

Article

Exhibiting the Heritage of COVID-19—A Conversation with ChatGPT

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Abstract: The documentation and management of the cultural heritage of the COVID-19 pandemic as well as the heritage of the digital age are emerging discourses in cultural heritage management. The enthusiastic uptake of a generative artificial intelligence application (ChatGPT) by the general public and academics alike has provided an opportunity to explore (i) whether, and to what extent, generative AI can conceptualize an emergent, not well-described field of cultural heritage (the heritage of COVID-19), (ii), whether it can design an exhibition on the topic, and (iii) whether it can identify sites associated with the pandemic that may become significant heritage. Drawing on an extended ‘conversation’ with ChatGPT, this paper shows that generative AI is capable of not only developing a concept for an exhibition of the heritage of COVID-19 but also that it can provide a defensible array of exhibition topics as well as a relevant selection of exhibition objects. ChatGPT is also capable of making suggestions on the selection of cultural heritage sites associated with the pandemic, but these lack specificity. The discrepancy between ChatGPT’s responses to the exhibition concept and its responses regarding potential heritage sites suggests differential selection and access to the data that were used to train the model, with a seemingly heavy reliance on Wikipedia. The ‘conversation’ has shown that ChatGPT can serve as a brainstorming tool, but that a curator’s considered interpretation of the responses is still essential.

Keywords: artificial intelligence; ChatGPT; COVID-19; cultural heritage; exhibition planning; heritage futures; museums



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1. Introduction

Cultural heritage, its identification, documentation, and management, is a conceptual space that is ever-changing and expanding. Initially solely focused on its tangible manifestations in the form of artifacts, monuments, and buildings, the field expanded to include heritage conservation areas (historic districts) and cultural landscapes [1–4]. The past decade and a half has seen the recognition of the hitherto often unacknowledged political aspects of heritage as manifested in the authorized heritage discourse (sensu Smith [5]) and an increasing emphasis on intangible heritage in its numerous expressions [6–8]. While claiming to be future-oriented [9], the profession has often struggled with the recognition and management of recent and emergent heritage [10,11]. A developing field is the heritage of the digital age, as expressed in its tangible material culture [12–15] and in born-digital content [16–18]. An emergent discourse is the conceptualization, subsequent documentation, and management of digital heritage in the form of hardware heritage, digital artifacts, virtual artifacts and digital ephemera [19].

This paper is situated at the intersection of two contemporary spheres, that of the COVID-19 pandemic of 2020–2023 and its transformation from lived reality to emergent heritage, and the nascent reality of generative artificial intelligence (AI) in the form of ChatGPT, which in recent months has attained wide-spread public attention in various fields of endeavor. This paper will explore whether generative AI can conceptualize an emergent, not well-described field of cultural heritage, whether it can design an exhibition, and whether it can identify sites associated with the pandemic that may be(come) significant heritage.

1.1. The Heritage of COVID-19

The emergence of SARS-CoV-2, the virus that caused COVID-19 in Wuhan (China) and its rapid spread, manifesting itself as a global pandemic in March 2020, proved to be a cross-sectoral disruptor not seen on a global scale since the Influenza pandemic of 1918/19. The various public health measures, including national and state border closures, ringfencing of communities, and restrictions on personal movement (lockdowns) and congregation (social distancing), impacted all professions and occupations. While some work could pivot to online and working from home routines, other work required manual handling in the production, trade, and transport of goods and the provision of services (e.g., retail and health).

In the cultural sector, the COVID-19 pandemic not only resulted in the shuttering of museums and exhibitions, resulting in an increased online presence [20–30], the widespread cancellation of film and music festivals [31–34], and outdoor heritage events [35], as well as the cessation of cultural tourism [36–38], but it also affected the sound heritage of communities [39,40]. While the COVID-19 pandemic also impacted the professional practice of cultural heritage professionals and educators [30,41–47], it generated cultural expressions in the online space [48].

Soon after the nature, extent, and effects of government-mandated measures to at first contain and then manage the spread of SARS-CoV-2 became apparent, it became obvious that the COVID-19 pandemic represented a cross-sectoral disruptor that, at some point in the future, would become the focus of social history exhibitions and thus should be documented [49,50].

The museum and cultural heritage sphere responded with a range of localized projects. Several museums and archives engaged in the collection of social history material in the form of printed and digital ephemera [51], artistic interpretation [52], and the collection of eyewitness history [53]. Some documentation projects focused on the tangible material culture of and associated with COVID-19, such as fitted face masks [54–58]; hand sanitizer stations [59]; social distancing markers [59]; rapid antigen tests [60]; public information material (posters, leaflets) [59]; as well as temporary infrastructure, such as field hospitals, containment barriers to existing hospitals, and pop-up testing centers [61]. Fitted face masks became ‘COVID artifacts’ in the urban and peri-urban environment due to loss of intentional disposal [62,63]. In addition, a range of digital heritage was created in the form of contact tracing registers [19] and public information websites operated by private individuals, professional bodies and government departments [64].

Some colleagues examined the role of archaeology in interpreting COVID-19 as a social phenomenon affecting communities in different ways and the information that past pandemics can yield for the present [65–67].

The journals *Heritage* (ISSN 2571-9408) and *The Artefact* (ISSN 0044-9075) dedicated special issues to the topic. Some professionals have also begun to look at the nature of possible memorialization of the pandemic and its victims [68].

