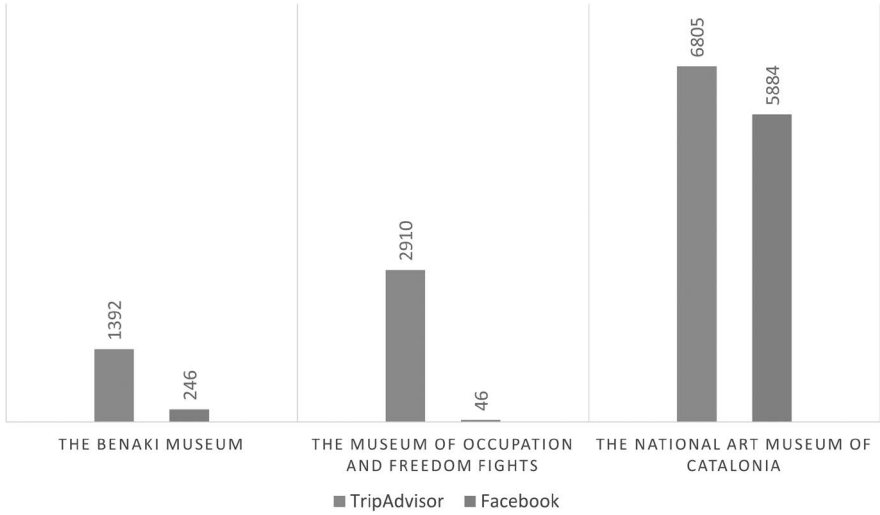
Figure 7.1 Comparison between the number of reviews of three European museums on TripAdvisor and Facebook (November 2018).

While all three museums varied in the number of reviews they received, overall ratings attributed by users were very similar in all cases (Figure 7.2). All three museums had the same rating of 4.5 on TripAdvisor. Also, two museums (Museum of Occupation and the Art Museum of Catalonia) had the same rating (4.6) on Facebook as well, while the Benaki Museum had a slightly higher Facebook rating (4.8).

Figure 7.2 Comparison of ratings for three European museums on TripAdvisor and Facebook (November 2018).

Topic Modelling of TripAdvisor User Reviews

A total of 1,837 comments in English and Spanish published on the TripAdvisor pages of three selected museums were gathered for topic modelling, using specialised software. Topic modelling is a computational text-mining procedure allowing the identification of substantively meaningful categories in a text corpus, called topics, on the basis of the statistical distribution and co-presence of words within the corpus, with very little need for researcher intervention (Mohr and Bogdanov 2013). To identify topics in the TripAdvisor corpus for the three museums included in our analysis, we used a data extractor and codification software tool, SiSOB-Hist, designed to identify categories related to heritage from a text corpus and previously used successfully to analyse Spanish heritage hotel reviews on TripAdvisor (Periañez-Cristobal *et al.* 2019). This tool was fed with comments, and a resulting list of keywords was organised under the five MUSEQUAL dimensions (Display, Subject matter, Facilities, Services and Staff). The analysis included only those comments in which a topic related to one of the MUSEQUAL dimensions could be identified; remaining comments were omitted from the analysis.

An overview of the topics identified in the merged TripAdvisor corpus for the three museums shows that ART was the most frequently used keyword in reviews, while SOVIET and PICASSO followed suit: clearly, these are notions specific to the different *Subject matter* of museums in our study. The analysis also revealed frequent references to common keywords related to *Facilities*, such as RESTAURANT, TERRACE, ESCALATOR and STAIRCASE, as well as *Services*-related keywords such as GUIDE and TOUR, but also qualifiers such as COMFORTABLE and EFFICIENT (Figure 7.3). Although the emphasis on facilities and on comfort

Figure 7.3 Word cloud of keywords in English analysed on TripAdvisor for three European museums (November 2016–November 2018).

Figure 7.4 Total numbers of comments and count of comments related to MUSEQUAL dimensions (*Display, Subject matter, Facilities, Services* and *Staff*) in three European museums (November 2018).

might be obvious in the context of our understanding of museums as social places, this result may surprise those who only consider the quality of exhibitions and programmes as the determining factors for perceived museum quality.

This general overview can be further analysed. The three museums (Figure 7.4) showed very similar distributions of MUSEQUAL dimensions mentioned in TripAdvisor reviews in the English language, with *Services* as the most frequently cited museum quality dimension, followed by *Facilities*. *Display* was in third place and *Staff* followed afterwards, while comments related to *Subject matter* were the least frequent. From this it can be surmised that, on TripAdvisor, museum quality is most often assessed on the basis of generic dimensions related to the museum as a site of hospitality, rather than on the basis of dimensions related more specifically to the collection, or to the cultural and educational mission of the museum. Looking at TripAdvisor reviews separately for each of the three museums, *Services* remained the most frequent quality dimension for all three museums, followed by *Facilities*. However, the next most frequent dimension differed for each of the three case studies. The next most frequent dimension was *Display* for the Benaki Museum and the Art Museum of Catalonia, while for the Museum of Occupation it was *Staff*. It was also noteworthy that the Museum of Occupation exhibited a somewhat higher number of comments related to *Subject matter* (through keywords such as SOVIET, USSR, WAR and INDEPENDENCE), followed by the Art Museum of Catalonia (with keywords such as PICASSO, MIRÓ and DALÍ).

While these results seemed to imply that museum *Subject matter,* and even *Display,* were relatively less important dimensions for museum quality assessment by visitors in general, this conclusion may be misleading. TripAdvisor is a platform focused on horizontal aspects of service across the hospitality industry, given that it is used mostly for community-based reviews and ratings of restaurants and hotels, and this may justify why users would privilege *Facilities, Services* and *Staff* in their reviews of museums as well. In addition, connectivity and datafication are important aspects of social media logic, and social network sites' conversations often function as echo chambers in which users engage in group affirmation (Van Dijck and Poell 2013). Accordingly, tourists – the primary user base of TripAdvisor – may therefore be more likely to comment on an aspect of quality already mentioned in prior comments, rather than introduce topics or viewpoints related to the subject matter of a museum exhibition.

