



An Ethical Discussion of Conservation and Restoration of Artwork at the Dunhuang Caves

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Abstract. This essay will examine the ethical issues associated with art conservation and restoration and demonstrate that the application of comprehensive guidelines and rules are able to effectively address those ethical questions. Using the Dunhuang Cave Temples as a case study, this question will be explored referencing in particular the conservation and restoration of Cave 85 – one of the large caves within the Mogao Grottos. Specifically, this research will focus on the application of a set of principles related to the conservation of heritage sites. These principles known as the Principles for the Conservation of Heritage Sites in China were originally developed in 1997 and promulgated by the Chinese authorities. They have been applied to the work on this site. They are the rules that have been set by the Chinese Government for any restoration work on cultural sites.

Keywords: heritage sites · conservation · Mogao Grottos

1 Introduction

Preservation and restoration of artwork has become a controversial topic in the art world. There is a school of thought that promotes the restoration of artworks, even though these actions may change the appearance and nature, and therefore the value of the artifact. Many famous artworks (e.g. the Sistine Chapel) have been subjected to major restoration work. For many of these the restoration work has led to criticism that the original artifact has been compromised. To understand what it means when we say the artwork is ‘compromised’, we need to examine the artwork in detail, what it means to people, and what is its value to the community. What are we trying to achieve when we ‘restore’ it? These are not simple questions to answer.

There are many ethical questions raised by art conservation and restoration projects. Most of these questions relate to whether the value of the original artwork can be respected and retained during the preservation process. One current conservation project is at the Cave Temples (Mogao Grottos) in Dunhuang in Northwestern China. The Cave Temples are widely considered to be one of the world’s most significant collections of Buddhist art. They were listed as a World Heritage Site in 1987. The caves were excavated over a thousand years ago along the ancient Silk Road and contain many murals and

sculptures created by the ancient Chinese. The murals and painted sculptures are made of mud, grass, mineral pigments, and animal glue. They are very fragile and have inevitably deteriorate over time. The Chinese government through the Dunhuang Academy engaged with the Getty Conservation Institute in a project that is aimed at slowing the decay of the Cave Temples so that they can be preserved for future generations.

2 Literature Review

Due to advances in technology over the past few decades, cooperation and research between countries and disciplines has increased exponentially. These rapid changes in technology are also reshaping the areas of conservation and restoration of artwork. Technology now allows real-time collaboration and communication between experts anywhere in the world. This explosion in technology has also reshaped the ability to address the question of ‘ethics’ as it applies to restoration and conservation of artwork. We look at ethics in art conservation as having three main objectives; a) do no harm b) having a duty of care for the cultural significance, and c) preserving the artist’s original intent. The literature that is relevant has also been transformed by the advances in technology. Much of the older literature has been made redundant by the technological advances. The documentation that contains these advances is now held online and in scholarly papers published by organisations such as the Getty Conservation Institute and the Dunhuang Academy.

The Dunhuang Academy is the official organization run by Chinese government specialising in the Dunhuang murals. The Academy publishes professional journals regularly, called *DunHuang Research*, a journal started in 1981, conducted all aspects of information published by professionals about Dunhuang caves, it also is a CSSCI (Chinese Social Sciences Citation Index) source journal. The Getty Conservation Institute had a collaborative project with the Dunhuang Academy called “The Conservation of Cave 85 at The Mogao Grottoes, Dunhuang” gives detailed information about the cave. It is the main scholarly reference for this paper.

The origins of the Mogao Grottos date back to the year 366 C.E. For the thousand years, between the 4th and 14th centuries, the city of Dunhuang thrived as it was on the ancient Silk Road Dunhuang became the outpost guarding the westernmost region of the Chinese Empire. During this time Buddhism made its way along the trade route from India into China. Over that period of almost one thousand years, nearly five hundred cave temples were excavated and decorated along a mile of cliff face at Mogao.

As the overland Silk Road was gradually replaced by shipping routes, the cave temples fell into a state of disrepair. This deterioration was made worse by floods, earthquakes, water seepage, and sand accumulation. The cliff face became gradually unstable and further damage was done by visitors to this site. In 1997, the organization responsible for the care and management of the site (The Dunhuang Academy) partnered with the Getty Conservation Institute under the authorization of the State Administration of Cultural Heritage on a particular conservation/restoration project. This collaborative project focused on a particular grotto, called Cave 85. The Getty Conservation Institute had already partnered with the Dunhuang Academy ten years earlier to address the deterioration of the Mogao Grottos. The result of that collaboration was the development

of national guidelines for the conservation and management of cultural heritage sites in China. The Australian Heritage Commission was also in the development of these guidelines. These guidelines were approved for dissemination in the year 2000 as 'Principles for the Conservation of Heritage Sites in China' (Getty Conservation, 2013).

