



Center for Research in Economics, Management and the Arts

A policy proposal to deal with excessive cultural tourism

Working Paper No. 2021-31

CREMA Südstrasse 11 CH - 8008 Zürich www.crema-research.ch



A policy proposal to deal with excessive cultural tourism

Bruno S. Frey & Andre Briviba

To cite this article: Bruno S. Frey & Andre Briviba (2021) A policy proposal to deal with excessive cultural tourism, *European Planning Studies*, 29:4, 601-618, DOI: [10.1080/09654313.2021.1903841](https://doi.org/10.1080/09654313.2021.1903841)

To link to this article: <https://doi.org/10.1080/09654313.2021.1903841>



Published online: 02 Apr 2021.



Submit your article to this journal [↗](#)



Article views: 164





View related articles [↗](#)



View Crossmark data [↗](#)



A policy proposal to deal with excessive cultural tourism

Bruno S. Frey ^{a,b} and Andre Briviba ^b

^aPermanent Visiting Professor, University of Basel, Basel, Switzerland; ^bCREMA, Center for Research in Economics, Management and the Arts, Zürich, Switzerland

ABSTRACT

This paper presents a proposal to deal with cultural overtourism causing substantial negative effects. They burden the local population, tourists, and the natural environment by overcrowding, vandalism, and pollution. While at present tourism is suppressed by governments due to the COVID-19 pandemic, it will likely become a major issue again in the future. Our proposal allows us to think about the way cultural tourism should be organized in the future and how to mitigate the negative externalities affecting cultural heritage as well as the local population and the natural environment. As an innovation to overcome these problems, the heavily visited historical sites are to be replicated in a suitable nearby location. Advanced digital technology such as augmented and virtual reality, holograms, and digital twins are to be used to make the cultural sites attractive to all sorts of tourists.

ARTICLE HISTORY

Received 15 February 2021
Revised 21 February 2021
Accepted 24 February 2021

KEYWORDS

Overtourism; innovation;
Revived Original; copy;
digital technology

Subject classification codes



D62; P48; Z10; Z18; Z38; Z30

1. Introduction

The Corona-Pandemic has produced huge changes in tourism. The policy measures undertaken by governments have essentially blocked international travel. In many countries, even local travel was forbidden or severely restricted as the population was forced, or at least asked, to stay at home. The government policies closed down museums, galleries, theatres, and prohibited art festivals and other artistic activities. While during the past decade, ‘Cultural Overtourism’ was dominant, the policy reactions to the COVID-19 all of a sudden produced ‘Cultural Undertourism’. However, it can be expected that national and international tourism will recover sooner or later. As a result, Cultural Overtourism remains a crucial issue. The period of low tourism allows us to think about the way cultural tourism should be organized in the future and how to mitigate the deterioration of cultural heritage, impacts on the local population, and environmental consequences.

1.1. Cultural overtourism

During the decades since the end of the Second World War, in many countries, tourism constituted a vital part of the economy. A large number of persons depend on tourism in

CONTACT Bruno S. Frey  bruno.frey@bsfrey.ch  Permanent Visiting Professor, University of Basel, Peter-Merian-Weg 6, Basel, Switzerland; CREMA, Center for Research in Economics, Management and the Arts, Südstrasse 11, Zürich, Switzerland

a variety of ways. In 2019, the travel and tourism sector accounted for approximately 10.3% of global GDP, and 330 million jobs were connected to this industry worldwide (World Travel & Tourism Council 2020). The local population received directly or indirectly substantial incomes from activities relating to tourism, raising its standard of living (Belisle and Hoy 1980; Tosun 2002). Up to the beginning of 2020, tourism has been so important that in many quarters the term ‘Overtourism’ has become popular.

Tourism and culture are closely related. A large number of tourists visit famous museums. This applies, for instance, to the Musée du Louvre in Paris, the Prado and Reina Sofia in Madrid; the Museum Island in Berlin, and the Vatican Museums in Rome, as well as to the Tate Modern, the National Gallery, and the British Museum in London. A vast number of cultural tourists also visit cities such as Venice, Dubrovnik, Salzburg, Granada, or Pisa. Some smaller places such as San Gimignano in Italy, Hallstatt in Austria, Riquewihr in France, or Stratford-upon-Avon in the United Kingdom are totally overrun by cultural tourists. Heavily frequented cultural sites outside Europe are, for example, the Great Wall in China, Taj Mahal in India, Angkor Wat in Cambodia, or Macchu Picchu in Peru. These, and many other sites, are listed in the World Heritage List (Frey and Pamini 2009).

‘Overtourism’ has harmful consequences on the local population, on tourists, and on the natural environment, as documented in many academic studies (Koens, Postma, and Papp 2018; Milano 2019; Nofre et al. 2018; Séraphin et al. 2019). The negative effects of *Cultural Overtourism* have been less analysed (Adie, Falk, and Savioli 2019; Perkumienė and Pranskūnienė 2019), though they are manifold and substantial.

1.1.1. Atmosphere

Cultural Overtourism tends to endanger or even destroy the authenticity tourists seek and associate with a cultural site. In a survey taken in March 2019, 95% of tourists emphasized that an ‘authentic atmosphere’ is of great importance to them, while 91% said so about artistic sites and museums (Möller 2019). To a large extent experiencing an authentic atmosphere is close to wishful thinking because in most cultural sites the atmosphere has been crowded out by the negative consequences of overtourism. They thus are only able to seek for an idea of authenticity.

The huge tourist flows endanger the identity of the local population. It is no longer able to form a community as tourists dominate meeting places, such as bars and restaurants in central squares. As a result, hostility between locals and tourists may arise. As a consequence, many residents prefer to rent out their apartments on a platform such as Airbnb, allowing them to increase their income significantly. They migrate to the outskirts of cities.

Crime and disrespectful behaviour also determine the atmosphere of a cultural site. The large number of tourists increases criminal activities and inappropriate behaviour. The former becomes more prevalent in the form of commercially organized begging and pick pocketing. According to the literature, property crimes such as robberies, burglary, and frauds are positively connected with increasing tourism, most often affecting tourists as victims (Biagi and Detotto 2014). Inappropriate behaviour can negatively affect both locals and tourists, for instance, when tourists are sitting on the ground close to famous cultural monuments, eating their food, and leaving waste behind (Serafin, Sheeran, and Pilato 2018).

1.1.2. Destruction of cultural sites

The large number of tourists also leads to an overuse of art sites. Machu Picchu was visited by around 6,000 tourists every day. In Machu Picchu, and similarly, in Angkor Wat, the historic paths were so heavily worn that wooden planks had to be inserted (Larson and Poudyal 2012; OECD/ICOM 2019). As a result, Machu Picchu was included in the list of the most rapidly destroyed sites on the World Heritage List (Hawkins, Chang, and Warnes 2009). However, other forms of destruction of cultural sites are also documented. As seen in Ihwa Mural Village, Seoul, residents expressed their dissatisfaction towards overtourism by tearing down two of the most visited cultural sites (Park and Kovacs 2020).

1.1.3. Ecological costs

Noxious pollution, other emissions, and waste are strongly increasing due to Cultural Overtourism. Noise is also harassing the local inhabitants and other tourists. Venice provides a striking example. As a result of emissions from cruise ships, whose engines also run when they are anchored in port, the air quality in the city is actually very poor, and the exhaust fumes damage the buildings (Asero and Skonieczny 2018).