The ethnolinguistic background of commenters may also be a relevant factor in the lack of prominent reviews related to museum *Subject matter* in the English language corpus we analysed; indeed, a large percentage of such comments were from foreign tourists, whose criteria are naturally more focused on quality dimensions related to hospitality, in comparison to local visitors who may be expected to share a higher degree of knowledge and engagement with the historical and cultural dimensions of a local museum collection. To further explore this hypothesis, we conducted an additional, separate analysis of TripAdvisor reviews of the Art Museum of Catalonia in the Spanish language (Figure 7.5). Notably,
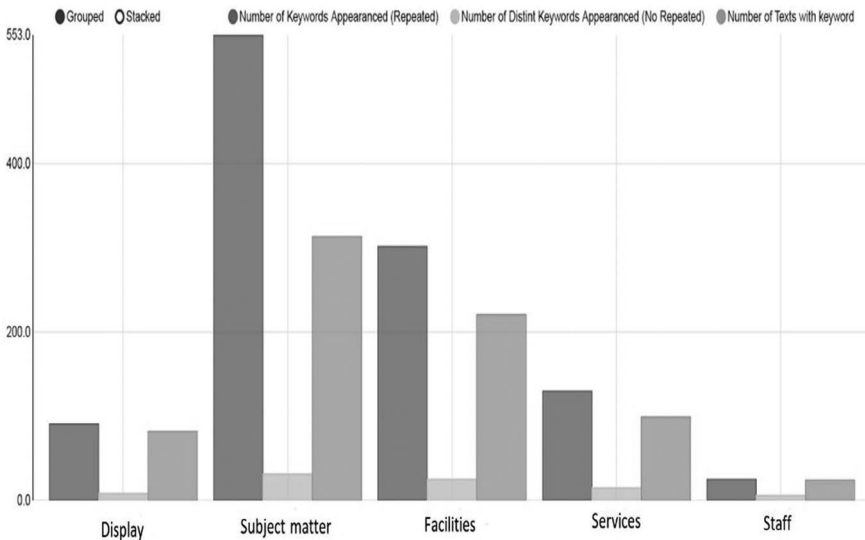

Figure 7.5 Comparison of frequency of MUSEQUAL dimensions from comments and related keywords in Spanish on the Art Museum of Catalonia (November 2018).

the distribution of the Art Museum of Catalonia reviews in Spanish and related keywords across MUSEQUAL dimensions changed significantly in comparison to the reviews in English. The *Subject matter* of the museum emerged as the dimension most frequently mentioned in Spanish reviews, followed by *Facilities, Services, Display* and *Staff.*

This method of analysis presented in this section additionally allows for the examination of seasonal changes, since the composition of local visitors as compared to tourists varies in different seasons; consequently, the relative importance of specific dimensions of museum quality assessment may also change. However, here we restricted ourselves to a general discussion of the results, both in order to illustrate the method used and to establish a foundation from which it is possible to delve into more specific details in further analyses, where necessary.

Museum Visitor Reviews on Facebook Pages

Reviews and recommendations (henceforth reviews) are Facebook features that have been available since 2011. A few years ago, the earlier Facebook review system, based on star ratings from 1 to 5, was replaced by a more sophisticated recommendations section, which sorts users' positive and negative opinions based on all users' interactions on Facebook (Bojkov 2018). This overall page rating still remains in place and takes into account both reviews and recommendations posted by users. The decision to make recommendations more prominent on Facebook was driven by users' increasing needs to turn to other people's opinions and suggestions to find places of interest.

It has been calculated that one out of three Facebook users has used the platform to find reviews and recommendations, thus making Facebook extremely important for any organisation's reputation (Bojkov 2018). We collected publicly available users' reviews on the Facebook pages of all three museums in our study and performed qualitative data analysis in order to better understand how museums' visitors perceive an institution's value and quality. The analysis included only those reviews in which visitor opinions were presented through text, excluding those that only provided a rating. In some cases, opinions were expressed in a short sentence, a few words or even just a single word or an emoticon, while in other cases visitor opinions consisted of several sentences unfolding into a fully-fledged argument. The reviews were collected in English, as well as in Greek, Lithuanian, Spanish, Italian, German and Russian. All reviews were translated into English by applying automated Google translation, which was subsequently verified and corrected by the authors of this chapter. The reviews were collected by simply copying them from the Facebook page and pasting them into plain text to clear Facebook screen formatting, before re-formatting them into rich text format (.rtf) documents for qualitative data analysis.

Different timeframes were applied for collecting reviews, as the selected museums greatly varied in the frequency of reviews received over time. The Museum of Occupation yielded the lowest number of reviews, with a total of only 17 reviews in the period from 2014 to 2018, all of which were included in the

analysis. The Benaki Museum garnered up to 100 available reviews dating back to 2011, from which we selected for analysis the most recent 35 reviews, dating from 2017 and 2018. The Art Museum of Catalonia presented the highest number of reviews over the previous decade, from which only the latest 77 reviews, dating from 2018, were included in the analysis. Qualitative data analysis was performed by using MaxQDA, a computer-assisted qualitative data analysis system which allowed for systematic coding and multiple modes of review analysis. We followed a deductive-inductive research cycle by initially creating a provisional code system based on the MUSEQUAL museum quality assessment dimensions of *Display, Subject matter, Facilities, Services* and *Staff,* supplemented by more specific aspects of each dimension derived from the description of each of these dimensions (see Table 7.1 above), and, subsequently, by expanding the code system during the analysis stage. We also added additional subcodes drawn from Facebook reviews in our corpus through open coding, to illustrate potentially interesting patterns. In assigning codes to reviews, we noted that a significant portion of the reviews yielded a combination of two or more codes, and multiple codes were assigned to each review in these cases.

