

Article

Not peer-reviewed version

Exhibiting the Heritage of Covid-19—a Conversation with ChatGPT

[Dirk H.R. Spennemann](#)*

Posted Date: 21 July 2023

doi: 10.20944/preprints2023071523.v1

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



Preprints.org is a free multidiscipline platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Article

Exhibiting the Heritage of Covid-19 – A Conversation with ChatGPT

Dirk HR Spennemann ^{1,*}

¹ Gulbali Institute; Charles Sturt University; PO Box 789; Albury NSW 2640, Australia

* Correspondence: dspennemann@csu.edu.au

Abstract: The documentation and management of the cultural heritage of the COVID-19 pandemic as well as the heritage 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 be(come) 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 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

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 artefacts, monuments and buildings, the field expanded to consider 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 and subsequent documentation and management of digital heritage in the form of hardware heritage, digital artefacts, virtual artefacts 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 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, restrictions on personal movement (lockdowns) and congregation (social distancing), impacted all professions and occupations. While some work could pivot to on-line 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 on-line presence [20–30], the wide-spread 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 to manage the spread of SARS-Cov-2 became apparent, it became obvious that the COVID-19 pandemic represented a cross-sectoral disruptor that at one 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 artefacts’ 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 on 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 a 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 asserted in 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 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].

The majority 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 to provide a potential tool for message generation, content marketing and audience interaction, as well as sentiment analysis of general enquiries, all of which can be readily ported to a museum context [97,98]. Furthermore, ChatGPT (or future iterations) can be readily used as a generic document and content analysis tool to extract and summarize pertinent data from longer documents or inventory data [99], which can be used to develop exhibition texts, exhibit labels and catalogue information as well as scripts for audio guides [100–102].

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 and 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, to conceptualize an exhibition and to justify the selection of objects and places chosen. 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 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 widespread 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 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 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 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 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 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 analysis 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 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 Paardekooper: 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 GoogleScholar search generated 40 results. In both cases the results included several references related to medicine and were not applicable. Thus, while there is a considerable body of literature that addresses the impact of COVID-19 on cultural heritage 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 modelled. 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 and '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 is 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 had been widely raised in the general literature with some reference in 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 reference on 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 learnt.

At the next level of detail we need to examine the nature of 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") suggest to include 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 the 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 they had "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 choice objects. From a practical

perspective, if ChatGPT were to be used to generate ideas for selection of themes and objects, it is suggested to require ChatGPT to expand on each suggestion and to 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 as 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) 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,[103,104] and both feature on Wikipedia pages, all of which existed well before the temporal cut off for the addition of training data in September 2021 [105–107]. 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 Wikipedia as a (major?) source of training data.

Other sites identified by ChatGPT, but described in more generic terms, are quarantine facilities, vaccine distribution centers as well as 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)[108] akin to the weekly clapping for the health workers [109] Again, ChatGPT seems to have drawn this from a Wikipedia page, in this instance the National Covid Memorial Wall in London,[110].

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 standard heritage methodology given the mutability of heritage values [111].

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 of 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 as to 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, it notes 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. They appear to have been constricted along similar lines to references analyzed in a different paper [77], namely combined 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” insinuating that they were genuine.

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 to elaborate on a dot point, ChatGPT essentially expands each sentence into a separate dot point, but then takes 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 and to offer a more detailed response on the issue or concept raised in that text. This propensity to tangential thought has implications on the use of ChatGPT when developing more detailed exhibition planning as it has the potential to generate misleading emphases. Clearly, curatorial experience and interpretation remains essential if ChatGPT were to be used as a tool.

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 [112–114] but its ability to integrate and synthesize information has been shown to be more limited [115,116], 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 selection of themes and objects, it is suggested to require ChatGPT to expand on each suggestion and to 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 brainstorming tool.

As the conversation has shown, ChatGPT can develop a concept for an exhibition of the heritage of COVID-19 and is able provide a reasonable array of exhibition topics and objects, a selection which 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 of Wikipedia.

Funding: This research received no external funding.