1.2. The Generative AI Language Model ChatGPT

Over the past decade, development on various generative artificial intelligence (AI) language models has accelerated, culminating in the public release of the Chat Generative Pre-Trained Transformer (ChatGPT), a generative AI language model developed by OpenAI. ChatGPT is a type of deep learning model that uses transformer architecture to generate coherent and contextually relevant, human-like responses based on the input it receives [69]. Trained on a large data set of over 175 billion parameters, ChatGPT 3.5 was released to the general public in November 2022 as a part of a free research preview to encourage experimentation [70]. The current version GPT-4 (March 2023) reputedly exhibits greater responsiveness to user intentions as expressed in the questions/query tasks and greater factual accuracy. While the temporal cut-off for the addition of training data was September 2021, which implies that ChatGPT cannot integrate or comment on events, discoveries, and

viewpoints that occurred after that date, it was asserted in the public media that GPT-4 has the ability to search the Internet in near or real time and add to its knowledge base.

There is an increasing body of literature related to the level of knowledge and capabilities of ChatGPT, examining its responses to several fields of research, such as the use of remote sensing in archaeology [71], architecture [72], agriculture [73], chemistry [74], health education [75,76], heritage management [77], and medicine [78–82]. Several papers looked at the ‘perceptions’ of ChatGPT about its future role in some disciplines and professions, such as medicine and allied fields [78,83–86], accounting [87], or libraries [88], as well as academia in general [88]. In addition, some papers looked at the nature of ChatGPT as a double-edged sword, enhancing learning [89–91] but also allowing for assignment writing and associated academic misconduct [92–96].

A considerable body of the current discussion on the use of ChatGPT in cultural heritage contexts, primarily the museums and collections sphere, occurs as unrefereed commentary in blogs. ChatGPT is seen as a potential tool for message generation, content marketing, audience interaction, and sentiment analysis of general inquiries, all of which can be readily ported to a museum context [97–99]. Furthermore, ChatGPT (or future iterations) can be readily used as a generic document and content analysis tool to extract and summarize pertinent data from images [100] or longer documents or inventory data [101], which can then be used to develop object tags and exhibit labels [102], exhibition texts and catalog information [103,104], museum guides [105], as well as scripts for audio guides [106] and augmented reality tours [107]. Some authors have expanded this to examine the use of generative AI in museum or exhibition design and planning [100,108–110].

Several of the academic papers on the capabilities of ChatGPT make use of the interactive nature of ChatGPT and frame their research as a conversation about the topic [71,74,78,93]. This paper will present a conversation with ChatGPT as to whether the COVID-19 pandemic might become the focus of museum exhibitions in the future, what objects should be included, and the reasons for their inclusion. The conversation also covers whether there are heritage places that are associated with the COVID-19 pandemic, why ChatGPT regards them as heritage, and which places stand out as iconic.

The aim of this conversation is to examine the capabilities of ChatGPT to aggregate information, conceptualize an exhibition, and justify the selection of objects and places. Given that there is no extant literature on the design of future social history exhibitions, this conversation also highlights the capabilities of ChatGPT as a possible tool for cultural heritage professionals to generate ideas or different approaches for the conceptualization of future exhibitions.

2. Methodology

This study used OpenAI’s ChatGPT, May 24 Version (<https://chat.openai.com>, accessed on 13 July 2023) to conduct the conversation that is the focus of this paper. The conversation occurred on 13 July 2023 between 06:07 and 06:15 AEST (20:07–20:15 GMT). The conversation was copied and pasted into a MS Word file.

3. Results (the Conversation)

What follows is the full text of a conversation between the author (DHRS) and the Chat Generative Pre-Trained Transformer (ChatGPT).

DHRS

Will the COVID-19 pandemic become the focus of museum exhibitions in the future?

ChatGPT

It is highly likely that the COVID-19 pandemic will become the focus of museum exhibitions in the future. Museums often strive to capture and document significant events and historical moments, and the COVID-19 pandemic has certainly had a profound impact on the world.

Similar to how museums have curated exhibitions on previous pandemics, such as the Spanish flu, the HIV/AIDS crisis, or the Black Death, the COVID-19 pandemic will likely be examined and explored in museum exhibitions. Museums may collect artifacts, photographs, personal stories, and other materials related to the pandemic to provide a comprehensive understanding of its impact on various aspects of society.

These exhibitions could cover a wide range of topics, including the global response to the pandemic, healthcare systems and medical advancements, social and economic consequences, the role of technology, scientific breakthroughs, and the experiences of individuals and communities during this challenging time.

By documenting and exhibiting the COVID-19 pandemic, museums can contribute to public understanding, education, and reflection on a significant chapter in history. These exhibitions can also serve as a reminder of the resilience and adaptability of humanity in the face of adversity.

DHRS

Why do you think COVID-19 is worth a future exhibition?