Our analysis showed that there is no shared pattern for all three museums with regard to the relative frequency of reviews related to each of the five MUSE-QUAL dimensions (Figure 7.6). Differences of scope and character between the
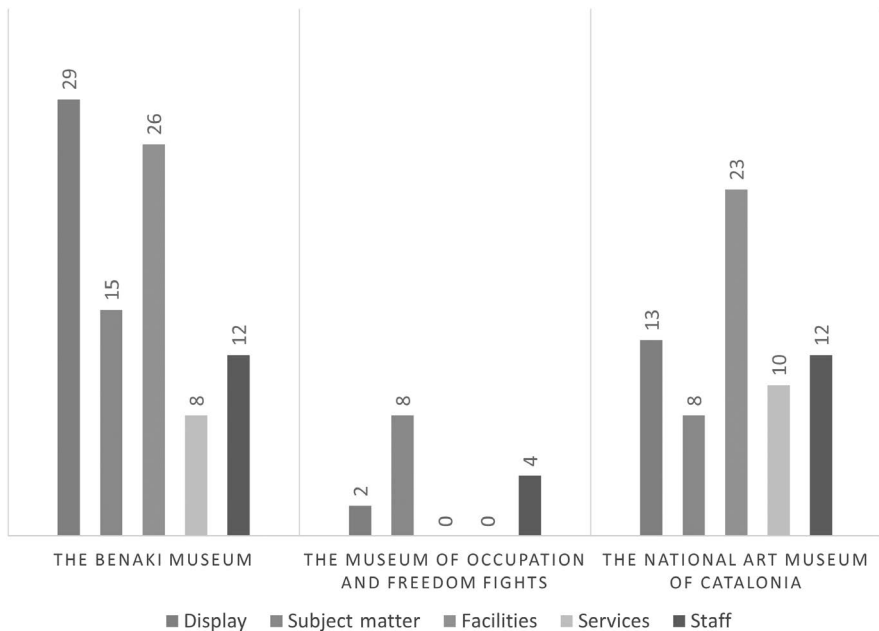

Figure 7.6 Comparison of frequency of Facebook reviews for three European museums across MUSEQUAL dimensions (*Display, Subject matter, Facilities, Services* and *Staff*).

selected museums seem to be reflected in the differentiation among quality assessment dimensions present in the Facebook reviews revealed by our analysis.

While *Display* was the most important museum quality dimension for the Benaki Museum audience, it was less important to visitors of the Art Museum of Catalonia and the Museum of Occupation who contributed to Facebook reviews. In many cases, *Display* was addressed broadly, with reviews mentioning EXHIBITION, COLLECTION, ARTEFACTS, etc. The qualities associated with *Display* were typically expressed as adjectives describing visitors' general impressions of the exhibition as a whole. For example, reviews of the Benaki Museum presented a wide array of positive adjectives, such as SPECIAL, EXQUISITE, WONDERFUL, MAGNIFICENT, EXCELLENT, GREAT, FABULOUS, IMPRESSIVE, SURPRISING, INSPIRING and SPECTACULAR, but also LARGE and HUGE.

> In rare cases, Facebook reviews also referred to more concrete qualities of the Benaki Museum's exhibition design as noted by this review (2018) "Superbly mounted in simple wooden frames, the photos themselves are framed by the wall behind - ochre or mustard - so they appear to float off the wall. Not to be missed. Be prepared for a visceral reaction."

Similarly, many reviews of the Art Museum of Catalonia regarding the dimension of *Display* describe visitors' impressions of the exhibition as GREAT, AMAZING, VERY GOOD, BEAUTIFUL, EXCELLENT and WONDERFUL. While the majority of the comments were positive, a few critical reviews were identified, which might be useful in identifying how particular aspects of the museum's display could be improved. For instance, the statement that 'sometimes the art was in direct sequence and sometimes it was very distant' (Reviewer of the National Art Museum of Catalonia 2018) may be interpreted as expressing a difficulty in grasping the conceptual organisation of the gallery in question, or, as a merely descriptive comment on exhibition flow and pacing. In other cases, critical reviews of the museum's *Display* were quite vague and may lack direct usefulness as to what may be improved to ensure a better visitor experience.

Judging by the frequency of relevant Facebook reviews, *Subject matter* was found to be particularly important to the visitors at the Museum of Occupation and of medium importance to visitors at the Benaki Museum, while in the case of the Art Museum of Catalonia it was the least-discussed dimension of museum quality. This phenomenon may be linked to the very different missions and characters of each of these museums. The Museum of Occupation is a historical museum, but also an official memorialisation site with a very strong and purposeful exhibition storyline seeking to represent the repression and state crimes during the period of Soviet occupation of Lithuania (1940–1941 and 1944–1991). Established in a former KGB building, it builds on an emotionally intense experience, allowing visitors to visualise the prison, execution chamber and offices of former KGB officials within an affective ideology of suffering and redemption (Klumbytė 2020); the fact that the Museum of Occupation is not just a curated

exhibition of selected objects, but is housed in the very site of acts of state violence and is thus an authentic historic place in its own right, may be a factor contributing to the predominance of reviews on its dark *Subject matter,* compared to other dimensions of quality assessment in visitors' Facebook reviews. Some visitors related very strongly to this historic experience. For example, one of the reviewers of the Museum of Occupation and Freedom Fights (2018) had a very emotional response:

> The nation's anguish - my anguish <3 There was pain, humiliation, dehumanization, strangeness, distortion and lies that touched my mom, my dad and me… It's the Soviet-Bolshevik system – that's all is needed to say… Let's not forget what happened to our nation and other nations until the world is still so troublesome! Thanks to the museum's staff for the warmth, sincerity, and understanding within these walls full of torture![4]

The majority of Museum of Occupation reviews reiterated the museum's discourse on the period of Soviet occupation, reflecting on notions such as HISTORY, OCCUPATION, FREEDOM, INDEPENDENCE, SUFFERING and PRISONERS in the context of the museum, but also on more specific historical references such as SOVIET UNION, KGB, SOVIET-BOLSHEVIK and GESTAPO. This last notion, rather unexpectedly in a museum of Soviet occupation, possibly relates to the prominence of a narrative framing the crimes of Soviet totalitarianism as genocide and equates them morally with those committed by Nazism (Snyder 2011; cf. Davoliūtė 2011; Katz 2016). In addition, the experience of the museum exhibition was described as GREAT, VALUABLE, INTERESTING, IMPRESSIVE, EMOTIONAL and TRUE by other visitors.