Data Availability Statement: No data to report.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Murtagh, W.J. *Keeping Time : The History and Theory of Preservation in America*; John Wiley and Sons: New York, 1997.
2. Spennemann, D.H.R. What actually is a Heritage Conservation Area? A Management Critique based on a Systematic Review of NSW Planning Documents. *Heritage* **2023**, *6*, 5270-5304.
3. Convention Concerning the Protection of the World Cultural and Natural Heritage (United Nations Educational, Scientific and Cultural Organization). Act Assented: Paris 21 Nov 1972, 1972.
4. ICOMOS. International Charter for the conservation and restoration of monuments and sites, Venice, 1964. **1964**.
5. Smith, L. *Uses of heritage*; Routledge: Abingdon, 2006.
6. UNESCO. *Basic Texts of the 2003 Convention for the Safeguarding of Intangible Cultural Heritage' for its protection and promotion*; UNESCO: Paris, 2020.
7. Smith, L.; Campbell, G. The tautology of "intangible values" and the misrecognition of intangible cultural heritage. *Heritage & Society* **2017**, *10*, 26-44.
8. Vecco, M. A definition of cultural heritage: From the tangible to the intangible. *Journal of Cultural Heritage* **2010**, *11*, 321-324.
9. Spennemann, D.H.R. Futurist rhetoric in U.S. historic preservation: A review of current practice. *International Review on Public and Nonprofit Marketing* **2007**, *4*, 91-99.
10. Spennemann, D.H.R. The Ethics of treading on Neil Armstrong's Footprints. *Space Policy* **2004**, *20*, 279-290.
11. Spennemann, D.H.R. Conceptualizing a Methodology for Cultural Heritage Futures: Using Futurist Hindsight to Make 'Known Unknowns' Knowable. *Heritage* **2023**, *6*, 548-566, doi:10.3390/heritage6010029.
12. Bruderer, H. Preserving the Technical Heritage. In *Milestones in Analog and Digital Computing*, 3rd ed.; Bruderer, H., Ed.; Springer Nature: Cham, 2020; pp. 851-858.
13. Jarlbrink, J. How to Approach Hard Drives as Cultural Heritage. In *Digital Human Sciences New Objects – New Approaches*, Petersson, S., Ed.; Stockholm University Press: Stockholm, 2021; pp. 229-252.
14. Galloway, P. Retrocomputing, archival research, and digital heritage preservation: A computer museum and iSchool collaboration. *Library Trends* **2011**, *59*, 623-636.
15. Król, K. Hardware Heritage—Briefcase-Sized Computers. *Heritage* **2021**, *4*, 2237-2252.
16. Kirschenbaum, M.; Ovenden, R.; Redwine, G.; Donahue, R. *Digital forensics and born-digital content in cultural heritage collections*; Council on Library and Information Resources: Washington, D.C., 2010.
17. Spennemann, D.H.R.; Spennemann, R.J. Establishing genealogies of born digital content: the suitability of revision identifier (rsid) numbers in MS Word for forensic enquiry. *Publications* **2023**, *11*, 1-25, doi:10.3390/publications11030035.
18. Hodges, J.A. Comparing born-digital artefacts using bibliographical archeology: a survey of Timothy Leary's published software (1985-1996). *Information Research* **2019**, *24*, paper818.
19. Spennemann, D.H.R. The Digital Heritage of the battle to contain COVID-19 in Australia and its implications for Heritage Studies. *Heritage* **2023**, *6*, 3864-3884, doi:10.3390/heritage6050205.
20. Tranta, A.; Alexandri, E.; Kyprianos, K. Young people and museums in the time of covid-19. *Museum Management and Curatorship* **2021**, 1-17.
21. Treleaven, E. Curating Historic Interiors at the Charles Dickens Museum during Covid. *19: Interdisciplinary Studies in the Long Nineteenth Century* **2021**.
22. Tserklevych, V.; Prokopenko, O.; Goncharova, O.; Horbenko, I.; Fedorenko, O.; Romaniuk, Y.S. Virtual Museum Space as the Innovative Tool for the Student Research Practice. **2021**.
23. Zollinger, R. Being for Somebody: Museum Inclusion During COVID-19. *Art Education* **2021**, *74*, 10-12.
24. Zolnowski, S.W. The Impact of the Covid-19 Pandemic on the American Museum Industry: A Historical Analysis, and an Inspection of Current Events, with a Look Towards the Future. State University of New York at Buffalo, 2021.