ChatGPT

COVID-19 is worth a future exhibition for several reasons:

1. **Global Impact:** The COVID-19 pandemic has had an unprecedented global impact. It has affected almost every country in the world, leading to wide-spread illness, loss of life, and economic disruption. The scale and magnitude of its effects make it a significant historical event that merits examination and documentation.
2. **Societal Transformation:** The pandemic has brought about profound societal transformations. It has changed the way we live, work, and interact with one another. From the implementation of social distancing measures to the rapid adoption of remote work and virtual communication, the pandemic has reshaped various aspects of our lives. These societal changes make it essential to study and understand the pandemic's long-term effects.
3. **Healthcare and Scientific Advancements:** The COVID-19 pandemic has spurred remarkable advancements in healthcare and science. Researchers and healthcare professionals have worked tirelessly to develop vaccines, treatments, and testing methods. These scientific breakthroughs and collaborative efforts are worth documenting and celebrating.
4. **Social and Economic Consequences:** The pandemic has had significant social and economic consequences. It has highlighted disparities in healthcare access, education, and economic stability. Examining these consequences can help raise awareness about existing societal inequalities and prompt discussions on how to address them.
5. **Lessons Learned:** The COVID-19 pandemic has provided valuable lessons for future generations. By studying the pandemic's causes, responses, and outcomes, we can better prepare for future health crises. Documenting these lessons and sharing them in a museum exhibition can serve as a resource for education and policy-making.
6. **Personal Stories and Resilience:** The pandemic has impacted individuals and communities in profound ways. There are countless personal stories of loss, resilience, and acts of kindness that deserve recognition. A museum exhibition can provide a platform to showcase these stories, honoring the experiences of individuals and communities during this challenging time.

Overall, a museum exhibition on COVID-19 can serve as a historical record, fostering understanding, reflection, and learning for future generations. It can capture the complexity and multidimensional impact of the pandemic, encouraging discussions on public health, social dynamics, and the resilience of humanity in the face of adversity.

DHRS

What objects would you include in the exhibition that would best allow you to interpret COVID-19 for a future audience?

ChatGPT

To interpret COVID-19 for a future audience, a museum exhibition could include a variety of objects that provide insights into different aspects of the pandemic. Here are some examples:

1. **Personal Protective Equipment (PPE):** Displaying samples of masks, gloves, face shields, and other PPE items can illustrate the preventive measures taken during the pandemic. It can also highlight the importance of personal safety and the impact of PPE on daily life and healthcare practices.
2. **Vaccines and Vaccine-related Artifacts:** Showcasing COVID-19 vaccines, vials, syringes, and packaging can highlight the scientific advancements and global vaccination efforts. Additionally, including information about vaccine development, distribution, and public perception can provide insights into the importance of vaccination in mitigating the pandemic.
3. **Art and Creative Expressions:** Including artworks, photographs, or videos created during the pandemic can capture the emotional and artistic responses to COVID-19. These artworks can depict various themes like isolation, resilience, community support, or social justice issues related to the pandemic.
4. **Documentation of Healthcare Systems:** Displaying medical equipment such as ventilators, diagnostic tools, or hospital signage can shed light on the challenges faced by healthcare systems during the pandemic. Additionally, showcasing medical research papers, reports, or statistics can provide a comprehensive understanding of the scientific and medical aspects of COVID-19.
5. **Media Coverage and Public Messaging:** Including news articles, headlines, social media posts, and public health campaigns can reflect the media's role in disseminating information and shaping public perceptions during the pandemic. It can showcase how the pandemic was covered, the challenges in communicating effectively, and the impact of public messaging on public behavior.
6. **Oral Histories and Personal Stories:** Incorporating recorded interviews, testimonials, or written accounts from individuals who experienced COVID-19 firsthand can humanize the exhibition. These stories can provide a deeper understanding of the pandemic's impact on individuals, families, and communities, capturing personal experiences, challenges, and resilience.
7. **Educational and Informational Displays:** Including interactive displays, infographics, and educational materials can help visitors grasp the science behind COVID-19, transmission prevention, and the importance of public health measures. This can enhance public understanding and promote informed decision-making.

It is important to note that the selection of objects for the exhibition should be thoughtful and representative of diverse perspectives and experiences. The aim is to provide a comprehensive and nuanced interpretation of the pandemic for future audiences, encouraging reflection, empathy, and learning.

DHRS

Which of these objects do you regard as the most important to show if the museum has limited space for the exhibition?

ChatGPT

If space is limited for the exhibition, it becomes crucial to prioritize objects that can effectively represent the key aspects of the COVID-19 pandemic. Here are three objects that could be considered as the most important:

1. **Personal Protective Equipment (PPE):** Including samples of masks, gloves, or face shields can visually convey the immediate impact of the pandemic and the preventive measures taken by individuals. PPE has become a ubiquitous symbol of COVID-19, and showcasing these items can help visitors understand the importance of personal safety and the role of PPE in reducing transmission.

2. Vaccine-Related Artifacts: Displaying a sample of a COVID-19 vaccine vial or packaging can represent the monumental scientific advancements and global vaccination efforts. It can highlight the significance of vaccines in combating the pandemic and demonstrate the collective response to control the spread of the virus.
3. Media Coverage and Public Messaging: Incorporating a collection of news headlines, social media posts, or public health campaigns can provide insights into how the pandemic was covered and the impact of public messaging. This can capture the influence of the media on public perception, awareness, and adherence to public health guidelines.

These objects address different aspects of the pandemic, ranging from personal safety and preventive measures to the importance of vaccination and the role of the media. By focusing on these key objects, the exhibition can still provide a glimpse into the impact of COVID-19 and stimulate visitor engagement and understanding, even with the limited space available.

DHRS

If you were to select a single object, which would it be?