But the Museum of Occupation's strong national narrative additionally evoked the occasional negative reaction related to its contested *Subject matter*, which as expressed in this review (2018): 'Enchanting Museum about a fantastic event. It is thanks to the "Soviet occupation" that the Polish city of Vilnius became the capital of Lithuania. If you condemn the occupation, return the benefits, or shut up forever'.[5]

Reviews of *Subject matter* in the Benaki Museum, on the other hand, were fewer in comparison to those on the museum's *Display*, but still identified aspects of Greek cultural history considered to be important by its visitors. Topics identified include SMYRNA 1920–1922, pointing to the relevance of an exhibition on the forced migration of Asia Minor Greeks from Turkey after the Lausanne treaty, prominent exhibited collections such as COSTUME, JEWELRY and ICONS, exhibit provenance indicators such as AEGEAN and ASIA MINOR, and broader notions regarding the museum's subject matter, such as GREEK HERITAGE, FULL OF TREASURES AND MEMORIES and THE ARK OF GREEK CULTURE.

In the case of the Art Museum of Catalonia, prominent references to *Subject matter* in visitor reviews included, predictably, the names of leading artists represented in the exhibition, such as PICASSO, MIRÓ and DALÍ, as well as names of art styles and periods, such as ROMANESQUE. While (especially contemporary)

art museums do generally involve visitors with strong evaluative views on art-works, artists, and artistic currents, Facebook comments from visitors to the Art Museum of Catalonia did not evidence such rich levels of engaged critical evaluation. This perhaps relates to the fact that the Museum typically hosts canonical exhibits whose value is widely established.

Judging from the frequency of visitor comments, the focus of visitors' attention in evaluating the Art Museum of Catalonia was conversely on the dimension of *Facilities,* including the museum's building and areas outside the exhibition galleries (i.e., *Facilities*). The most mentioned topics, in this dimension, were the TERRACE and the CITY VIEW, which might also be associated with the aesthetic and emotional rewards such features created for the museums' visitors; they described their experiences as OUTSTANDING, GREAT, AMAZING, SPECTACULAR, EXCELLENT, SUPERB, GORGEOUS, etc. This, of course, is testimony to the value of a particularly beautiful building and setting for the museum. In the case of the Benaki Museum, more attention was also given to the museum's RESTAURANT-CAFÉ and its INCREDIBLE VIEW, which was frequently praised by visitors. Additional topics related to *Facilities* mentioned in visitors' reviews included BUILDING, SHOP, CLIMATE CONTROL, BATH-ROOM, STAIRCASE and SIGNPOSTING.

Services was the least mentioned dimension of museum quality assessment in reviews for the Benaki Museum, the second least for the Art Museum of Catalonia, and was entirely absent in visitor reviews for the Museum of Occupation. The most frequently mentioned museum services were the ones related to EVENTS organised by the museums (LECTURE, PERFORMANCE, etc.), and the notion of ENTRY TICKET. Less common were restaurant-related *Services* (e.g., SOMMELIER, FINE DISHES), as well as AUDIO GUIDE and WEBPAGE functionalities.

Reviews concerning museum *Staff* can be divided into positive and negative comments. Positive reviews appeared for all three museums: for instance, Benaki Museum staff was characterised repeatedly as EXCELLENT and COURTEOUS. The most notable example of a negative review was identified for the Art Museum of Catalonia, where there were more negative comments about the staff (7) rather than positive (5). In this case, the main reason mentioned for visitor dissatisfaction was the attitude towards BREASTFEEDING inside the museum, which was viewed as inappropriate by the staff; visitors characterised staff's attitude as EMBARRASSING, UNAC-CEPTABLE, DISRESPECTFUL and OUTRAGEOUS. Some reviews even generated a longer thread of comments in which other users reinforced the reviewer's opinion. While the issue is indeed important for museums to consider, it is not clear whether the popularity of these comments related to a widespread dissatisfaction with museum's policy towards breastfeeding or was it only one incident that triggered visitors' negative reaction and consequently caused its lower rating (one star). In other cases, a lower rating usually indicates an issue that a visitor encountered regarding some specific dimension of museum quality, such as *Service, Facilities* or *Display.* For example, a comment with a four-star rating reported having troubles with the audio guide, which was not synced with exhibited art objects.

Lower ratings related to a museum's *Subject matter* usually reflected disagreements with the museum's interpretation of its collections and exhibitions. For

example, the Russian-speaking visitor who wrote the negative comment on the Museum of Occupation discussed above also awarded a rating of just one star to the museum. Conversely, a less-than-perfect rating may not indicate any specific negative assessment of the museum. For instance, a comment with a four-star rating for the Benaki museum had no negative comments but did not provide any further explanation on why the rating was not a five-star one. In many cases, comments were quite generic and lacked deeper insight into what prompted visitors' lower ratings.

In our analysis of visitor reviews of museum quality on Facebook, we noted that museums do not always respond to visitor reviews. Of the three museums whose Facebook pages we analysed, only the Benaki Museum replied to more than half of the visitor reviews, typically with a short 'thank you' message for a positive review, or with an acknowledgment of the issue raised by a critical one. However, to ignore visitor reviews is, in our view, a missed opportunity for museums. Experience from the hospitality industry demonstrates that offering a response to both praise and criticism provides for a better institutional image and supports improved relationship management and the fostering of deeper dialogue with visitors.

Discussion

Previous studies have underlined the challenges and opportunities to develop enhanced knowledge and more effective strategies for visitor relationship management, first in hospitality services, and more recently in museums. Our analysis of visitor reviews of three very different Europe-based museums on TripAdvisor and Facebook show how two different methods, a software-driven quantitative topic analysis and a researcher-driven qualitative data analysis, may produce complementary insights on visitor assessment; this is achieved on the basis of an evaluation model specific to museums, MUSEQUAL, which consists of five dimensions of museum quality: *Display, Subject matter, Facilities, Services* and *Staff.*

Our analysis of TripAdvisor reviews was conducted using a software application requiring little researcher intervention, in an effort to retrieve information from a high number of comments, while qualitative data analysis was applied manually to the text of Facebook reviews. Each method has its own virtues, and they mutually complement each other. For example, topic analysis of a large number of reviews from TripAdvisor illustrates the common interests expressed by visitors on each of the museum quality assessment dimensions, and particular patterns could be traced across museums despite their particularities. In TripAdvisor reviews, we found that *Services* was the most frequently discussed dimension, while *Subject matter* was the least discussed. *Facilities*, *Display* and *Staff* were discussed more frequently than *Subject matter*. A different picture emerged from the results of our analysis of Facebook reviews, where each museum presented quite varying patterns. The most frequent dimension of museum quality assessment to appear in reviews varied from *Facilities* for the Art Museum of Catalonia to *Display* for the Benaki Museum and *Subject matter* for the Museum of Occupation. While *Display* and *Facilities* were

frequently addressed in reviews of the Benaki Museum and of the Art Museum of Catalonia, it is striking how little these dimensions of museum quality appeared among reviews of the Museum of Occupation, where the predominant topics of discussion related to its *Subject matter*. It is clear that the relative importance of the five museum quality dimensions established by our MUSEQUAL model varies between different museums, and that the mission, objectives, curatorial strategies, character and audience of each particular museum played significant roles in determining which quality dimension is the most important to the commenting visitors.