25. Han, M.; Yi, Y. Digital Exhibition of Intangible Heritage and the Role of Museums in COVID-19 Era—Focusing on Gwangju Chilseok Gossaum Nori Video Experience Center in South Korea. *Heritage* **2022**, *5*, 2673-2688.
26. Tissen, L.N. Culture, Corona, Crisis: Best Practices and the Future of Dutch Museums. *Journal of Conservation and Museum Studies* **2021**, *19*.
27. Rivero Gracia, P.; Navarro-Neri, I.; García-Ceballos, S.; Aso, B. Spanish Archaeological Museums during COVID-19 (2020): An Edu-Communicative Analysis of their Activity on Twitter through the Sustainable Development Goals. *Sustainability* **2020**, *12*, 8224.
28. Yaverbaum, M.M. New Considerations: Jewish Museums in the Era of COVID-19. *American Jewish History* **2020**, *104*, 661-663.
29. Samaroudi, M.; Echavarría, K.R.; Perry, L. Heritage in lockdown: Digital provision of memory institutions in the UK and US of America during the COVID-19 pandemic. *Museum Management and Curatorship* **2020**, *35*, 337-361.
30. Geser, G. Impact of COVID-19 on Archaeology and Cultural Heritage. *Salzburg Research* **2021**, *29*.
31. Kinnunen, M.; Honkanen, A. Impacts of the COVID-19 pandemic on music festival attendees. *Popular Music* **2021**, *40*, 317-346.
32. Hanzlík, J.; Mazierska, E. Eastern European film festivals: streaming through the covid-19 pandemic. *Studies in Eastern European Cinema* **2022**, *13*, 38-55.
33. Valck, M.d.; Damiens, A. Film festivals and the first wave of COVID-19: Challenges, opportunities, and reflections on festivals' relations to crises. *NECSUS_European Journal of Media Studies* **2020**, *9*, 299-302.
34. Ponzini, D. Introduction to the special issue – cultural mega-events and heritage: challenges for European cities. *European Planning Studies* **2022**, *30*, 427-436, doi:10.1080/09654313.2021.1959719.
35. Parker, M.; Spennemann, D.H.R. Stille Nacht: COVID and the ghost of Christmas 2020. *Heritage* **2021**, *4*, 3081-3097, doi:10.3390/heritage4040172.
36. Pascoal, S.; Tallone, L.; Furtado, M. The Impact of COVID-19 on Cultural Tourism: Virtual Exhibitions, Technology and Innovation. In Proceedings of the International Conference on Tourism, Technology and Systems, 2020; pp. 177-185.
37. Flew, T.; Kirkwood, K. The impact of COVID-19 on cultural tourism: Art, culture and communication in four regional sites of Queensland, Australia. *Media International Australia* **2021**, *178*, 16-20.
38. Richards, G.; Fernandes, C. Cultural tourism during the COVID-19 pandemic in Portugal. *Tourism Culture & Communication* **2023**.
39. Parker, M.; Spennemann, D.H.R. Anthropause on audio: the effects of COVID-19 pandemic on church bell ringing in New South Wales (Australia). *J. Acoust. Soc. Am.* **2020**, *148*, 1–5, doi:10.1121/10.0002451.
40. Parker, M.; Spennemann, D.H.R. Responses to government-imposed restrictions: the sound of Australia's church bells one year after the onset of COVID-19. *J. Acoust. Soc. Am.* **2021**, *150*, doi:10.1121/10.0002451.
41. Wright, D. Laboratories in the lounge room: archaeological field methods training during the COVID-19 pandemic. *The Artefact* **2022**, *44*, XX.
42. Willsher, J. The Lost Coffees: An Archaeology Student's Experience of COVID-19 and the Importance of Informal Learning at University. *The Artefact* **2022**, *44*, XX.
43. Vines, G. The impact of COVID-19 on an archaeological consultant. *The Artefact* **2022**, *44*, XXX.
44. Urwin, C. Museum anthropology in a pandemic: The enduring importance of object encounters and spontaneous collaboration. *The Artefact* **2022**, *44*, XXX.
45. Hodor, K.; Przybylak, Ł.; Kuśmierski, J.; Wilkosz-Mamcarczyk, M. Identification and Analysis of Problems in Selected European Historic Gardens during the COVID-19 Pandemic. *Sustainability* **2021**, *13*, doi:10.3390/su13031332.
46. Holtorf, C. An archaeology for the future: from developing contract archaeology to imagining post-corona archaeology. *Post-Classical Archaeologies* **2020**, *10*, 57-72.
47. Gould, P. Resilience and innovation: an economic contemplation on public-facing archaeology after COVID-19. *Post-Classical Archaeologies* **2020**, *10*, 21-33.
48. Ginzarly, M.; Jordan Srour, F. Cultural heritage through the lens of COVID-19. *Poetics (Amst)* **2022**, *92*, 101622, doi:10.1016/j.poetic.2021.101622.
49. Spennemann, D.H.R. Curating the Contemporary: a case for national and local COVID-19 collections. *Curator* **2022**, *65*, 27–42, doi:10.1111/cura.12451.
50. Koscieljew, M. Remembering COVID-19; or, a duty to document the coronavirus pandemic. *IFLA Journal* **2022**, *48*, 20-32, doi:10.1177/03400352211023786.
51. Zuanni, C. Contemporary Collecting in a Pandemic: Challenges and Solutions for Documenting the COVID-19 Pandemic in Memory Organizations. *Heritage* **2022**, *5*, 3616-3627.
52. Sullivan, N. A Stitch in Time? Craftivism, Connection and Community in the Time of COVID-19. *Museum and Society* **2020**, *18*, 327-329.
53. Bushey, J. A Participatory Archives Approach to Fostering Connectivity, Increasing Empathy, and Building Resilience during the COVID-19 Pandemic. *Heritage* **2023**, *6*, 2379-2393.