1.2. Cultural undertourism

The lockdown of tourism entirely stopped Overtourism; the present situation can be called 'Undertourism'. The situation in the best-known places of cultural overtourism has been totally reversed. It can be expected that it will change again in the future. The tourist industry engages in strong lobbying efforts to attract back as many visitors as possible. Some studies expect a rather quick recovery, while others suggest that it will take considerable time (Hall, Scott, and Gössling 2020).

The Cultural Undertourism now existing allows us to reconsider the way visits to artistic sites should be managed. The present measures have not been as effective as expected (Frey and Briviba 2020). They are based on raising prices (following economists' advice) and imposing restrictions with respect to time and space. The harm caused by the vast number of visitors to cultural sites must be taken into account. Our paper proposes to establish Revived Originals in order to address the problems caused by Cultural Overtourism. This proposal seems at first to be rather unconventional, and perhaps even revolting. However, it may overcome some of the pernicious effects on culture produced by mass tourism.

This paper proposes a solution to cultural overtourism called *Revived Originals*. This proposal may be able to overcome some of the negative effects on culture produced by mass tourism. Revived Originals consists of two elements: (1) identically reproducing cultural sites wholly or partly in a more convenient location (Section 3), and (2) attracting visitors by offering them cultural and historical knowledge pertaining to this location using the most advanced digital technologies (Section 3.1 and 3.2). Section 3.3 emphasizes the benefits of combining replicas and technological means. The concept of Revived Originals is applied illustratively to Venice in Section 3.4. The following section (4) looks at existing replicas, which suggests that the difference between originals and copies is indeed blurred. Section 5 advances policy conclusions.

1.3. Related work

The recent increase in academic research concerning overtourism followed the extensive media coverage of this topic. Based on the Web of Science, from 2017 to 2018 and up to 2019, the number of academic publications about overtourism, increased from 1 to 13 up to 90 (Web of Science 2020). The catalysts for the media interest are likely to be the extensively discussed anti-tourism movements, tensions between residents and tourists, and the resulting negative external effects described in the introduction. While in the beginning overtourism was simplified understood as a vast number of tourists in a specific location (Cheung and Li 2019). The UNWTO now defines overtourism as ‘the impact of tourism on a destination, or parts thereof, that excessively influences perceived quality of life of citizens and/or quality of visitors experiences in a negative way’ (UNWTO 2018, 4). This definition is in line with the scholarly understanding and differentiates it from mass tourism, where, for instance, the quality of experience is not at stake (Milano, Novelli, and Cheer 2019; Seraphin, Sheeran, and Pilato 2018; Veríssimo et al. 2020).

The recent academic contributions also shed light on the various impacts of overtourism, which can be categorized into three areas: economic, social, and natural environment. Firstly, economic effects include the price increase in land and housing but also a shift towards tourism-oriented supply, resulting in higher prices (Cardoso and Silva 2018; Martín Martín et al. 2018).

Secondly, social effects are characterized by tensions or even conflicts with residents and support the development of a decreasing amount of local people living in the respective area. This decrease has been empirically shown for Venice, Italy, and Porto, Portugal, but is likely to be representative for many more destinations (Cardoso and Silva 2018; Casagrande 2016). Already in the 1970s, Pizam investigated negative impacts of excessive tourism in the form of perceived social costs to destination communities. Pizam’s (1978) results were in line with the overall scholarly consensus at that time, that implications of (over)tourism include environmental degradation and induce resident’s aversion towards tourists (Forster 1964; Koens, Postma, and Papp 2018). Postma and Schmuecker (2017) differentiate various potential fields of conflict between tourists and residents in the urban context. They emphasize the importance of destination-specific solutions and that the public discussions typically start with one, highly visible, field of conflict.

Anti-tourism movements are an obvious indicator of social conflicts and receive increasing attention in academia covering resident’s perspectives, urban contexts, and cultural heritage destinations (Cassinger 2019; Kim and Kang 2020; Olya, Shahmirzdi, and Alipour 2019; Robinson 2015). In Barcelona, various groups such as the Barceloneta Neighbourhood Association or the Barceloneta Says Enough group have formed in the past years based on the common ground to protest against overtourism (Hughes 2018; Séraphin et al. 2019). In Hallstatt, Austria, where the resident’s houses are part of the tourist attraction, locals report increasingly intense interferences with their private life (Benz 2019; Kennedy 2020).

Thirdly, several studies have investigated the impact on the natural environment, which include the increased pollution caused by the masses of tourists (Seraphin, Sheeran, and Pilato 2018). Although cruise ships are only prevalent in certain locations, these are associated with a higher rate of respiratory and cardiovascular diseases in the

local population. These diseases are linked to emitted sulfate aerosols and fine particles, which not only harm human health but additionally cause acid rain and acidification of the seas (Abbasov et al. 2019; Kuščer and Mihalič 2019).

1.3.1. *Tourism and COVID-19*

The COVID-19 pandemic has affected the tourism sector enormously and practically stopped travel and tourism completely for a substantial amount of time. The current situation has major consequences, especially for vulnerable and heavily tourism dependent communities (Evelyn 2020; Kazmin 2020). While many sectors have been strongly hit, recovery plans by the UNWTO and individual governments signal some hope to ‘grow back better’ (UNWTO 2020, 1). Measures include Coronavirus job retention schemes, as the Coronavirus Business Interruption Loan Scheme implemented in the United Kingdom. As the self-explanatory name suggests, the scheme is designed to facilitate access to financial support under generous conditions such as reduced interest rates. Also, tourism specific measures are taken by heavily tourism dependent countries such as Spain and Portugal. The former government granted a quarterly exemption of 50% to the employer’s social security share for workers tourism related business. Portugal allocated an amount of 60 million Euro to support tourist microenterprises. In addition, advisory teams were created to assist, e.g. the Turismo de Portugal to facilitate the communication with tourists and tourism entrepreneurs (OECD 2020a, 2020b).

The recovery period after a disaster happened depends on a variety of factors including the type, extent, consequences for infrastructure, or even emerging psychological biases (Rosselló, Becken, and Santana-Gallego 2020). Based on Chinese tourist data from the SARS pandemic, Polyzos, Samitas, and Spyridou (2020) project a recovery time of about one and a half years to reach pre-COVID-19 levels. In contrast, Gudmundsson, Cattaneo, and Redondi (2020) estimate the recovery of air transport passenger levels to last for about 2.4 years. While their most optimistic scenario predicts a recovery time of 2 years, the most pessimistic one predicts 6 years. Either way, it seems that the question is not if the world will recover from this crisis but rather when. Thus, overtourism with all its negative external effects on cultural heritage and local residents will likely appear again.

2. Research aim

Cultural overtourism causes substantial negative effects burdening the local population, tourists, cultural heritage, and the natural environment by overcrowding, vandalism, and pollution. While at present tourism is suppressed by governments due to the COVID-19 pandemic, it will likely become a major issue again in the future. This paper evaluates how cultural tourism should be organized prospectively and intends to introduce a novel idea into cultural policy. With the goal of providing an alternative for tourists and to save historical sites doomed to destruction by overtourism, heavily visited historical sites are to be replicated in a suitable nearby location. Another aim of this proposal is to stimulate the discussion about new solutions to the issues of overtourism, in contrast to the existing measures so far.