Furthermore, differences between platforms remained highly relevant. The prevalence of topics related to *Services* and *Facilities* in TripAdvisor comments is to be expected, given the scope and character of this tourist community platform. TripAdvisor is used by tourists to inform other tourists, while their personal background or ideas about history and culture seem to be left behind. Naturally, this does not hold for Facebook, which provides for a much broader range of interactions and functions for its users, even if Facebook reviews call users to comment on the value of services or products provided by organisations. For this reason, we argue for a multi-platform strategy for assessing museum quality, going beyond reviews on TripAdvisor. Qualitative data analysis of Facebook reviews provides a useful complementary view, as the platform encompasses the private sphere and interpersonal communication. On Facebook, one's 'friends' and 'acquaintances' are among the first to see comments, even when users provide public opinions. TripAdvisor and Facebook offer distinct affordances, and the relative advantages of automated topic modelling for managing extensive data versus qualitative data analysis for gaining deeper insights into personal viewpoints create a synergy, making these platforms and methods complementary for evaluating museum quality on social network platforms.

Our study is not without methodological limitations. While the process of analysis is relatively straightforward, the selection of reviews, and therefore the constitution of the corpus used for analysis, presents challenges. The reliability of findings based on quantitative assessment, e.g., on the relative frequency of specific dimensions of museum quality evaluation, depends on how representative the sample of reviews analysed is, and smaller number of reviews may yield results with large margins of error. Additionally, in the case study presented in this chapter, we did not differentiate between reviews submitted by tourists and those from local residents, something that we might be able to surmise indirectly from the review language, or by the season and time of day a review was submitted; additional analysis in this direction might yield useful results. We also chose not to conduct statistical testing for significance, strength of association, or margin of error, as we prioritised outlining an approach easily accessible to researchers and museum professionals without specialised training in statistics. Instead, we limited ourselves to discussing strong patterns in our data that are clearly visible to the naked eye, rather than to reporting on exact numbers or percentages that could well vary if our reviews sample were different. Finally, we chose not to report finer distinctions that might arise from statistical errors.

An additional challenge we faced, and that others wishing to adopt our approach will likely face as well, is the rapidly changing technical environment and functionalities of social network sites. Constant updates and new service platforms introduced from time to time can be seen as opening new possibilities, but platforms also introduce limitations that may impede future research. An additional challenge is related to rising concerns about user privacy issues, which might significantly affect museum audience research on social media in the future. Conversely, rapidly emerging advances in computational classification and qualitative content analysis based on large language models (Liu *et al.* 2023; Xiao *et al.* 2023; Ziems *et al.* 2023) may soon offer researchers expanded opportunities to employ easy-to-use, digitally assisted conversational generative AI methods to document and analyse museum visitor social media interactions in terms of the MUSEQUAL quality assessment dimensions.

In this study, we drew from prior quality research models used in the service industry, such as SERVQUAL, HOLSAT and HOTELQUAL, but chose to base our analysis on a model attuned specifically to the assessment of quality in museums. Rather than carrying out inductive analysis of a single dataset based on a questionnaire survey, we chose to construct our model retroductively, drawing from earlier research and our own insights. The proposed model, MUSEQUAL, consists of five dimensions, two of which, *Display* and *Subject matter,* are specific to museums and heritage sites, while the remaining three, *Facilities, Services, and Staff,* correspond to generic quality dimensions as established for the hospitality industry by the HOTELQUAL model. Unlike other, more elaborate models, MUSEQUAL does not propose a predefined set of items (attributes, questions) for each dimension. Rather, we suggest that each study should identify elements that are relevant to the situation and public offering of the museum under study, and that additional elements should be added inductively during the actual analysis stage through open coding. In the definition of dimensions, we supplemented the HISTOQUAL model with elements from the SERVQUAL model. While we recognise the relevance of considering factors such as empathy and responsiveness, we believe that a model differentiating clearly distinct dimensions of what is being assessed is, pragmatically speaking, more useful as a tool for museum quality assessment. Since we primarily envisage our approach as a practical way for museum professionals to tap into the insights provided by readily available visitor reviews on social network sites, in order to identify problems and introduce improvements, we consider the dimensions of *Display, Subject matter, Facilities, Services* and *Staff* to form a more appropriate framework for museum praxis.

We envisage that findings from a museum quality evaluation study using MUSEQUAL, in tandem with a mixed-methods analysis of user reviews from complementary social network sites, will be useful in identifying issues and implementing remedies to improve museum service quality. Visitor concerns related to *Display* will invite interventions regarding issues such as a museum's museographic approach, physical exhibition design, digital exhibit design, programme materials, gallery accessibility design, and user experience design. Concerns related to *Subject matter* will feed into interventions regarding collection policies,

exhibition meanings and discourses, exhibition planning, scenarios and storylines, interpretation and representation, curatorial research, information expressed in exhibition panels and captions, online exhibit content and narratives, and the content of educational programmes. Concerns related to *Facilities* will inform decisions on facilities provision and management, plant management, security and accessibility within the museum site. Concerns related to *Services* will be addressed through interventions related to visitor-side museum procedures, front-desk operations, docents and guides, visitor information and communication and customer relationship management procedures. Finally, concerns related to *Staff* will be addressed through staff development, training and evaluation, hiring policies and human resource management procedures.