Although this essay focuses on the ethics of the conservation work at a particular cave in the Mogao Grottos, much can be learned from other major art restoration projects; were similar questions raised about the ethics of restoring or modifying art for future generations? While ethical questions and answers should relate to all artwork, it must be noted that cave art is subject to limitations that may not apply to artworks displayed in galleries. The levels of deterioration will be very different in an environmentally controlled gallery when compared with an ancient grotto situated in the desert lands of China. Part of the attraction with cave art is its location. This is because the location is directly associated with the cave work's history and culture. It is not easy to move the cave artwork without significant damage being done or for the integrity of the art to be compromised. Even if it could be moved, doing so would remove much of the cultural significance and value from the artwork.

One piece of artwork that surprisingly does have some key things in common with the Mogao Grottos is the restoration work that has been performed on the Renaissance art in the Sistine Chapel. The best-known part of this work is the painting on the ceiling of the chapel by Michelangelo. The work, which was completed between 1508 and 1512, has been the subject of significant work after its completion. The early restoration work that was performed on the Sistine Chapel was necessary because of several factors including seepage of water from the floor above. This is very similar to the problems experienced with the Mogao Grottos. Within decades of the completion of the artwork, many more restoration projects were carried out. Some of these works were very intrusive and it could be argued that they changed the original artwork significantly. Sadly, some of these interventions were not even driven by conservation requirements. The most recent restoration efforts on the Sistine Chapel were done in 1978. These efforts were more considerate of the effect that the restoration work had on the original artwork [1].

The deterioration of the Sistine Chapel was similar in many ways to the damage in the Mogao grottos. Similarly, criticisms regarding art conservation and restoration were not unique to one site or one country. Many of the criticisms that were raised about the work on the Sistine Chapel could also have applied to the work on the Mogao Grottos if it were not for the development of prescriptive guidelines and rules that were developed by several countries with involvement from their governments. These guidelines and rules were adopted by the Chinese government authorities and evolved into the 'Principles for the Conservation of Heritage Sites in China' [2].

3 Methodology

This essay explores the ethics of art conservation and restoration. There is a difference between Art Conservation and Art Restoration; Conservation involves extending the life of an artwork through stabilizing and preserving artwork and avoiding or slowing deterioration in the future. An example of this might be as simple as controlling the physical environment in which the art exists. Art Restoration however is usually a more

invasive approach. Work is done to bring the art back to its former condition. Although the focus here is mainly on the conservation and restoration efforts at the Mogao caves, the questions on ethics that are raised apply to almost all art restoration projects. The restoration and conservation of Cave 85 is being used as learning exercise for many other similar projects. One of the Principles is that the rules continue to evolve based on the learning experiences.

The restoration work at Mogao has been well documented and provides detail on all aspects of the project. As discussed, this work has been guided by a detailed set of rules issued by the Chinese authorities (ICOMOS, 2015). The set of rules in this document are particularly relevant to the ethics of art conservation and restoration. The question is, do the Principles as detailed in the Chinese rules address the ethical questions related to art conservation and restoration? What are those questions?

In reviewing the ethical questions that are raised by art conservation at Mogao, this essay will examine the nature of this project and how the challenges were addressed. A key question will be whether the document on Principles for the Conservation is able to adequately address ethical considerations. The most relevant question related to the restoration and conservation work on the Mogao Grottos is whether the cave artwork has been modified in any significant way during the conservation work? If there has been any work done that involves modifying either the actual artwork, or the walls or underlying material, then what are the ethical considerations associated with this? For example, is the art compromised in any way by the restoration work being done by the authorities? If so, how? Has the authenticity been lost? Some of the work might include extreme measures such as taking down the murals to preserve them, or work on the base materials of the walls to stabilize them. This raises ethical questions about whether physically touching, modifying, or even moving the original work compromises the artwork in any way. To answer these questions, it will be necessary to reference the *Principles for the Conservation of Heritage Sites in China*; were these principles developed in line with the ethical questions on restoration and preservation of artwork in general? Did the work on Cave 85 follow the principles? Are there other actions at Mogao that fall outside the Principles but still relate to the conservation efforts?

In addition, research on the restoration of the Sistine Chapel will be used to compare and contrast with the work at Dunhuang. Both sites have stunning centuries old frescoes. In the case of the Sistine Chapel conservation work performed over the centuries has been poorly planned and executed. Often the work has been motivated by social and political factors. As a result, the original work has been compromised. However, these disastrous interventions have provided important insights and lessons that have influenced future conservation projects, like Dunhuang.