3. Revived originals

The idea of Revived Originals consists of two main elements:

- (1) Cultural sites are identically reproduced in a more convenient location.
- (2) Visitors are attracted to the newly established Revived Originals by offering them cultural and historical knowledge using the most advanced digital techniques.

Such technologically modernized Revived Originals have several major advantages to address today's overtourism. First, they offer tourists a valuable alternative to visiting the original sites, which are, in turn, saved from the negative external effects mentioned. At the same time, the Revived Originals offer the local tourist industry new opportunities for businesses, working places, and profits.

3.1. Revived originals: copying and enriching cultural sites

We propose to offer tourists a convenient alternative to totally overcrowded cultural sites likely to occur again in the future. The most important sites to cultural tourists are to be copied in a suitable location. With proper infrastructure, Revived Originals are easy to reach by visitors and affect locals as well as the natural environment only to a minor extent. Most importantly, the cultural and historical background is to be emphasized and integrated into the replica. For that purpose, the most advanced digital technologies are to be implemented. Influential personalities associated with the history of a site are presented by virtual reality and holograms, even interacting with the visitor. Revived Originals offer an attractive possibility for visitors because they provide them with additional value by first, combining various sites in one location and by second, shedding light on the times in which the structures were built. Our proposal also includes amenities such as hotels, restaurants, and shopping opportunities valued by tourists. The aim of Revived Originals thus is not just to passively reconstruct the major buildings but to explicitly offer a vivid cultural and historical experience to tourists. Many tourists prefer such a lively introduction, reflected by the growing trend of edutainment (Geissler, Rucks, and Edison 2006; Jovicic 2016), compared to the original places about whose history and culture they have little, or no knowledge.

The Revived Originals can be established either by public entities or by private entrepreneurs. In many cases, a public-private-partnership (PPP) seems to be the most suitable institutional form. By setting appropriate entry fees, the division of tourist flows between the 'original' sites and Revived Originals can be steered. In the case of Revived Originals, it can be expected that most visitors will be glad to compensate for the historical and cultural edutainment presented with the most modern technology.

The tourist flow will split up to the two locations: the original and the revived one. Tourists preferring to visit the original site are not hindered from doing so, they also benefit from fewer visitors. People preferring a vivid historical experience will choose the Revived Originals. The two locations do not claim to be perfect substitutes.

3.2. Reviving by digital technology

The identically reproduced cultural sites are supported by modern digital technology. This offers the possibility to create a very similar impression for the tourists as at the original site. To achieve this level of similarity and acceptance, the most modern digital technology must be used (Aichner et al. 2019; Daponte et al. 2014).

Digital means are increasingly used to consume cultural goods, in a broad sense, as illustrated in Figure 1. It shows the monotonously increasing trend of internet usage for cultural goods in Germany, France, Italy and the European average from 2002 to 2014. In line with this development, the supply of cultural goods in the form of digital technology seems to be appropriate. Advances in technology offer large potential benefits in the museum sector as shown by various research (Patias et al. 2008; Sinclair et al. 2003; Sylaiou et al. 2009). In contrast to the slow implementation of websites or other digital forms of knowledge in many institutions such as museums, Revived Originals would benefit from the newest developments.

Computer-generated objects (i.e. by augmented reality) can supplement real buildings, other sites, or individual artefacts. The created spaces thus appear so convincing that they cannot be distinguished from the objects in the real world. The real and digital objects coexist simultaneously and merge. These Revived Originals have a triple dimension (3D) and are experienced in real-time. In recent years, technological progress enabled an improvement in augmented reality. Applications in cultural heritage were already implemented and evaluated as a success (Duval et al. 2019; Wong and Quintero

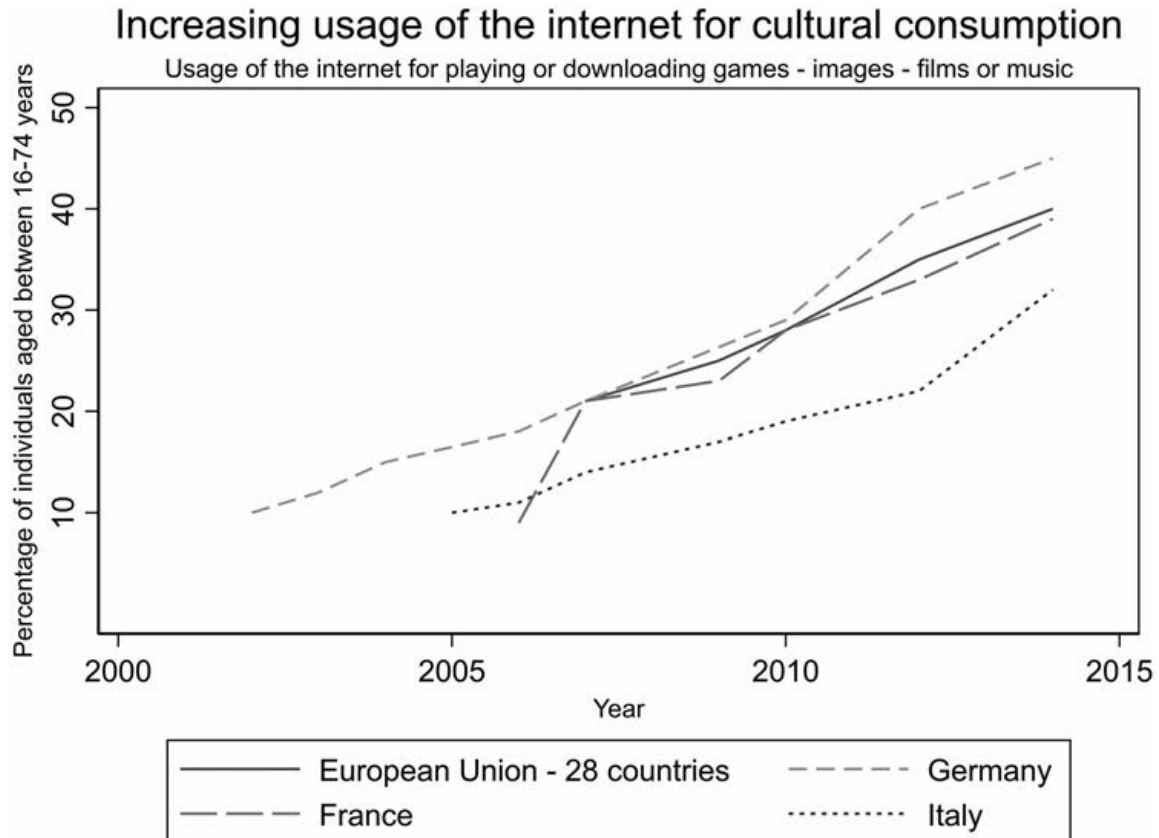


Figure 1. Increasing usage of the internet for the consumption of cultural goods such as games, images, films or music from 2002 to 2014. Source: Eurostat, data code: TIN00032.

2019). It is expected that this development will continue in the future as technological improvements are made continuously. The perceived difference between conventional and augmented reality is, therefore, becoming smaller and smaller.

The replicated cave in Altamira, Spain, is another example of a replica applied to cultural heritage. Here, the original caves were closed to the public because of the continually damaging influence of humans in form of exhaust, temperature, and microorganism which were harming the prehistoric paintings (Saiz-Jimenez et al. 2011). The new head-quarter of the museum and research centre, including the replicated cave, (Neo-cave) opened in 2001. This Neo-cave represents an example of a physical copy which was constructed with immense involvement of digital technology. The visitor numbers shown in Figure 2. indicate that the visitors' interest and acceptance of this replica exists and is even larger than before.