Conclusion

In one of his latest public interventions, Kenneth Hudson argued that the only museums that will survive in the future are 'museums with charm, and museums with chairs' (Hudson 1999, p. 4). In making this provocative statement, Hudson issued a strong corrective to the idea that museums exist solely for the benefit of their collections, or as vehicles to produce exhibitions and programmes. As we progress towards the second quarter of the 21st century, the question of the social relevance and value of museums becomes, of course, even more central, particularly in light of the rising challenges of environmental sustainability (Davis 2020) and growing demands that museums address problems of social and historical justice. (Carter 2019). In our study, we sought to establish an approach to museum quality evaluation that encompasses not only the strictly museological aspects of a museum's subject matter and message but also dimensions of attractiveness and quality of display, human comfort and services provided, that resonate with Hudson's intuition:

> What you can not get without actually going to a museum is the magic of objects and the opportunity to discuss with other people what is there and to ask questions about those things. And in order to be able to do that properly you need to be able to sit down. It is not easy or comfortable to discuss standing up all the time.
>
> (Hudson 1999, p. 4)

In this study, we present a methodology towards museum quality evaluation based on an analysis of easily accessible visitor reviews on social network sites. We introduce a new model of perceived quality evaluation, MUSEQUAL, which is specifically designed to allow for the assessment of museum quality on the basis of easily understandable dimensions related to museographic approaches and media, subject matter and communication around exhibitions and programs, but also to facilities outside exhibition spaces and services offered by museums and museum staff. Each of these dimensions of quality assessment is relevant to different aspects of museums' professional practice, allowing the targeted identification of issues

and the adoption of measures for improvements to the museum offering. For the analysis of social network site comments, we propose a mixed-methods approach, combining automated topic modelling using software with qualitative data analysis. The analysis does not require sophisticated equipment and it could be easily applied in any museum that is keen to understand the perceptions of its visitors. We suggest that corpora of visitor comments be compiled from different platforms, as in this case Facebook and TripAdvisor, to achieve a holistic view of existing audiences which accounts for the differences in how, and for what purposes, users communicate on different social media platforms.

We would like to conclude this chapter with a final warning, which is the limitations of our methodology and the nature of evidence used in this study, for constructing useful knowledge. The analysis of visitor reviews on TripAdvisor and Facebook reveals how visitors active on social media *perceive* different dimensions of museum quality; it is not an objective, nor by definition an authoritative, yardstick for what museums should strive to achieve. Of course, museums should heed the feedback of their visitors on their exhibition and digital communication approaches, subject matters and exhibition content, facilities and buildings, services provided to visitors and staff performance. But they should also seek to bridge the gap between quality as perceived by visitors and the museum's own value-driven objectives and criteria. While it is possible to identify the relative centrality of specific dimensions of museum quality in the reviews of visitors on social network sites, as advocated in our study, the actual identification and categorisation of topics raised by visitors, and most importantly, their assessments and the potential remedies they advance are not value-neutral; these instead depend greatly on the priorities and values of the museum and researchers conducting the study. We hope that the approach proposed in this chapter will be used in ways that prioritise the educational, cultural and social value of the museum within a framework of ethics of care: one that views museums as transformative, positive forces in contemporary society.

Notes

1 Benaki Museum [TripAdvisor page]. Available from: https://www.tripadvisor.fr/ShowUserReviews-g189400-d198714-r505146804-Benaki_Museum-Athens_Attica.html [Accessed 9 November 2018]. The Benaki Museum [Facebook page]. Available from: https://www.facebook.com/TheBenakiMuseum/ [Accessed 9 November 2018].

2 KGB Museum (Genocido Auku Muziejus) [TripAdvisor page]. Available from: tripadvisor.fr/Attraction_Review-g274951-d284404-Reviews-or10-KGB_Museum_Genocido_Auku_Muziejus-Vilnius_Vilnius_County.html [Accessed 9 November 2018]. Okupacijų ir laisvės kovų muziejus [Facebook page]. Available from: facebook.com/Okupacijų-ir-laisvės-kovų-muziejus-243230317476/ [Accessed 9 November 2018].

3 Museu Nacional d'Art de Catalunya [TripAdvisor page]. Available from: https://www.tripadvisor.com.ph/Attraction_Review-g187497-d257527-Reviews-Museu_Nacional_d_Art_de_Catalunya_MNAC-Barcelona_Catalonia.html [Accessed 9 November 2018]. Museu Nacional d'Art de Catalunya [Facebook page]. Available from: https://www.facebook.com/MuseuNacionalArtCatalunya/ [Accessed 9 November 2018].

4   Original review in Lithuanian: 'Tautos kancia - mano kancia <3 Ir tai tas skausmas, pažeminimas, nužmoginimas, svetimumas, iškraipymai, melagystes, kurie paliete mano mamyte, teti ir mane ... Sovietine-bolševikine sistema - tuo viskas pasakyta ... Neužmirškime, kas nutiko musu ir kitoms tautoms, kol pasaulis vis dar toks neramus! Aciu muziejaus darbuotojams už šiluma, nuoširduma, supratima šiuose kankinimu pritvinkusiuose muruose!'

5   Original review in Russian: 'Феерический музей про фантастическое событие. Именно благодаря «советской оккупации» польский город Вильно и стал столицей Литвы. Если осуждаешь оккупацию, верни приобретённое, либо замолчи навсегда'.

References

Asif, M., 2015. A critical review of service excellence models: towards developing an integrated framework. *Quality and Quantity* 49(2), pp. 763–783.

Bhaskar, R., 1979. *The possibility of naturalism: A philosophical critique of the contemporary human sciences*. (add city of publication here): Routledge.

Bojkov, N., 2018). [Guide] New Facebook recommendations and reviews system [online]. *Embed Social*. Available from: https://embedsocial.com/blog/facebook-recommendations/ [Accessed 26 March 2019].

Brady, M. K. and Cronin, J. J., 2001. Some new thoughts on conceptualizing perceived service quality: a hierarchical approach. *Journal of Marketing* 65(3), pp. 34–49.

Caldwell, N., 2002. (Rethinking) the measurement of service quality in museums and galleries [online]. *International Journal of Nonprofit and Voluntary Sector Marketing* 7(2), pp. 161–171. Available from: https://doi.org/10.1002/nvsm.176 [Accessed 6 July 2021].

Carman, J. M., 1990. Consumer perceptions of service quality: an assessment of SERVQUAL dimensions. *Journal of Retailing* 66(1), p. 33.