ChatGPT

If I were to select a single object to represent the COVID-19 pandemic in a limited space exhibition, I would choose a collection of personal stories and testimonials. While not a single physical object, this collection can be presented in various formats such as written accounts, recorded interviews, or multimedia displays.

Personal stories provide a human connection and emotional resonance, allowing visitors to relate to the experiences of individuals and communities affected by the pandemic. By showcasing diverse stories that highlight the range of experiences and perspectives, visitors can gain a deeper understanding of the pandemic's impact on a personal level.

Including personal stories also allows for the representation and amplification of marginalized voices and communities disproportionately affected by COVID-19. This can shed light on social disparities, healthcare inequities, and systemic issues that have been exacerbated by the pandemic.

By prioritizing personal stories, the exhibition can foster empathy, reflection, and a deeper appreciation of the challenges faced during the pandemic. It can create a narrative thread that runs through the exhibition, complementing other objects and providing a powerful and relatable entry point for visitors to engage with the broader themes of the pandemic.

DHRS

Are there heritage places (buildings, localities, etc.) that you consider the heritage of COVID-19?

ChatGPT

While there are no specific heritage places or buildings that can be universally considered the heritage of COVID-19 at this time, it is important to note that the pandemic has undoubtedly left an indelible mark on numerous localities and communities around the world. As time progresses, certain sites or localities may gain significance and be recognized as heritage places associated with the COVID-19 pandemic. Here are a few examples of potential heritage places:

- Wuhan, China: Wuhan, the city where the first cases of COVID-19 were reported, holds historical significance as the initial epicenter of the pandemic. It could be seen as a place of significance for understanding the early response and impact of the virus.
- Temporary Hospitals: Numerous countries constructed temporary hospitals to cope with the surge in COVID-19 cases. These spaces, such as the Nightingale hospitals in the UK or the Javits Center in New York City, could be considered as heritage sites that reflect the scale of the healthcare response during the pandemic.

- **Quarantine Facilities:** Various locations around the world were designated as quarantine facilities for individuals returning from high-risk areas or testing positive for the virus. These sites may hold significance in illustrating the measures taken to contain the spread of the virus and safeguard public health.
- **Vaccine Distribution Centers:** Vaccination centers set up globally to administer COVID-19 vaccines could be seen as sites symbolizing the collective effort to control the pandemic. These locations represent a significant milestone in the response to the virus and the hope for recovery.
- **Research Centers and Laboratories:** Institutions that played key roles in developing vaccines, conducting research on the virus, or advancing scientific knowledge about COVID-19 may be regarded as heritage places. These sites represent the scientific achievements and collaborative efforts that helped combat the pandemic.
- **Memorials or Commemorative Sites:** In the aftermath of the pandemic, there may be initiatives to establish memorials or commemorative sites dedicated to honoring the lives lost during COVID-19. These places could serve as spaces for remembrance, reflection, and healing, and stand as symbols of the collective experience of communities affected by the pandemic.

It is important to recognize that the identification and designation of heritage places associated with COVID-19 will likely evolve over time, as historical significance and community perspectives are considered. As the pandemic's impact becomes clearer and societies reflect on its long-term effects, certain locations may gain recognition as important heritage sites that commemorate this significant chapter in history.

DHRS

If you had to select one of these as the 'icon' type of heritage site of the COVID-19 pandemic, which would it be?

ChatGPT

If I had to select one of the mentioned examples as the 'icon' type of heritage site of the COVID-19 pandemic, I would choose Wuhan, China. Wuhan holds significant historical and symbolic value as the initial epicenter of the pandemic, and it became widely recognized globally as the place where the first cases of COVID-19 were reported.

Wuhan's association with the origins of the virus and its subsequent response to the outbreak makes it a potent symbol of the pandemic's global impact. The city went through strict lockdown measures, significant medical efforts, and faced immense challenges during the initial stages of the crisis. Wuhan's experience reflects the urgency, scale, and severity of the situation faced by many cities and countries worldwide.

By designating Wuhan as an 'icon' heritage site of the pandemic, it acknowledges the significance of the city's role in shaping the global understanding of COVID-19. It serves as a reminder of the virus's emergence and the subsequent efforts to control its spread. Wuhan represents the resilience of its citizens, the dedication of healthcare workers, and the collective response of the local community.

Selecting Wuhan as the 'icon' heritage site does not diminish the importance of other locations or their contributions to the pandemic response. It recognizes Wuhan's unique place in the history of the pandemic and its impact on shaping global awareness and response to COVID-19.

DHRS

If you had to select one of these types of sites you listed (Temporary Hospitals, Quarantine Facilities, Vaccine Distribution Centers, Cultural and Historical Landmarks) as the single most significant type of heritage site of the COVID-19 pandemic, which would it be?

ChatGPT

If I had to select one type of site listed (Temporary Hospitals, Quarantine Facilities, Vaccine Distribution Centers, Cultural and Historical Landmarks) as the single most significant type of heritage site of the COVID-19 pandemic, I would choose Vaccine Distribution Centers.