At the same time, visitors have the opportunity to navigate in an artificially created three-dimensional environment. In this virtual reality, they can interact within the Revived Originals. Visitors can select the aspects that suit them most and communicate with them. All five senses can be addressed, including, for example, the smells or sounds typically associated with a city or region.

In an augmented reality digital objects are projected into the physical world and can make personal devices obsolete. However, to immerse oneself into virtual reality requires an exchange of information between the brain and the created reality. Soon it will no

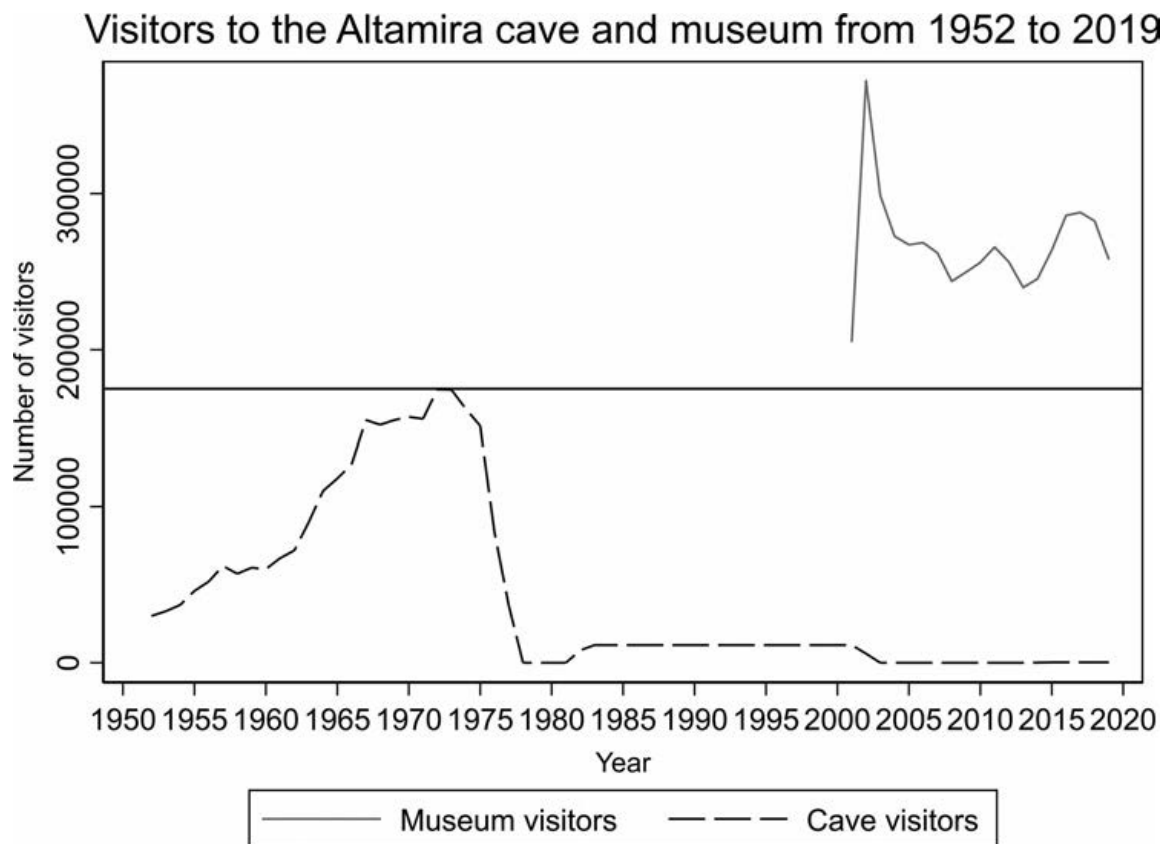


Figure 2. Development of visitor numbers to Altamira's prehistoric cave and to Altamira's Museum with the replicated cave. Maximum of yearly visitors to the original cave is indicated with the horizontal line on a level of 174 613 visitors in 1972. Source: The data was made available by the Altamira National Museum and Research Centre.

longer be necessary to put an apparatus over one's head to immerse into virtual reality. As the next step, this can be facilitated by specifically designed smartphones and even by smart contact lenses, closing the distance between the brain and the devices (Kim, Cha, and Park 2020; Perry 2020). In the future, it might even be possible to do without them, meaning that the border dividing conventional and artificial reality vanishes.

In general, digital technology facilitates the immersion in the cultural site for visitors and thus enables them to experience the sites intensively. Digital artistic artefacts can take a wide variety of forms (Arnold 2017). For example, videos, 3D copies, digital overviews (digital surveying, in which distances are recorded electronically and placed in an overall context), radar systems, which can be used to break through surfaces, global positioning systems (GPS), heat sensors and acoustic measuring systems can be used.

A good example of how destroyed cultural sites can be reconstructed using virtual techniques was shown in 2018/19 by an exhibition at the Institut du Monde Arabe in Paris. This exhibition was subsequently taken over by the Bundeskunsthalle in Bonn. With large-format projections, visitors are led into the heart of the three legendary ancient metropolises of Mosul, Aleppo, and Palmyra, which were devastated by Islamic terrorists. The exhibition also included Leptis Magna, which is severely damaged due to other problems (Clemente-Ruiz, Aloudat, and Institut du monde arabe 2018). In this way, the universal heritage of humanity is not completely lost even after destruction. The ability to create digital artefacts is already quite advanced and will improve in the future (Greengrass and Hughes 2008).

In line with the aim of Revived Originals, the 'Venice Time Machine' is a digital project designed to allow people to dive into the past of Venice. It is considered a leading project in the digital humanities. With the help of the gigantic State Archive of Venice, which has extensive sources spanning centuries, a complete history of the lagoon city can be reconstructed. This approach allows visitors to wander digitally through the city in different eras and, for instance, watch craftsmen building the Doge's Palace or sailings ships for the Venetian fleet. The course of epidemics or the functioning of the Venetian financial market can also be experienced in this way. However, it remains to be seen whether the Venice Time Machine project can be completed successfully. Controversies between the parties involved, the University EPFL Lausanne and the State Archives of Venice, about the methods and prospects of success of digitization, jeopardize this project (Abbott 2017; Castelveccchi 2019). However, it demonstrates in what way digital methods can be used to bring a Revived Original to life.

Holograms can also be utilized in a beneficial way. If they are appropriately implemented, there is little or no way to differentiate between a person that is actually standing in front of you or just the hologram of a person. Along these lines, historical events can be brought to life.

Holographic Augmented Reality is, as the name suggests, a combination of augmented reality and holograms. This technology enables a three-dimensional experience with the help of a headset. Using gestures, visitors can even move artefacts in virtual space. This interactivity allows a closer and more eventful examination of the cultural or historical artefacts. TombSheer is such a Holographic AR application that provides insight into the Egyptian 'Tomb of Kitines' in the Royal Ontario Museum. The previously passive observer can now actively participate and form their experience. Combining classical

information acquisition and movement enhances the learning effect (Pedersen et al. 2017).