Carter, J., 2019. Museums and justice. *Museum Management and Curatorship* 34(6), pp. 541–543.

Charitonos, K., Blake, C., Scanlon, E., *et al*., 2012. Museum learning via social and mobile technologies: (how) can online interactions enhance the visitor experience? [online]. *British Journal of Educational Technology* 43(5), pp. 802–819. Available from: https://doi.org/10.1111/j.1467-8535.2012.01360.x [Accessed 26 March 2019].

Choi, S. Lehto, X. and Morrison, A. 2007. Destination image representation on the web: Content analysis of Macau travel related websites. *Tourist Management*, 28(1), pp. 118–129.

Chung, T.-L. Marcketti, S. and Fiore, A. M., 2014. Use of social networking services for marketing art museums [online]. *Museum Management and Curatorship* 29(2), pp. 188–205. Available from: https://doi.org/10.1080/09647775.2014.888822 [Accessed 26 March 2019].

Cunnell, D. and Prentice, R., 2000. Tourists' recollections of quality in museums: a servicescape without people? *Museum Management and Curatorship* 18(4), pp. 369–390.

Davis, J., 2020. Museums and climate action. *Museum Management and Curatorship* 35(6), pp. 584–586.

Davoliūtė, V., 2011. The Prague Declaration of 2008 and its Repercussions in Lithuania [online]. *Lituanus* 57(3). Available from: http://www.old.lituanus.org/2011/11_3_04Davoliute.html [Accessed 7 July 2021].

Díaz-Andreu, M., 2017. Introduction to the themed section 'digital heritage and the public' [online]. *International Journal of Heritage Studies* 23(5), pp. 404–407. Available from: https://doi.org/10.1080/13527258.2017.1286780 [Accessed 26 March 2019].

Drotner, K. and Schrøder, K. C. (eds.), 2013. *Museum communication and social media: The connected museum*. New York: Routledge.

Falces Delgado, C., Sierra Díez, B., Becerra Grande, A., *et al.*, 1999. HOTELQUAL: A scale for measuring perceived quality in lodging services. *Estudios Turísticos* 139, pp. 95–110.

Fletcher, A. and Lee, M. J., 2012. Current social media uses and evaluations in American museums [online]. *Museum Management and Curatorship 27*(5), pp. 505–21. Available from: https://doi.org/10.1080/09647775.2012.738136 [Accessed 26 March 2019].

Flôres Limberger, P., dos Anjos, F. A., de Souza Meira, J. V., *et al*., 2014. Satisfaction in hospitality on TripAdvisor.com: an analysis of the correlation between evaluation criteria and overall satisfaction. *Tourism & Management Studies* 10(1), pp. 59–65.

Frochot, I. and Hughes, H. 2000. HISTOQUAL: The development of a historic houses assessment scale. *Tourism Management* 21, pp.157–167. Available from: DOI:10.1016/S0261-5177(99)00045-X [Accessed 03 March 2024].

Geissler, G. L., Rucks, C. T. and Edison, S. W., 2006. Understanding the role of service convenience in art museum marketing: An exploratory study. *Journal of Hospitality & Leisure Marketing* 14(4), pp. 69–87.

Getty, J. M., and Thompson, K. N., 1994. A procedure for scaling perceptions of lodging quality. *Hospitality Research Journal* 18(2), pp. 75–96.

Gouthier, M., Giese, A. and Bartl, C., 2012. Service excellence models: A critical discussion and comparison [online]. *Managing Service Quality* 22(5), pp. 447–464. Available from: https://doi.org/10.1108/09604521211281378 [Accessed 26 March 2019].

Greenblatt, S. 1991. *Marvelous Possessions*. Chicago: University of Chicago.

Hudson, K., 1999. 'The public quality of a museum', *International Council of Museums Study Series*, Vol 6, pp. 3–5). Groeninghe: ICOM's International Committee for Regional Museums (ICR).

Kavanagh, G. (ed.), 1994. *Museum provision and professionalism*. London: Routledge.

Kano, N., 1984. Attractive quality and must-be quality. *Journal of the Japanese Society for Quality Control* 14(2), pp. 39–48.

Katz, D., 2016. Is Eastern European 'double genocide' revisionism reaching museums? [online]. *Dapim: Studies on the Holocaust* 30(3), pp. 191–220. Available from: https://doi.org/10.1080/23256249.2016.1242043 [Accessed 7 July 2021].

Kelly, L., 2013. The connected museum in the world of social media. In: K. Drotner and K. C. Schrøder, eds., *Museum communication and social media: The Connected Museum*. New York: Routledge, pp. 54–71.

Kidd, J., 2013. Enacting engagement online: Framing social media use for the museum [online]. *Information Technology & People* 24(1), pp. 64–77. Available from: https://doi.org/10.1108/09593841111109422 [Accessed 15 June 2021].

Klumbytė, N., 2020. Sovereign pain: Liberation and suffering in the Museum of Occupations and Freedom Fights in Lithuania. In S. M. Norris (ed.), *Museums of communism: New memory sites in Central and Eastern Europe* [online]. Bloomington, IN: Indiana University Press, pp. 23–46. Available from: https://doi.org/10.2307/j.ctv174t7d7 [Accessed 28 July 2021].

Lazzeretti, L., Sartori, A. and Innocenti, N., 2015. Museums and social media: The case of the Museum of Natural History of Florence [online]. *International Review on Public and Nonprofit Marketing* 12(3), pp. 267–83. Available from: https://doi.org/10.1007/s12208-015-0136-5 [Accessed 26 March 2019].

Lewi, H., Smith, W., vom Lehn, D. and Cooke, S., 2019. *The Routledge international handbook of new digital practices in galleries, libraries, archives, museums and heritage sites*. London: Routledge.

Liu, Y., Han, T., Ma, S., *et al*., 2023. *Summary of ChatGPT/GPT-4 research and perspective towards the future of large language models* [online]. *arXiv:2304.01852 [cs.CL]*. Available from: https://doi.org/10.48550/arXiv.2304.01852 [Accessed 24 August 2023].

MacArthur, M., 2007. Can museums allow online users to become participants? In: H. Din and P. Hecht, eds., *The digital museum: A think guide*. Washington, DC: American Association of Museums, pp. 57–65.