54. Spennemann, D.H.R. Documenting COVID-19 for Posterity: A Review of the Types of Fitted Face Masks worn in Albury (Australia). *Hygiene* **2023**, *3*, 176-196, doi:10.3390/hygiene3020013.
55. Schofield, J.; Praet, E.; Townsend, K.A.; Vince, J. 'COVID waste' and social media as method: an archaeology of personal protective equipment and its contribution to policy. *Antiquity* **2021**, *95*, 435-449.
56. Spennemann, D.H.R. Facing COVID-19: quantifying the use of reusable vs. disposable facemasks. *Hygiene* **2021**, *1*, 120-128, doi:10.3390/hygiene1030011.
57. Magnani, M.; Magnani, N.; Venovcevs, A.; Farstadvoll, S. A contemporary archaeology of pandemic. *Journal of Social Archaeology* **2021**, 14696053211043430.
58. Angelo, D.; Britt, K.M.; Brown, M.L.; Camp, S.L. Spaces: Documenting COVID-19 Material Culture and Landscapes. *Journal of Contemporary Archaeology* **2021**, *8*, 154-184.
59. Spennemann, D.H.R. *Collecting COVID-19 Ephemera: a photographic documentation of examples from regional Australia*; Institute for Land, Water and Society, Charles Sturt University: Albury, NSW, 2021.
60. Spennemann, D.H.R. *The Material Culture of the COVID-19 Pandemic. A Descriptive Catalogue of SARS-Cov-2 Rapid Antigen Tests collected for the Albury Library/Museum*; SAEVS, Charles Sturt University: Albury, NSW, 2023.
61. Spennemann, D.H.R. COVID-19 on the ground: heritage sites of a pandemic. *Heritage* **2021**, *3*, 2140-2162, doi:10.3390/heritage4030121.
62. Spennemann, D.H.R. *Patterns of a Pandemic. A documentation of COVID-19 masks sold, lost and discarded in a regional Australian city*; 164; Institute for Land, Water and Society, Charles Sturt University: Albury, NSW, 2021.
63. Spennemann, D.H.R. COVID face masks: policy shift results in increased littering. *Sustainability* **2021**, *13*, 9875, doi:10.3390/su13179875.
64. Spennemann, D.H.R. The Decentralized Generation of Public Knowledge during the COVID-19 Pandemic: Examples from Australia. *Knowledge* **2023**, *3*, 320-332, doi:10.3390/knowledge3030022.
65. Gamble, L.H.; Claassen, C.; Eerkens, J.W.; Kennett, D.J.; Lambert, P.M.; Liebmann, M.J.; Lyons, N.; Mills, B.J.; Rodning, C.B.; Schneider, T.D.; et al. Finding Archaeological Relevance during a Pandemic and What Comes After. *American Antiquity* **2021**, *86*, 2-22, doi:10.1017/aaq.2020.94.
66. Chirikure, S. Issues Emerging: Thoughts on the Reflective Articles on Coronavirus (COVID-19) and African Archaeology. *African Archaeological Review* **2020**, *37*, 503-507, doi:10.1007/s10437-020-09402-w.
67. Holtorf, C. Archaeology And Cultural Heritage Beyond Quarantine: Reflections From Sweden On Covid-19 And Its Consequences *Revista de Arqueologia* **2022**, *35*, doi:https://doi.org/10.24885/sab.v35i1.958.