Digital twins surpass holograms in a variety of aspects as they represent more than a mere copy of an original. They take on a life of their own and are connected to themselves by a large number of sensors. They are constantly evolving, creating a flood of new data (Batty 2018; Economist 2020). Thanks to their close connection with artificial intelligence, they can recognize objects and the faces, language, and even smells of visitors to cultural sites. Interactions with tourists could also be realized, enhancing the visitors' experience. In 2019, another application of digital twins was broadcasted to about one billion people in China. The hosts of the Spring Festival Gala were accompanied by their own digital twin equipped with personal artificial intelligence, including inter alia natural language processing and speech synthesis (Forbes 2019). This opens up many additional opportunities for Revived Originals in the future.

Both the historical development and the artistic significance of a cultural site can be conveyed. Whoever visits a Revived Original can experience an appealing and close inter-relationship in contrast to the experiences of many travellers who have little or no knowledge of the history and artistic significance.

Different experiences, according to their interests and educational background, can be offered to the visitors of Revived Originals. Children may be attracted by digital presentations emphasizing aspects suitable to their age; other presentations may be designed with a focus on history or on specific cultural aspects such as music, paintings, or literature. As a consequence, an exchange of impressions and challenging discussions between various visitors can arise, for instance, between children and parents of a family who were exposed to different facets of a cultural site. Such differences raise both the enjoyment and benefits of a visit to Revived Originals and have the potential to remain longer lasting in memory. Such differentiation in experiences and knowledge generation provides another clear advantage compared to the old originals.

By means of digital reality techniques, the transition from the reproduced buildings to an environment corresponding to the original can be implemented in an imperceptible way. Visitors find it difficult, or even impossible, to determine where the reproduced buildings end and where they are complemented by a virtual representation.

3.3. Replica enriched by digital technology

The extent to which buildings should be replicated, and digital technology used depends on the specific art site that is subject to Cultural Overtourism.

Two extreme cases can be distinguished. One extreme is when a Revived Original focuses on replicating buildings, largely dispensing with augmented and virtual reality. In that case, Revived Originals are similar to existing theme parks such as the Disneylands. At the other end of the spectrum, Revived Originals can establish the relationship of the site to history and culture solely by using digital technology. Here, art shifts completely into virtual space. In accordance with Nunes and Cooke (2021), this variant of Revived Originals may seem unusual today but offers innovative possibilities in the post-coronavirus era.

In most cases, the reproduction of buildings and the use of digital technology will go hand in hand. Virtual reality allows an imperceptible transition from the reproduced

buildings to an environment corresponding to the original site. For example, the view of the Gran Canal from the Rialto Bridge in Venice can be displayed virtually. Visitors of the Revived Original find it difficult, or even impossible, to determine where the reproduced buildings end and where they are complemented by a virtual representation.

The multimedia exhibition ‘Van Gogh Alive’, which has been shown with great success on six continents and in 130 countries, demonstrates impressively how modern digital technology can be used. The work of this unique painter, already known to a wide audience through a famous film, is presented to visitors through a combination of light, colour, and music. The works of van Gogh are brought to life in large-screen projections. They give the viewer the feeling of being right in the middle of his paintings. In addition, visitors can learn from which sources and experiences the painter was inspired. In this way, the visitors are involved in the events.

In contrast to the entertainment industry, public settings are rather hesitant to implement current achievements in e.g. Virtual Reality technology or edge-cutting technology in general (Roussou 2004). However, some informal educational institutions such as museums have implemented advanced technological means to enable visitors to interact or even immerse themselves in Virtual Reality. One successful example is the virtual reality theatre in the National Science Museum, Korea, where not even headsets are needed to enjoy the full experience (C. Park et al. 2002).

The positive influence of interactivity on learning is supported widely in the literature (Amthor 1992; Jonassen 2000). Such interactivity can be expressed as actively constructing knowledge through experience and engagement and is known as constructivism (Hein 1999). Meanwhile, another important determinant for learning and children’s development was found to be social interaction (Vygotsky 1980). Thus, the implementation of digital twins of historical personalities, which are equipped with artificial intelligence, fosters the learning process in cultural heritage settings by personalization and interaction.

3.4. Venice as a revived original

The city of Venice – one of the most visited cultural cities in the world (Davis, Marvin, and Garry 2004; Seraphin, Sheeran, and Pilato 2018) and also much burdened by Overtourism (González 2018) may serve as an example to illustrate how a Revived Original might be conceived.

Many of visiting Venice know little or nothing about the cultural importance of this lagoon city. The buildings reproduced and the digital technology used must be closely linked to the history and artistic significance of this cultural site. The visitors can be made part of a historical process in an easily accessible way. The Revived Original of Venice can show how this city was created and developed over the centuries. The historical and cultural knowledge conveyed in this way provides the visitors of the Revived Originals with additional benefits. This overall experience distinguishes the Revived Originals from the original sites that are negatively affected by cultural overtourism.

The greatest attractions of Venice are the Doge’s Palace, the Saint Marcus Church, the Tower and the Square of San Marco, as well as the Rialto Bridge situated over the Grand Canal. These buildings could be replicated and put in a suitable location somewhere on the Italian or Balkan coast. The identically copied structures must be complemented by vivid digital representations of important occasions that happened in the city. The history

of the Republic of Venice extends over a thousand and one hundred years and provides rich material for capturing events represented by virtual techniques. The life of composers such as Antonio Vivaldi, Tomaso Albinoni or Claudio Monteverdi can be illustrated; the works of painters such as Giovanni Bellini, Titian, Tintoretto, or Giovanni Tiepolo can be shown; the situation in which Carlo Goldoni wrote his plays can be described; or Marco Polo travelling in territories unknown in his time. Holograms can be used to represent these personages even more vividly.

4. Discussion

Our proposal to replicate cultural sites and to equip them with augmented and virtual reality might appear unorthodox at first. But this should be compared to the most common approaches considered and partly implemented by governments to reduce overtourism. Experience shows that such public interventions designed to cope with Cultural Overtourism do not work well. The most popular ones are to limit the number of visitors or restricting the times of admission and length of stay. Entry fees have also been suggested and have sometimes been used to curb Cultural Overtourism. For example, to visit the Machu Picchu visitors must pay 40 Euros. Entry fees can rarely be applied to restrict Overtourism in cities. Most cultural cities have many entry points. Venice and Dubrovnik are rare exceptions; these two cultural cities have only one or two entry points.

Especially for many well-educated and culturally interested people, Revived Originals will induce repulsive emotions, and they may consider it even presumptuous. They definitely prefer to visit the original and not a (partial) copy. However, it should be taken into account that it is difficult, and sometimes impossible, to distinguish an 'original' from a 'copy' (Frey 2003, Ch. 12, with many references). There are many examples in art history where this distinction is fuzzy not only for ordinary people but also for culturally interested people. The famous Disc Thrower (Discobol) by Myron in the Museo Nazionale Romano is a copy produced in Roman times. The 'Last Supper' in the church Santa Maria Delle Grazie (Milan) was unfortunately painted in a way that it began to flake after a few years. Over the past centuries, it has been repainted so often that little of it remains from the hand of Leonardo da Vinci (Brambilla Barcilon and Marani 2001). Modern artists such as Salvador Dali intentionally wiped out the difference between original and copy. Revived Originals pursue a different aim. Most importantly, they employ copies and digital technology to save the originals and to introduce otherwise barely knowledgeable tourists to the cultural richness of humanity.