Markovic, S., Raspor Jankovic, S. and Komšić, J. 2013. Museum Service Quality Measurement Using the Histoqual Model. *2nd International Scientific Conference Tourism in South East Europe 2013*, Available at: https://ssrn.com/abstract=2289769 [Accessed 24 August 2023]

Mclean, F., 1994. Services marketing: The case of museums [online]. *The Service Industries Journal* 14(2), pp. 190–203. Available from: https://doi.org/10.1080/02642069400000022 [Accessed 6 July 2021].

Mey, L. P. and Mohamed, B., 2010. Service quality, visitor satisfaction and behavioural intentions: Pilot study at a museum in Malaysia. *Journal of Global Business and Economics* 1(1), pp. 226–240.

Mohr, J. W. and Bogdanov, P., 2013. Introduction – topic models: What they are and why they matter [online]. *Poetics* 41(6), pp. 545–569. Available from: https://doi.org/10.1016/j.poetic.2013.10.001 [Accessed 7 July 2021].

Padilla-Meléndez, A. and Águila-Obra, A. R., 2013. Web and social media usage by museums: Online value creation. *International Journal of Information Management* 33(5), pp. 892–898. Available from: https://doi.org/10.1016/j.ijinfomgt.2013.07.004 [Accessed 26 March 2019].

Parasuraman, A., Zeithaml, V. A. and Berry, L. L., 1988. SERVQUAL: A multiple-item scale for measuring consumer perceptions. *Journal of Retailing* 64(1), p. 12.

Periañez-Cristobal, R., Luengo Gutierrez, P. and Calvo-Mora Schmidt, A., 2019. The heritage character and service quality in urban defensive structures renovated as hotels. *Journal of Heritage Tourism* 14(3), pp. 44–59. Available from: https://doi.org/10.1080/1743873X.2019.1590375 [Accessed 7 July 2021].

Pett, D., 2012. Use of social media within the British Museum and the museum sector. In: C. Bonacchi, ed., *Archaeology and digital communication: Towards strategies of public engagement* [online]. London: Archetype Publications, pp. 83–102. Available from: https://archetype.co.uk/our-titles/archaeology-and-digital-communication/?id=155 [Accessed 26 March 2019].

Radder, L. and Han, X., 2013. Perceived quality, visitor satisfaction and conative loyalty in South African heritage museums [online]. *International Business & Economics Research Journal (IBER)* 12(10), pp. 1261–1272. Available from: https://doi.org/10.19030/iber.v12i10.8135 [Accessed 6 July 2021].

Rentschler, R. and Gilmore, A., 2002. Museums: Discovering services marketing. *International Journal of Arts Management* 5(1), pp. 62–72.

Russo, A., Watkins, J., Kelly, L., *et al*., 2010. Participatory communication with social media [online]. *Curator: The Museum Journal* 51(1), pp. 21–31. Available from: https://doi.org/10.1111/j.2151-6952.2008.tb00292.x [Accessed 7 July 2021].

Sánchez-Hernández, R. M., Martínez-Tur, V., Peiró, J. M., *et al*., 2009. Testing a hierarchical and integrated model of quality in the service sector: Functional, relational, and tangible dimensions. *Total Quality Management* 20(11), pp. 1173–1188.

Snyder, T., 2011. *Bloodlands: Europe between Hitler and Stalin*. London: Bodley Head.

Spiliopoulou, A.-Y., Mahony, S., Routsis V., *et al*., 2014. Cultural institutions in the digital age: British museum's use of Facebook insights. *Participations: Journal of Audience & Reception Studies* 11(1), pp. 286–303.

Su, Y. and Teng, W., 2018. Contemplating museums' service failure: Extracting the service quality dimensions of museums from negative on-line reviews [online]. *Tourism Management* 69, pp. 214–222. Available from: https://doi.org/10.1016/j.tourman.2018.06.020 [Accessed 6 July 2021].

Suzić, B., Karlíček, M. and Stříteský, V., 2016. Adoption of social media for public relations by museums. *Central European Business Review* 5(2), pp. 5–16. Available from: https://doi.org/10.18267/j.cebr.148 [Accessed 26 March 2019].

Tribe, J. and Snaith, T., 1998. From SERVQUAL to HOLSAT: Holiday satisfaction in Varadero, Cuba [online]. *Tourism Management 19*(1), 25–34. Available from: https://doi.org/10.1016/S0261-5177(97)00094-0 [Accessed 5 July 2021].

Trolle Gronemann, S., Kristiansen, E. and Drotner, K., 2015. Mediated co-construction of museums and audiences on Facebook [online]. *Museum Management and Curatorship* 3, pp. 174–90. Available from: https://doi.org/10.1080/09647775.2015.1042510. [Accessed 26 March 2019].

Van Dijck, J., and Poell, T., 2013. Understanding social media logic. *Media and Communication* 1(1), pp. 2–14.

Weil, S. E., 1999. From being about something to being for somebody: The ongoing transformation of the American museum. *Daedalus* 128(3), pp. 229–258.

Weilenmann, A., Hillman, T. and Jungselius, B., 2013. Instagram at the museum: Communicating the museum experience through social photo sharing [online]. *CHI '13: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York: ACM, pp. 1843–1852. Available from: https://doi.org/10.1145/2470654.2466243 [Accessed 26 March 2019].

Wu, H.-C. and Li, T, 2015. An empirical study of the effects of service quality, visitor satisfaction, and emotions on behavioral intentions of visitors to the museums of Macau. *Journal of Quality Assurance in Hospitality & Tourism* 16(1), pp. 80–102.

Xiao, Z., Yuan, X., Liao, Q. V., *et al.*, 2023. Supporting qualitative analysis with large language models: Combining codebook with GPT-3 for deductive coding [online]. *Companion Proceedings of the 28th International Conference on Intelligent User Interfaces*, pp. 75–78. Available from: https://doi.org/10.1145/3581754.3584136 [Accessed 24 August 2023].

Ziems, C., Held, W., Shaikh, O., *et al.*, 2023. *Can large language models transform computational social science?* [online]*. arXiv:2309.00616v1 [cs.CV]* Available from: https://doi.org/10.48550/arXiv.2305.03514 [Accessed 24 August 2023].