68. Hoskins, G.; Maddern, J. Anticipating a Covid-19 Memorial Landscape: Quarantine and Migration Heritage as a Template? *Change Over Time* **2022**, *11*, 122-139.
69. OpenAI. Introducing ChatGPT. Available online: <https://openai.com/blog/chatgpt/> (accessed on June 28, 2023).
70. Ray, P.P. ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope. *Internet of Things and Cyber-Physical Systems* **2023**.
71. Agapiou, A.; Lysandrou, V. Interacting with the Artificial Intelligence (AI) Language Model ChatGPT: A Synopsis of Earth Observation and Remote Sensing in Archaeology. *Heritage* **2023**, *6*, 4072-4085, doi:10.3390/heritage6050214.
72. Neves, P.S. Chat GPT AIS "Interview" 1, December 2022. *AIS-Architecture Image Studies* **2022**, *3*, 58-67.
73. Biswas, S. Importance of chat GPT in Agriculture: According to chat GPT. Available at SSRN 4405391 **2023**.
74. Castro Nascimento, C.M.; Pimentel, A.S. Do Large Language Models Understand Chemistry? A Conversation with ChatGPT. *Journal of Chemical Information and Modeling* **2023**, *63*, 1649-1655.
75. Sng, G.G.R.; Tung, J.Y.M.; Lim, D.Y.Z.; Bee, Y.M. Potential and pitfalls of ChatGPT and natural-language artificial intelligence models for diabetes education. *Diabetes Care* **2023**, *46*, e103-e105.
76. Qi, X.; Zhu, Z.; Wu, B. The promise and peril of ChatGPT in geriatric nursing education: What We know and do not know. *Aging and Health Research* **2023**, *3*, 100136, doi:https://doi.org/10.1016/j.ahr.2023.100136.
77. Spennemann, D.H.R. ChatGPT and the generation of digitally born "knowledge": how does a generative AI language model interpret cultural heritage values? *preprint.org* **2023**, 1-40, doi:10.20944/preprints202307.0563.v1.
78. King, M.R. The future of AI in medicine: a perspective from a Chatbot. *Ann. Biomed. Eng.* **2023**, *51*, 291-295.
79. Sarraju, A.; Bruemmer, D.; Van Iterson, E.; Cho, L.; Rodriguez, F.; Laffin, L. Appropriateness of Cardiovascular Disease Prevention Recommendations Obtained From a Popular Online Chat-Based Artificial Intelligence Model. *JAMA* **2023**, *329*, 842-844, doi:10.1001/jama.2023.1044.
80. Bays, H.E.; Fitch, A.; Cuda, S.; Gonsahn-Bollie, S.; Rickey, E.; Hablutzel, J.; Coy, R.; Censani, M. Artificial intelligence and obesity management: An Obesity Medicine Association (OMA) Clinical Practice Statement (CPS) 2023. *Obesity Pillars* **2023**, *6*, 100065.
81. Grünebaum, A.; Chervenak, J.; Pollet, S.L.; Katz, A.; Chervenak, F.A. The exciting potential for ChatGPT in obstetrics and gynecology. *Am. J. Obstet. Gynecol.* **2023**, *228*, 696-705.