It is not unprecedented that copies are employed for tourist purposes. Known examples are the prehistoric caves and paintings of Altamira, Chauvet-Pont-d'Arc, and Lascaux. They show prehistoric paintings in their caves. Due to the large number of cultural tourists, the caves had to be closed because the exhaust damaged the paintings. Since then, tourists visit copies of the identical paintings in nearby artificially carved caves (Duval et al. 2019; Jones and Elliott 2019).

Revived Originals may be seen as another version of the Disneylands or the Europapark in Rust, Germany, or of the Venetian Grand Canal in Las Vegas and, more recently, in Macau. However, these replicas do not copy the original in size and quality and do not put them into historical context. They, therefore, differ fundamentally from the goals of Revived Originals.

The exhibition presented in the Louvre of Paris on the occasion of the 500th anniversary of Leonardo da Vinci's death in 2020 not only shows some important paintings by this genius but also endeavours to convey his entire oeuvre to visitors. Various masterpieces, such as the 'Madonna with the carnation', 'Cecilia Gallerani' and also 'Ginevra de' Benci' could not be exhibited because they are no longer transportable. However, they are shown as infrared images in their original size. Only the 39th painting in the exposition is a real painting of da Vinci. Nevertheless, the exhibition was a huge success; there were no less than 1.1 million visitors. According to the museum, this is a historical record. Never before has an exhibition attracted so many people interested in art. This shows the great possibilities of using modern digital technology to deliver the aura of artworks.

5. Conclusions

Revived Originals are not the philosopher's stone to all overtourism related issues. Our proposal deals with a specific aspect of cultural policy (Throsby 2010) integrating cultural economics (e.g. Towse and Hernández 2020) and tourism policy. We certainly acknowledge some drawbacks with respect to the implementation of this idea. First, we cannot predict how well accepted Revived Originals will be. Although, the current development towards a more frequent use of digital means to consume culture offers future research opportunities to investigate this acceptance. Second, finding a suitable location and the substantial investments needed are an obstacle. Third, resistance from local tourism related businesses and some benefiting individuals from the current situation is to be expected. However, we believe that this proposal could counter many of the existing and likely rebounding issues created or fuelled by overtourism.

Revived Originals are not designed to reduce the demand for visiting cultural sites but rather to increase supply. They separate two flows of cultural tourists. Many visitors can be expected to be interested in the lively and enjoyable presentation of cultural sites over the course of history. This applies to all those tourists who do not have in-depth knowledge of the history of a particular cultural site. Revived Originals will also be attractive to the great number of tourists who can allocate only a little time for a country or for a particular cultural place.

Tourists genuinely interested in culture are still able to visit the original sites. As many tourists are more attracted to the Revived Original, the atmosphere in the original places will become more appealing. Fewer tourists are overcrowding the sites. The negative external effects of Cultural Overtourism are avoided. Revived Originals thus have several important advantages over the type of Cultural Overtourism existing in the past that produced significant social, economic, and cultural costs. Revived Originals offer tourists a valuable alternative to visiting the originals. They provide a 'genuine' historical experience at low cost and little stress.

Acknowledgements

We are grateful for helpful suggestions to Karlis Briviba, Reiner Eichenberger, René L. Frey, Jonas Friedrich, Jürg Helbing, David Iselin, Vanessa Kasties, Wolf Linder, Margit Osterloh, Bernd Roeck, Eric Scheidegger, Andreas Spillmann, Armin Steuernagel, and Alois Stutzer.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Bruno S. Frey  <http://orcid.org/0000-0001-5380-6655>

Andre Briviba  <http://orcid.org/0000-0002-7113-5733>

References

- Abbasov, F., T. Earl, N. Jeanne, B. Hemmings, L. Gilliam, and C. Ambel. 2019. "One Corporation to Pollute Them All, Luxury Cruise Air Emissions in Europe." *Transport & Environment European Federation for Transport and environment AISBL*.
- Abbott, A. 2017. "The 'Time Machine' Reconstructing Ancient Venice's Social Networks." *Nature* 546 (7658): 341–344. doi:10.1038/546341a
- Adie, B., M. Falk, and M. Savioli. 2019. "Overtourism as a Perceived Threat to Cultural Heritage in Europe." *Current Issues in Tourism* 23 (14): 1–5.
- Aichner, T., O. Maurer, M. Nippa, and S. Tonezzani. 2019. *Virtual Reality Im Tourismus*. Wiesbaden: Springer.
- Amthor, G. R. 1992. "Multimedia in Education: An Introduction." *THE Journal (Technological Horizons in Education)* 19 (10): S32.
- Arnold, D. 2017. "Digital Artefacts: Possibilities and Purpose." In *The Virtual Representation of the Past*, edited by Mark Greengrass and Lorna Hughes, 160–170. London: Routledge.
- Asero, V., and S. Skonieczny. 2018. "Cruise Tourism and Sustainability in the Mediterranean. Destination Venice." In *Mobilities, Tourism and Travel Behavior Contexts and Boundaries. InTech*, edited by Leszek Butowski, 93–106. Rijeka, Croatia: InTech.
- Batty, M. 2018. *Digital Twins*. London, England: SAGE Publications Sage UK.
- Belisle, F., and D. Hoy. 1980. "The Perceived Impact of Tourism by Residents a Case Study in Santa Marta, Colombia." *Annals of Tourism Research* 7 (1): 83–101. doi:10.1016/S0160-7383(80)80008-9
- Benz, M. 2019. "Wie Hallstatt sich gegen die chinesische Touristenflut wehrt." *Neue Zürcher Zeitung*, August 23. <https://www.nzz.ch/wirtschaft/hallstatt-ein-dorf-wehrt-sich-gegen-overtourism-aus-china-ld.1501634>
- Biagi, B., and C. Detotto. 2014. "Crime as Tourism Externality." *Regional Studies* 48 (4): 693–709. doi:10.1080/00343404.2011.649005
- Brambilla, B. P., and P. C. Marani. 2001. *Leonardo: The Last Supper*. Chicago: University of Chicago Press.
- Cardoso, C., and M. Silva. 2018. "Residents' Perceptions and Attitudes Towards Future Tourism Development: A Challenge for Tourism Planners." *Worldwide Hospitality and Tourism Themes* 10 (6): 688–697. doi:10.1108/WHATT-07-2018-0048
- Casagrande, M. 2016. "Heritage, Tourism, and Demography in the Island City of Venice: Depopulation and Heritagisation." *Urban Island Studies* 2: 121–141. doi:10.20958/uis.2016.6
- Cassinger, C. 2019, October 23–25. "Communicating Anti-Tourism–Movement, Protest, Phobia." Paper presented at the 28th nordic symposium on tourism and Hospitality research, Roskilde, Denmark.
- Castelvecchi, D. 2019. "Venice 'Time Machine' Project Suspended Amid Data Row." *Nature* 574 (7780): 607. doi:10.1038/d41586-019-03240-w
- Cheung, K., and L. Li. 2019. "Understanding Visitor–Resident Relations in Overtourism: Developing Resilience for Sustainable Tourism." *Journal of Sustainable Tourism* 27 (8): 1197–1216. doi:10.1080/09669582.2019.1606815
- Clemente-Ruiz, A., N. Aloudat, and Institut du monde arabe. 2018. *Age-old Cities: A Virtual Journey from Palmyra To Mosul*. Hazan.