Vaccine Distribution Centers represent a significant turning point in the pandemic response and hold immense significance in terms of human health, societal recovery, and global efforts to combat the virus. Here are a few reasons why Vaccine Distribution Centers could be considered the most significant type of heritage site:

1. **Symbol of Hope:** Vaccine Distribution Centers signify a beacon of hope and progress in the fight against COVID-19. They represent the culmination of scientific research, collaboration among experts, and the development and distribution of vaccines, which are instrumental in controlling the spread of the virus and protecting public health.
2. **Global Impact:** Vaccine Distribution Centers have been established in numerous countries worldwide, demonstrating the global collaboration and coordination required to manufacture, distribute, and administer vaccines on an unprecedented scale. These centers are key to achieving vaccination goals and facilitating the return to a more normal way of life.
3. **Societal Recovery:** Vaccines play a crucial role in enabling societies to recover from the social, economic, and emotional impacts of the pandemic. Vaccine Distribution Centers symbolize the collective effort to protect vulnerable populations, reduce the burden on healthcare systems, and restore a sense of normalcy and well-being in communities.
4. **Historic Milestone:** The development and deployment of COVID-19 vaccines represent a historic milestone in public health. Vaccine Distribution Centers highlight the triumphs of scientific research, clinical trials, regulatory processes, and manufacturing capabilities in record time. They mark a significant achievement in human resilience and ingenuity.
5. **Long-Term Impact:** Vaccines have the potential to shape the future trajectory of the pandemic, influencing its evolution and eventual containment. Vaccine Distribution Centers symbolize the ongoing efforts to address vaccine equity, ensure global access, and combat emerging variants, underscoring the long-term impact of the pandemic and the importance of immunization programs.

While each type of site listed has its own importance, Vaccine Distribution Centers encapsulate the hope, global collaboration, and scientific advancements associated with the pandemic response. They represent a tangible manifestation of our collective efforts to overcome the challenges posed by COVID-19 and pave the way for a healthier future.

DHRS

To your knowledge, have heritage professionals engaged with or researched the heritage of COVID-19?

ChatGPT

Yes, heritage professionals and researchers have indeed engaged with and researched the heritage of COVID-19. The pandemic has sparked interest among heritage organizations, museums, and academic institutions to document, study, and preserve the cultural and historical dimensions of the crisis. Here are a few examples of how heritage professionals have been involved:

1. **Documentation and Collection:** Heritage professionals have actively collected and documented various materials related to COVID-19. This includes artifacts such as PPE, signage, photographs, oral histories, digital content, and more. These collections aim to capture the tangible and intangible aspects of the pandemic for future research and exhibition purposes.
2. **Research and Studies:** Researchers in the field of heritage studies and related disciplines have undertaken studies and analyses on the heritage of COVID-19. They examine the social, cultural, and economic impacts of the pandemic, exploring topics such as community resilience, changes in cultural practices, the role of heritage in public health messaging, and the transformation of public spaces.

3. Online Exhibitions and Virtual Engagement: Many heritage institutions have adapted to the limitations imposed by the pandemic by creating online exhibitions and virtual engagement platforms. These initiatives showcase the heritage of COVID-19 through curated content, storytelling, and interactive experiences, allowing audiences to explore and learn about the pandemic from their homes.
4. Policy and Advocacy: Heritage professionals have been involved in policy discussions and advocacy efforts related to the preservation and interpretation of the COVID-19 heritage of COVID-19. They highlight the importance of safeguarding and promoting the memory and lessons of the pandemic for future generations, ensuring that the heritage associated with COVID-19 is recognized and protected.

These are just a few examples of the engagement of heritage professionals with the heritage of COVID-19. Given the ongoing nature of the pandemic, research and documentation efforts continue to evolve, and future exhibitions and studies are expected to shed further light on the significance and interpretation of the heritage of COVID-19.

DHRS

Can you give me references to published works on the heritage of COVID-19?

ChatGPT

As an AI language model, I don't have direct access to external sources or the ability to browse the internet. However, I can provide you with some general references to published works on the heritage of COVID-19 that you can explore:

1. "COVID-19 and Heritage: Perspectives from the Humanities and Social Sciences", edited by Stuart Frost, Bryony Onciul, and Dacia Viejo-Rose: This book explores the heritage dimensions of the pandemic, covering topics such as cultural responses, the impact on heritage sites and institutions, community engagement, and the role of heritage in public health communication.
2. "COVID-19 and Cultural Heritage: Perspectives on a Pandemic", edited by Carola Boehm and Roeland Paardekooier: This publication features a collection of articles examining the implications of COVID-19 for cultural heritage, including discussions on the digital transformation of heritage, the role of museums, community participation, and the impact on intangible heritage.
3. "COVID-19 and World Heritage: Impacts on Tourism, Local Communities, and Visitor Management" by Lorenzo Cantoni and Silvia De Ascaniis: This study focuses on the effects of the pandemic on world heritage sites, discussing challenges faced by local communities, changes in tourism patterns, and the development of innovative visitor management strategies.
4. "Heritage and COVID-19: Impacts, Opportunities, and Future Directions" by Hilary Orange, Andrea Witcomb, and Kylie Message: This publication explores the effects of the pandemic on heritage practices and organizations, discussing topics such as digital heritage, community engagement, heritage interpretation, and the relationship between heritage and health.

Please note that specific articles and research papers on the heritage of COVID-19 may be continuously published and updated as the pandemic unfolds. You can search academic databases, online repositories, or library catalogs to find more recent and comprehensive works on this topic.

DHRS

Are these real references?