82. Rao, A.S.; Pang, M.; Kim, J.; Kamineneni, M.; Lie, W.; Prasad, A.K.; Landman, A.; Dryer, K.; Succi, M.D. Assessing the utility of ChatGPT throughout the entire clinical workflow. *medRxiv* **2023**, 2023.2002.2021.23285886.
83. Corsello, A.; Santangelo, A. May Artificial Intelligence Influence Future Pediatric Research?—The Case of ChatGPT. *Children* **2023**, *10*, doi:10.3390/children10040757.
84. Cascella, M.; Montomoli, J.; Bellini, V.; Bignami, E. Evaluating the feasibility of ChatGPT in healthcare: an analysis of multiple clinical and research scenarios. *Journal of Medical Systems* **2023**, *47*, 33.
85. Ollivier, M.; Pareek, A.; Dahmen, J.; Kayaalp, M.E.; Winkler, P.W.; Hirschmann, M.T.; Karlsson, J. A deeper dive into ChatGPT: history, use and future perspectives for orthopaedic research. *Knee Surgery, Sports Traumatology, Arthroscopy* **2023**, *31*, 1190-1192.
86. Eggmann, F.; Weiger, R.; Zitzmann, N.U.; Blatz, M.B. Implications of large language models such as ChatGPT for dental medicine. *Journal of Esthetic and Restorative Dentistry* **2023**.
87. McGee, R.W. Will ChatGPT Destroy the Accounting Profession? ChatGPT Replies. *ChatGPT Replies (April 27, 2023)* **2023**.
88. Lund, B.D.; Wang, T. Chatting about ChatGPT: how may AI and GPT impact academia and libraries? *Library Hi Tech News* **2023**, *40*, 26-29.
89. Jeon, J.; Lee, S. Large language models in education: A focus on the complementary relationship between human teachers and ChatGPT. *Education and Information Technologies* **2023**, 1-20.
90. Lim, W.M.; Gunasekara, A.; Pallant, J.L.; Pallant, J.I.; Pechenkina, E. Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education* **2023**, *21*, 100790.
91. Yan, D. Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation. *Education and Information Technologies* **2023**, 1-25.
92. Ali, K.; Barhom, N.; Marino, F.T.; Duggal, M. The Thrills and Chills of ChatGPT: Implications for Assessments in Undergraduate Dental Education. *Preprints.org* **2023**, 2023020513, doi:https://doi.org/10.20944/preprints202302.0513.v1.
93. King, M.R.; chatGPT. A Conversation on Artificial Intelligence, Chatbots, and Plagiarism in Higher Education. *Cellular and Molecular Bioengineering* **2023**, *16*, 1-2, doi:10.1007/s12195-022-00754-8.
94. Stokel-Walker, C. AI bot ChatGPT writes smart essays-should academics worry? *Nature* **2022**.
95. Currie, G.; Singh, C.; Nelson, T.; Nabasenja, C.; Al-Hayek, Y.; Spuur, K. ChatGPT in medical imaging higher education. *Radiography* **2023**, *29*, 792-799, doi:10.1016/j.radi.2023.05.011.
96. Lobo, N. ChatGPT threatens academic honesty at museum. Available online: <https://nycmuseumgallery.org/1791/news/chatgpt-threatens-academic-honesty-at-museum/> (accessed on Jun 29, 2023).
97. Ciecko, B. 9 ways ChatGPT can empower museums & cultural organizations in the digital age. *Cuseum Blog* **2023**, 2023.
98. Frackiewicz, M. ChatGPT in the World of Museum Technology: Enhancing Visitor Experiences and Digital Engagement. Available online: <https://ts2.space/en/chatgpt-in-the-world-of-museum-technology-enhancing-visitor-experiences-and-digital-engagement/> (accessed on Jun 29, 2023).
99. Lehmann, J. On the Use of ChatGPT in Cultural Heritage Institutions. *Project "Human.Machine.Culture – Artificial Intelligence for the Digital Cultural Heritage* **2023**, 2023.
100. Maas, C. Was kann ChatGPT für Kultureinrichtungen tun? *Understanding AI* **2023**, 2023.
101. Merritt, E. Chatting About Museums with ChatGPT. *Center for the Future of Museums Blog* **2023**, 2023.
102. Trichopoulos, G.; Konstantakis, M.; Caridakis, G.; Katifori, A.; Koukouli, M. Crafting a Museum Guide Using GPT4. *Preprints.org* **2023**, 2023061618.
103. Quinn, B. What has happened to England's seven Nightingale hospitals? *The Guardian* Oct 9 2020.
104. Yuan, J. Inside the Javits Center: New York's militarized, makeshift hospital. *Washington Post* Apr 4 2020.
105. Wikipedia. COVID-19 hospitals in the United Kingdom. Available online: https://en.wikipedia.org/wiki/COVID-19_hospitals_in_the_United_Kingdom#NHS_England (accessed on Jul 23, 2023).
106. Wikipedia. Javits Center. Available online: https://en.wikipedia.org/wiki/Javits_Center (accessed on Jul 23, 2023).
107. Wikipedia. COVID-19 pandemic in New York City. Available online: https://en.wikipedia.org/wiki/COVID-19_pandemic_in_New_York_City (accessed on Jul 23, 2023).
108. BBC. Scotland's first Covid memorial to NHS staff unveiled in Edinburgh. Available online: <https://www.bbc.com/news/uk-scotland-edinburgh-east-fife-63242286> (accessed on Jul 23, 2023).
109. Manthorpe, J.; Iliffe, S.; Gillen, P.; Moriarty, J.; Mallett, J.; Schroder, H.; Currie, D.; Ravalier, J.; McFadden, P. Clapping for carers in the Covid-19 crisis: Carers' reflections in a UK survey. *Health Soc Care Community* **2022**, *30*, 1442-1449, doi:10.1111/hsc.13474.
110. Wikipedia. National Covid Memorial Wall. Available online: https://en.wikipedia.org/wiki/National_Covid_Memorial_Wall (accessed on Jul 23, 2023).