- Daponte, P., L. Vito, F. Picariello, and M. Riccio. 2014. "State of the art and Future Developments of the Augmented Reality for Measurement Applications." *Measurement* 57: 53–70. doi:10.1016/j.measurement.2014.07.009
- Davis, R., G. Marvin, and M. Garry. 2004. *Venice, the Tourist Maze: A Cultural Critique of the World's Most Touristed City*. Los Angeles, CA: Univ of California Press.
- Duval, M., B. Smith, C. Gauchon, L. Mayer, and C. Malgat. 2019. "I Have Visited the Chauvet Cave": the Heritage Experience of a Rock art Replica." *International Journal of Heritage Studies* 26 (2): 142–162. doi:10.1080/13527258.2019.1620832
- The Economist. 2020. "A Deluge of Data is Giving Rise to a New Economy." *The data economy*. <https://www.economist.com/special-report/2020/02/20/a-deluge-of-data-is-giving-rise-to-a-new-economy>
- Evelyn, K. 2020. "'It's a Racial Justice Issue': Black Americans are Dying in Greater Numbers from Covid-19." *The Guardian Online*. <https://www.theguardian.com/world/2020/apr/08/its-a-racial-justice-issue-black-americans-are-dying-in-greater-numbers-from-covid-19>
- Forbes. 2019. "One of the World's Most Watched Tv Shows will be Hosted by Artificial Intelligences." <https://www.forbes.com/sites/bernardmarr/2019/01/29/the-worlds-most-watched-tv-show-will-be-hosted-by-artificial-intelligences/#75515b9568de>
- Forster, J. 1964. "The Sociological Consequences of Tourism." *International Journal of Comparative Sociology* 5 (2): 217–227. doi:10.1177/002071526400500208
- Frey, B. 2003. *Arts & Economics: Analysis & Cultural Policy*. 2nd ed. Cham: Springer.
- Frey, B., and A. Briviba. 2020. "Revived Originals – A Proposal to Deal with Cultural Overtourism." *Tourism Economics*, 1354816620945407. doi:10.1177/1354816620945407.
- Frey, B., and P. Pamini. 2009. "Making World Heritage Truly Global: The Culture Certificate Scheme." *Oxonomics* 4 (2): 1–9. doi:10.1111/j.1752-5209.2009.00033.x
- Geissler, G., C. Rucks, and S. Edison. 2006. "Understanding the Role of Service Convenience in art Museum Marketing: An Exploratory Study." *Journal of Hospitality & Leisure Marketing* 14 (4): 69–87. doi:10.1300/J150v14n04_05
- González, A. 2018. "Venice: The Problem of Overtourism and the Impact of Cruises." *Investigaciones Regionales* 2018 (42): 35–51.
- Greengrass, M., and L. Hughes. 2008. *The Virtual Representation of the Past*. London and New York: Routledge.
- Gudmundsson, S., M. Cattaneo, and R. Redondi. 2020. "Forecasting Recovery Time in Air Transport Markets in the Presence of Large Economic Shocks: COVID-19." SSRN. <http://dx.doi.org/10.2139/ssrn.3623040>
- Hall, C., D. Scott, and S. Gössling. 2020. "Pandemics, Transformations and Tourism: Be Careful What you Wish for." *Tourism Geographies* 1: 22. doi:10.1080/14616688.2020.1759131.
- Hawkins, D., B. Chang, and K. Warnes. 2009. "A Comparison of the National Geographic Stewardship Scorecard Ratings by Experts and Stakeholders for Selected World Heritage Destinations." *Journal of Sustainable Tourism* 17 (1): 71–90. doi:10.1080/09669580802209944
- Hein, G. 1999. "The Constructivist Museum." *The Educational Role of the Museum* 2: 73–79.
- Hughes, N. 2018. "'Tourists Go Home': Anti-Tourism Industry Protest in Barcelona." *Social Movement Studies* 17 (4): 471–477. doi:10.1080/14742837.2018.1468244
- Jonassen, D. 2000. "Learning: As Activity, The Meaning of Learning Project." *AECT: Presidential Session, Denver*.
- Jones, W., and L. Elliott. 2019. "Chapter 10 - Art in European Caves." In *Encyclopedia of Caves*, 3rd ed., edited by William B. White, David C. Culver, and Tanja Pipan, 71–75. London: Academic Press.
- Jovicic, D. 2016. "Cultural Tourism in the Context of Relations Between Mass and Alternative Tourism." *Current Issues in Tourism* 19 (6): 605–612. doi:10.1080/13683500.2014.932759
- Kazmin, A. 2020. "India's Migrant Workers Flee Cities and Threaten the Countryside." *The Financial Times*. <https://www.ft.com/content/069d818c-6df9-11ea-89df-41bea055720b>
- Kennedy, R. 2020. "Is Austrian Town of Hallstatt Suffering from Overtourism Due to Link with Disney's Frozen?" <https://www.euronews.com/2020/01/20/quality-of-life-has-deteriorated-mayor-of-austrian-town-taking-new-measures-against-overt>

- Kim, J., E. Cha, and J. Park. 2020. "Recent Advances in Smart Contact Lenses." *Advanced Materials Technologies* 5 (1): 1900728. doi:10.1002/admt.201900728
- Kim, S., and Y. Kang. 2020. "Why do Residents in an Overtourism Destination Develop Anti-Tourist Attitudes? An Exploration of Residents' Experience Through the Lens of the Community-Based Tourism." *Asia Pacific Journal of Tourism Research* 25 (8): 858–876. doi:10.1080/10941665.2020.1768129
- Koens, K., A. Postma, and B. Papp. 2018. "Is Overtourism Overused? Understanding the Impact of Tourism in a City Context." *Sustainability* 10 (12), doi:10.3390/su10124384
- Kuščer, K., and T. Mihalič. 2019. "Residents' Attitudes Towards Overtourism from the Perspective of Tourism Impacts and Cooperation—The Case of Ljubljana." *Sustainability* 11 (6): 1823. doi:10.3390/su11061823
- Larson, L., and N. Poudyal. 2012. "Developing Sustainable Tourism Through Adaptive Resource Management: a Case Study of Machu Picchu." *Peru. Journal of Sustainable Tourism* 20 (7): 917–938. doi:10.1080/09669582.2012.667217
- Martín, M., J. María, G. Martínez, J. Manuel, S. Fernández, and J. Antonio. 2018. "An Analysis of the Factors Behind the Citizen's Attitude of Rejection Towards Tourism in a Context of Overtourism and Economic Dependence on This Activity." *Sustainability* 10 (8): 2851. doi:10.3390/su10082851
- Milano, C. 2019. *Overtourism: Excesses, Discontents and Measures in Travel and Tourism: Wallingford*. Oxfordshire, UK: CABI.
- Milano, C., M. Novelli, and J. Cheer. 2019. "Overtourism and Tourismphobia: A Journey Through Four Decades of Tourism Development, Planning and Local Concerns." *Tourism Planning & Development* 16 (4): 353–357. doi:10.1080/21568316.2019.1599604.
- Möller, C. 2019. "Touristik-Radar 2019." Overtourism. https://www.iubh-university.de/wp-content/uploads/IUBH_Themenmappe-Overtourism.pdf
- Nofre, J., E. Giordano, A. Eldridge, J. Martins, and J. Sequera. 2018. "Tourism, Nightlife and Planning: Challenges and Opportunities for Community Liveability in La Barceloneta." *Tourism Geographies* 20 (3): 377–396. doi:10.1080/14616688.2017.1375972
- Nunes, S., and P. Cooke. 2021. "New Global Tourism Innovation in a Post-Coronavirus Era." *European Planning Studies* 29 (1): 1–19. doi:10.1080/09654313.2020.1852534
- OECD. 2020a. *Job Retention Schemes during the COVID-19 Lockdown and Beyond*. Madrid. https://read.oecd-ilibrary.org/view/?ref=135_135415-6bardplc5q&title=Job-retention-schemes-during-the-COVID-19-lockdown-and-beyond
- OECD. 2020b. *Tourism Policy Responses to the coronavirus (COVID-19)*. <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/#boxsection-d1e31>
- OECD/ICOM. 2019. *Culture and Local Development: Maximizing the Impact. Guide for Local Governments, Communities and Museums*. Paris: OECD and ICOM.
- Olya, H., E. Shahmirzdi, and H. Alipour. 2019. "Pro-tourism and Anti-Tourism Community Groups at a World Heritage Site in Turkey." *Current Issues in Tourism* 22 (7): 763–785. doi:10.1080/13683500.2017.1329281
- Park, C., H. Ko, I. Kim, S. Ahn, Y. Kwon, and H. Kim. 2002. "The Making of Kyongju VR Theatre." Paper presented at the proceedings IEEE virtual reality 2002.
- Park, H., and J. Kovacs. 2020. "Arts-led Revitalization, Overtourism and Community Responses: Ihwa Mural Village, Seoul." *Tourism Management Perspectives* 36: 100729. doi:10.1016/j.tmp.2020.100729
- Patias, P., Y. Chrysanthou, S. Sylaiou, C. Georgiadis, D. Michael-Grigoriou, and S. Stylianidis. 2008. The Development of an E-museum for Contemporary Arts.
- Pedersen, I., N. Gale, P. Mirza-Babaei, and S. Reid. 2017. "More Than Meets the Eye: The Benefits of Augmented Reality and Holographic Displays for Digital Cultural Heritage." *Journal on Computing and Cultural Heritage* 10: 1–15. doi:10.1145/3051480
- Perkumienė, D., and R. Pranskūnienė. 2019. "Overtourism: Between the Right to Travel and Residents' Rights." *Sustainability* 11 (7): 2138. doi:10.3390/su11072138