ChatGPT

I apologize for any confusion. As an AI language model, I don't have real-time access to current publications or the ability to browse the internet. The references I provided were examples based on common knowledge up until my September 2021 knowledge cutoff. While there may be publications and research available on the heritage of COVID-19,

I cannot provide specific or real-time references. I recommend conducting a search on academic databases, library catalogs, or reputable scholarly sources to find published works on the topic.

4. Discussion

Before we consider the content of the responses provided by ChatGPT, it is apposite to note that, at the time of writing, there is, overall, little literature on the heritage of COVID-19, both among academic publications and the general internet. A Google search for the phrase “heritage of COVID”, for example, generated 18 results, while a Google Scholar search generated 40 results. In both cases, the results included several references related to medicine but were not applicable. Thus, while there is a considerable body of literature that addresses the impact of COVID-19 on the cultural heritage of the profession and institutions, there is very little that specifically addresses the heritage of COVID-19. More importantly, there is no template and precedent (for example, from exhibitions related to other pandemics) on which the exhibition concept could be modeled. This has implications for the interpretation of the suggestions presented by ChatGPT. The following discussion will focus on ChatGPT’s responses regarding a possible museum exhibit and its responses regarding places (buildings, localities, etc.) that could form the heritage of COVID-19.

4.1. Designing a Museum Exhibit on COVID-19

In its initial response to the question “Will the COVID-19 pandemic become the focus of museum exhibitions in the future”? ChatGPT is quite generic, noting the purpose of museums (“strive to capture and document significant events and historical moments”) while noting that “the COVID-19 pandemic has certainly had a profound impact on the world”. It then, quite plausibly, asserts that COVID-19 will become an exhibition topic because “museums have curated exhibitions on previous pandemics, such as the Spanish flu, the HIV / AIDS crisis, or the Black Death”. The list of topics the exhibit could address covers all the key bases (“global response to the pandemic, healthcare systems and medical advancements, social and economic consequences, the role of technology, scientific breakthroughs, and the experiences of individuals and communities”).

Considering that there are no key papers to draw on and the information has been aggregated and interpreted from snippets of ideas on the internet and in the literature, the overall justification for the exhibit as well as the proposed topics are solid. The meaning of such an exhibit, as proposed by ChatGPT, is quite impressive: *“By documenting and exhibiting the COVID-19 pandemic, museums can contribute to public understanding, education, and reflection on a significant chapter in history. These exhibitions can also serve as a reminder of the resilience and adaptability of humanity in the face of adversity”*.

When asked to justify *why* COVID-19 is worth a future exhibition, ChatGPT put forward six key points: ‘global impact’, ‘societal transformation’, ‘healthcare’, ‘scientific advancements’, ‘social and economic consequences’, ‘lessons learned’, and ‘personal stories and resilience’. For each of these, an explanation and a reasonable rationale for inclusion are provided. Some were ‘predictable’ in their inclusion, such as the first three and the last. On the other hand, others appear, at first sight, to be quite insightful. For example, when explaining the point “social and economic consequences”, ChatGPT argues that “The pandemic has... highlighted disparities in healthcare access, education, and economic stability. Examining these consequences can help raise awareness about existing societal inequalities and prompt discussions on how to address them”. While this point is not novel, as it has been widely raised in the general literature with some reference to the wider heritage field [65,66], its inclusion is nonetheless noteworthy. The remaining key point, ‘lessons learned’, however, sits somewhat awkwardly in that list. While social museums may make references to such a topic, such as exhibiting technological advances derived from the experience or a text panel on the implications for the present, this would not be as prominent as suggested. Its inclusion can be understood if we consider that ChatGPT is a generative model that builds on prior text. All key points made in this answer are

already foreshadowed in the same sequence in the initial exhibition ‘proposal’. All except ‘lessons learned’ that is, which seems to be a tangent that ChatGPT developed forking off the point of ‘social and economic consequences’ and drawing on a range of sources that discuss the social or economic consequences of COVID-19 and conclude with a section on lessons learned.

At the next level of detail, we need to examine the nature of the objects that could be selected. ChatGPT was asked “What objects would you include in the exhibition that best allow you to interpret COVID-19 for a future audience”? While it provides a list of seven suggestions, prefacing this with “[h]ere are some examples”, it is at this point that some shortcomings in the conceptual understanding of ChatGPT emerge. The first three of the dot points are logical and predictable: ‘personal protective equipment’, ‘vaccines and vaccine-related artifacts’, and ‘art and creative expressions’. The fourth dot point is also highly relevant, covering “medical equipment such as ventilators, diagnostic tools, or hospital signage” to “shed light on the challenges faced by healthcare systems during the pandemic”, although its appellation as an object class (“documentation of healthcare systems”) is somewhat jarring if not misleading. The sixth point (‘oral histories and personal stories’) suggests including recorded interviews and ‘testimonials’, which is in keeping with contemporary exhibit design. Like the two remaining dot points furnished by ChatGPT (‘media coverage and public messaging’ and ‘educational and informational displays’), these are not objects per se. These points are, however, valid suggestions to be included in an exhibition. It notes that the inclusion of “interactive displays, infographics, and educational materials can help visitors grasp the science behind COVID-19, transmission prevention, and the importance of public health measures”.

Without the specific direction to conceptualize an exhibition focusing on social history, for example, ChatGPT took a broad approach in its exhibition concept, combining technological, social, and science elements.