111. Spennemann, D.H.R. The Shifting Baseline Syndrome and Generational Amnesia in Heritage Studies. *Heritage* **2022**, *5*, 2007–2027, doi:10.3390/heritage5030105.
112. Yang, X.; Li, Y.; Zhang, X.; Chen, H.; Cheng, W. Exploring the limits of chatgpt for query or aspect-based text summarization. *arXiv preprint arXiv:2302.08081* **2023**.
113. Antaki, F.; Touma, S.; Milad, D.; El-Khoury, J.; Duval, R. Evaluating the Performance of ChatGPT in Ophthalmology: An Analysis of Its Successes and Shortcomings. *Ophthalmology Science* **2023**, *3*, 100324, doi:https://doi.org/10.1016/j.xops.2023.100324.
114. Gilson, A.; Safranek, C.W.; Huang, T.; Socrates, V.; Chi, L.; Taylor, R.A.; Chartash, D. How Does ChatGPT Perform on the United States Medical Licensing Examination? The Implications of Large Language Models for Medical Education and Knowledge Assessment. *JMIR Med Educ* **2023**, *9*, e45312, doi:10.2196/45312.
115. Macdonald, C.; Adeloye, D.; Sheikh, A.; Rudan, I. Can ChatGPT draft a research article? An example of population-level vaccine effectiveness analysis. *Journal of global health* **2023**, *13*.
116. Haman, M.; Školník, M. Using ChatGPT to conduct a literature review. *Accountability in Research* **2023**, 1-3.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.