- Perry, T. 2020. "Augmented Reality in a Contact Lens: It's the Real Deal." <https://spectrum.ieee.org/view-from-the-valley/consumer-electronics/portable-devices/ar-in-a-contact-lens-its-the-real-deal>
- Pizam, A. 1978. "Tourism's Impacts: The Social Costs to the Destination Community as Perceived by Its Residents." *Journal of Travel Research* 16 (4): 8–12. doi:10.1177/004728757801600402
- Polyzos, S., A. Samitas, and A. Spyridou. 2020. "Tourism Demand and the COVID-19 Pandemic: An LSTM Approach." *Tourism Recreation Research*, 1–13. doi:10.1080/02508281.2020.1777053
- Postma, A., and D. Schmuecker. 2017. "Understanding and Overcoming Negative Impacts of Tourism in City Destinations: Conceptual Model and Strategic Framework." *Journal of Tourism Futures* 3 (2): 144–156. doi:10.1108/JTF-04-2017-0022
- Robinson, P. 2015. "Conceptualizing Urban Exploration as Beyond Tourism and as Anti-tourism YOND TOURISM AND AS ANTI-TOURISM." *Advances in Hospitality and Tourism Research-Ahtr* 3 (2): 141–164.
- Rosselló, J., S. Becken, and M. Santana-Gallego. 2020. "The Effects of Natural Disasters on International Tourism: A Global Analysis." *Tourism Management* 79: 104080. doi:10.1016/j.tourman.2020.104080
- Roussou, M. 2004. "Learning by Doing and Learning Through Play: An Exploration of Interactivity in Virtual Environments for Children." *Computers in Entertainment* 2 (1): 10. doi:10.1145/973801.973818
- Saiz-Jimenez, C., S. Cuezva, V. Jurado, A. Fernandez-Cortes, E. Porca, D. Benavente, J. C. Cañaveras, and S. Sanchez-Moral. 2011. "Paleolithic Art in Peril: Policy and Science Collide at Altamira Cave." *Science* 334 (6052): 42–43. doi:10.1126/science.1206788
- Seraphin, H., P. Sheeran, and M. Pilato. 2018. "Over-tourism and the Fall of Venice as a Destination." *Journal of Destination Marketing & Management* 9: 374–376. doi:10.1016/j.jdmm.2018.01.011
- Séraphin, H., M. Zaman, S. Olver, S. Bourliataux-Lajoinie, and F. Dosquet. 2019. "Destination Branding and Overtourism." *Journal of Hospitality and Tourism Management* 38: 1–4. doi:10.1016/j.jhtm.2018.11.003
- Sinclair, P., K. Martinez, D. Millard, and M. Weal. 2003. "Augmented Reality as an Interface to Adaptive Hypermedia Systems." *New Review of Hypermedia and Multimedia* 9 (1): 117–136. doi:10.1080/13614560410001725338
- Sylaiou, S., F. Liarokapis, K. Kotsakis, and P. Patias. 2009. "Virtual Museums, a Survey and Some Issues for Consideration." *Journal of Cultural Heritage* 10 (4): 520–528. doi:10.1016/j.culher.2009.03.003
- Throsby, D. 2010. *The Economics of Cultural Policy*. New York: Cambridge University Press.
- Tosun, C. 2002. "Host Perceptions of Impacts: A Comparative Tourism Study." *Annals of Tourism Research* 29 (1): 231–253. doi:10.1016/S0160-7383(01)00039-1
- Towse, R., and T. Hernández. 2020. *Handbook of Cultural Economics*. Cheltenham: Edward Elgar Publishing.
- UNWTO. 2018. 'Overtourism'? – *Understanding and Managing Urban Tourism Growth Beyond Perceptions, Executive Summary*. Madrid: UNWTO.
- UNWTO. 2020. *UNWTO Launches a Call for Action for Tourism's COVID-19 Mitigation and Recovery*. <https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-04/20040120-20Call20for20Action20for20Tourisms20COVID-1920EN.pdf>
- Veríssimo, M., M. Moraes, Z. Breda, A. Guizi, and C. Costa. 2020. "Overtourism and Tourismphobia: A Systematic Literature Review." *Tourism: An International Interdisciplinary Journal* 68 (2): 156–169.
- Vygotsky, L. 1980. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge: Harvard University Press.
- Web of Science. 2020. *Search Results*. https://wcs.webofknowledge.com/RA/analyze.do?product=WOS&SID=E35Q1tk5wTnbufw4APp&field=PY_PublicationYear_PublicationYear_en&yearSort=true
- Wong, L., and M. Quintero. 2019. "Tutankhamen's Two Tombs: Replica Creation and the Preservation of our Cultural Heritage in the Digital Age." *ISPRS - International Archives of*

the Photogrammetry, Remote Sensing and Spatial Information Sciences XLII-2/W11: 1145–1150.
doi:[10.5194/isprs-archives-XLII-2-W11-1145-2019](https://doi.org/10.5194/isprs-archives-XLII-2-W11-1145-2019)

World Travel & Tourism Council. 2020. *Travel & Tourism - Global Economic Impact & Trends 2020*. <https://wttc.org/Research/Economic-Impact>