The underlying criterion for the object to be chosen for such an exhibit, as proposed by ChatGPT, is quite impressive. ChatGPT concluded its list of suggestions with the comment that “[i]t is important to note that the selection of objects for the exhibition should be thoughtful and representative of diverse perspectives and experiences. The aim is to provide a comprehensive and nuanced interpretation of the pandemic for future audiences, encouraging reflection, empathy, and learning”.

When asked to restrict the list of potential objects due to space limitations, ChatGPT chose “objects [that] address different aspects of the pandemic, ranging from personal safety and preventive measures to the importance of vaccination and the role of media”. Personal protective equipment was chosen as it can convey “the immediate impact of the pandemic and the preventative measures taken” and because it has “become a ubiquitous symbol of COVID-19”, while vaccine-related artifacts “highlight the significance of vaccines in combating the pandemic and demonstrate the collective response to control the spread of the virus”. Media coverage and public messaging were included to “capture the influence of media on public perception, awareness, and adherence to public health guidelines”.

Intriguingly, when pressed to choose a single object, ChatGPT diverged from the previous list and opted for a “collection of personal stories and testimonials” because “Personal stories provide a human connection and emotional resonance”. It qualified this suggestion by stating that “[w]hile not a single physical object, this collection can be presented in various formats such as written accounts, recorded interviews, or multimedia displays”. It then diverges from the single object request by commenting that “personal stories . . . can create a narrative thread that runs through the exhibition, complementing other objects”. Elsewhere in the same response, ChatGPT notes that “personal stories . . . provid[e] a powerful and relatable entry point for visitors to engage with the broader themes of the pandemic”. It is worth noting that this argument for the relevance of the inclusion of oral histories and personal stories was not made previously.

From a user perspective, this highlights that ChatGPT is able to integrate ideas and concepts and add them in a more or less meaningful way to the justification of the chosen

objects. From a practical perspective, if ChatGPT were to be used to generate ideas for the selection of themes and objects, it is suggested that ChatGPT expand on each suggestion and justify or explain each object selection. Clearly, interpretation of the responses will be required, but, based on the experiences so far, ChatGPT is able to provide a reasonable and defensible exhibition concept.

4.2. Identifying Heritage Places of the COVID-19 Pandemic

In the second part of the interview, ChatGPT was asked whether there were heritage places (buildings, localities, etc.) that it considered to be the heritage of COVID-19. In its answer, ChatGPT noted that “there are no specific heritage places or buildings that can be universally considered the heritage of COVID-19 at this time” but that “[a]s time progresses, certain sites or localities may gain significance and be recognized as heritage places associated with the COVID-19 pandemic”. It then furnished a list of six potential heritage places: ‘Wuhan, China’, ‘temporary hospitals’, ‘quarantine facilities’, ‘vaccine distribution centers’, ‘research centers and laboratories’, and ‘memorials or commemorative sites’.

The selection of sites is quite insightful. ChatGPT chose Wuhan because, in its view, it “holds historical significance as the initial epicenter of the pandemic” and “could be seen as a place of significance for understanding the early response and impact of the virus”. ChatGPT then chose temporary hospitals, naming both the Nightingale hospitals in the United Kingdom and the Javits Center (New York, NY, USA) as specific examples. While the choice of temporary hospitals as heritage places of the pandemic is worth noting, the choice of specific examples is due to the fact that both were the focus of much media attention in 2020 [111,112] and both feature on Wikipedia pages, all of which existed well before the temporal cutoff for the addition of training data in September 2021 [113–115]. On the other hand, an academic paper on temporal testing facilities that was published as open-access [61], was not drawn on, which points to public media and Wikipedia as a (major?) source of training data, at least in the context of COVID-19.

Other sites identified by ChatGPT but described in more generic terms are quarantine facilities, vaccine distribution centers, research centers, and laboratories, which were identified as sites “illustrating the measures taken to contain the spread of the virus” and “symbolizing the collective effort to control the pandemic”. Finally, ChatGPT also identified memorials or commemorative sites as a possible future heritage, speculating that “there may be initiatives to establish memorials or commemorative sites dedicated to honoring the lives lost during COVID-19”. Of interest here is that the commemorative sites are only seen as memorials to the dead rather than as memorials to those who served (and lived) [116], akin to the weekly clapping for the health workers [117]. Again, ChatGPT seems to have drawn this from a Wikipedia page, in this instance the National COVID Memorial Wall in London [118].

The issue of sources and their validity aside, ChatGPT proffers the following qualifier, which is, all things considered, apt and apposite: *“It is important to recognize that the identification and designation of heritage places associated with COVID-19 will likely evolve over time, as historical significance and community perspectives are considered. As the pandemic’s impact becomes clearer and societies reflect on its long-term effects, certain locations may gain recognition as important heritage sites that commemorate this significant chapter in history”*. It could almost be considered insightful were it not for standard heritage methodology given the mutability of heritage values [119].

As with the objects in the exhibition design, ChatGPT was then tasked with selecting one of its choices as the ‘icon’ type of heritage site of the COVID-19 pandemic. ChatGPT identified the entire city of Wuhan and provided a justification for its choice. It noted that “Wuhan holds significant historical and symbolic value as the initial epicenter of the pandemic, and it became widely recognized globally as the place where the first cases of COVID-19 were reported”. The justification then moved on to the efforts to control the spread, commenting that “Wuhan’s experience reflects the urgency, scale, and severity of

the situation faced by many cities and countries worldwide". While the justification offered is an elaboration on the brief points made about Wuhan in the initial list of places, the community response is a theme elaborated on in more detail.

ChatGPT was asked again to select one of these types of sites it had initially listed as the single most significant type of heritage site of the COVID-19 pandemic but was restricted in its answer to a choice of temporary hospitals, quarantine facilities, vaccine distribution centers, and cultural and historical landmarks. In this answer, it chose vaccine distribution centers as they "represent a significant turning point in the pandemic response and hold immense significance in terms of human health, societal recovery, and global efforts to combat the virus" and because they "encapsulate the hope, global collaboration, and scientific advancements associated with the pandemic response". The justification for the preferential choice of vaccine distribution centers over other facilities is an expansion of its initial argument for inclusion on the list of potential sites. Its choice of site indicates a selection of long-term outcomes over initial response containment (temporary hospitals, quarantine facilities) and memorialization (cultural and historical landmarks).

4.3. Heritage Professionals and Publications

The final suite of questions related to ChatGPT's awareness of whether heritage professionals have engaged with or researched the heritage of COVID-19 and whether it was aware of and could provide references for published works on the heritage of COVID-19. Its answers were generic, identifying areas of research undertaken (e.g., documentation and collection) rather than identifying specific researchers.

When asked to provide references, ChatGPT noted that "*an AI language model, I don't have direct access to external sources or the ability to browse the internet*", but then proceeded to provide four references, none of which are genuine. These references appear to have been constricted along similar lines to references analyzed in a different paper [77], namely by combining genuine authors who, with two exceptions, published in the field of cultural heritage and coupling them with titles that sound plausible. When asked whether these were real references, it again resorted to the comment that, as "*an AI language model, I don't have direct access to external sources or the ability to browse the internet*", but then followed this up with the assertion that "The references I provided were examples based on common knowledge up until my September 2021 cutoff", insinuating that they were genuine.

While academic publications on the material culture and intangible heritage of COVID-19 were relatively few at the time of the cutoff of training data in September 2021, publications did exist [39,40], most of which had been published open-access [35,55,59,61,65] (in keeping with many journals having policies to keep COVID-19 research in the publicly accessible domain).

4.4. Limitations

A disconcerting pattern emerges from an examination of the responses provided by ChatGPT in this and another study [77]. ChatGPT will provide an initial answer to a question and present its opinion in the format of dot points. Each point is structured as two to three sentences, where the first sentence describes the item or topic and the second (or third) justifies its relevance to the question asked. When tasked with elaborating on a dot point, ChatGPT essentially expands each sentence into a separate dot point but then uses the dot point developed for the last sentence as a platform to further develop that argument. There is no consideration to elaborate further on or expand the first dot point or to offer a more detailed response on the issue or concept raised in that text. This propensity for tangential thought has implications for the use of ChatGPT when developing more detailed exhibition planning, as it has the potential to generate misleading emphases. Clearly, curatorial experience and interpretation remain essential if ChatGPT is to be used as a tool.

ChatGPT's failure to access open-access-published journal articles suggests that the sources that were selected as training data are biased towards readily accessible books (via GoogleBooks) and Wikipedia and biased against academic journal articles, even if

published open-access. Moreover, the majority of academic publishing is either not yet digitized or was published in subscription-based journals that are behind publishers' paywalls. Consequently, a large body of research is, at least currently, inaccessible.

Museum exhibits, in particular those focusing on social issues of public health, need to address the range of public perceptions of an event that, moreover, may change over time. While ChatGPT generically notes that an "*exhibition should be thoughtful and representative of diverse perspectives and experiences*", this would require access to and integration of traditional public media as well as social media. Apart from the fact that such types of data do not seem to have been integrated into the training set, major shifts in public opinion, including vaccine hesitancy [120], would not have been covered before the data cutoff.

5. Implications

The foregoing observations highlight that ChatGPT can provide a powerful tool to generate ideas for the conceptualization of a novel exhibition. Its ability to extract and summarize information has been widely commented on [121–123], but its ability to integrate and synthesize information has been shown to be more limited [124,125], and to potentially suffer from inverted logic [77]. Its strength is its ability to summarize ideas and concepts and relate them in a more or less meaningful way to topics and objects. From a practical perspective, if ChatGPT were to be used to generate ideas for the selection of themes and objects, it is suggested that ChatGPT expand on each suggestion and justify or explain each object selection. Clearly, a curator's interpretation of the responses will be required, but based on the experiences so far, ChatGPT may serve as a brainstorming tool.

Curators will also need to be cognizant of the timeframe limitations of the version of ChatGPT they are drawing on, as well as the datasets fed into the system during the training phase. Some work on the identification of these datasets has begun [126].

As the conversation has shown, ChatGPT can develop a concept for an exhibition of the heritage of COVID-19 and is able to provide a reasonable array of exhibition topics and objects, a selection that is defensible. At the same time, it provides some fundamental ideas on the selection of cultural heritage sites associated with the pandemic but by and large, lacks specificity. This is clearly a factor of the data that were used to train the model, with a seemingly heavy reliance on Wikipedia at least in this instance (probably caused by the paucity of readily accessible publications).

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