4 Findings and Analysis

There are many examples of both conservation and restoration projects failing to meet their objectives. Some conservation/restoration projects have even been accused of ruining artworks, sometimes permanently. Often these failures have been due to insufficient knowledge or a lack of a rigorous approach to the work. In the past, the techniques for restoration were quite primitive. In recent times the restoration techniques have become

Table 1. The explanation of the terms

*The **historical** value of a heritage site derives from the following:*

1. *Important reasons led to its construction, and the site authentically reflects this historical reality.*
2. *Significant events occurred at the site or important figures were active there, and its historic setting accurately reflects these events or the activities of these people.*
3. *The site illustrates the material production, lifestyle, thought, customs and traditions or social practices of a particular historical period.*
4. *The existence of the site can prove, correct, or supplement facts documented in historical records.*
5. *The historic remains contain unique or extremely rare period or type elements, or are representative of a type of site. 72 Commentary*
6. *Stages of a site's transformations over time are capable of being revealed.*

*The **artistic** value of a heritage site derives from the following:*

1. *Architectural arts, including spatial composition, building style, decoration, and aesthetic form.*
2. *Landscape arts, including cultural, urban, and garden landscapes of famous scenic locations, as well as particular vistas comprising a landscape of ruins.*
3. *Associated sculptural and decorative arts, including carvings, statues and fixed ornamentation, frescoes, and furnishings.*
4. *Immovable sculptural artistic works that are unique in period, type, subject, appearance, or artisan skills.*
5. *The creative process and means of expression of the above-mentioned arts.*

*The **scientific** value of a heritage site refers specifically to the history of scientific and technological development and derives from the following:*

1. *Plan and design, including the selection and layout of a site, protection of the ecology, response to threats of disaster, and architectural form and structural design.*
2. *Construction, materials, and techniques and the level of scientific and technological achievement they represented for their time, or their importance as a link in the development of science and technology.*
3. *A facility or place where scientific experiments, production, or transportation, and so on, occurred. iv A place where important scientific and technological information is recorded or preserved.*

more sophisticated and technologically advanced. Conservation and restoration are not

simple concepts. Before work begins there needs to be a detailed study done on the artwork so that its value is not compromised in any way. The concept of ‘Value’ is very important in defining whether the artwork is worth conserving.

According to the *Principles for the Conservation of Heritage Sites in China*, the values of a heritage site ‘comprise its historical, artistic, and scientific values’. The document (excerpt below) explains each of these terms as shown Table 1:

There is no doubt that the Mogao cave paintings meet the criteria for the first two value statements above. The caves are also a repository of historical and cultural information about the early days of the Silk Road, therefore satisfying at least some elements of scientific value.

Almost all artworks deteriorate from the moment of their creation; the colours fade, the materials on which the art is created break down. This is even more the case for art that is exposed to the elements; When artwork is not in a controlled environment it hastens the breakdown of the materials. This is part of the dilemma for the curator of the art; any attempt to preserve the art, or to prolong its life may interfere or possibly destroy some, or all the ‘value’. Ephemeral art might be considered an extreme case of this. The beauty and value of ephemeral art is in its finite life; an important part of this beauty is its journey to the end. ‘Permanent’ art is not created for this purpose. It is an object that is ideally meant to last forever – a permanent record of a moment in time. It can be argued that this is what the artist intended when it was created. If this is the case, then there is a strong argument for conservation and even restoration of that artwork, because the artist created the work to freeze that moment in time.

5 The Ethics of Conservation and Restoration

Although the concept that restoration and conservation of art might appear to be a relatively recent problem, it isn’t - most famous works of art have been the subject of much restoration work. This includes such famous works as the frescoes on the Sistine Chapel. Often these conservation efforts are not very successful. Some are even disastrous. A legitimate question might be - why do we restore works of art at all? “Conservation, according to Cybele, the Andrew W Mellon Fellow in Objects Conservation, ‘is about weighing competing values and making decisions that are intended to let the artwork continue to be authentically experienced.’ [3].

Although this appears to be a simple and defining statement, it is not really that simple, it does touch on the many issues that arise from conservation and restoration of art. The key point here are the words “...to let the artwork continue to be authentically experienced.” The inclusion of the word “authentically” touches on the essence of the ethics of conservation. Authentic may mean different things to different people; I have a friend who has a collectable car – he has restored that car with loving care. It is in every way true to the original version. He would not dream of putting a non-original part in it. Nor would he modify it – even to ‘improve’ it in some way. The time will come when original parts are no longer available, and he might have to replace those parts with non-original parts. From his viewpoint it will no longer be authentic. No one else would know because it would not be obvious. It is possible that no one else would even care. But to him, it would no longer be authentic. There are many analogies in the art

world; restoring a painting for example, may destroy the authenticity to many people. Even modifying or stabilizing the base on which the art has been created will, for some, destroy the integrity of that artwork.

Art conservation and restoration is about extending the life of an artifact so that it may be enjoyed by future generations. It is an unfortunate fact that all art deteriorates from its moment of creation. Some artifacts decay slowly (e.g. statues made from metals or stone), but others deteriorate rapidly from the moment of creation. Art that is created 'in situ' (the cave art is an example of this) is even more difficult to conserve because there is little control over the environment. The caves often suffer from seepage and earth movements. In the case of the Mogao Grottos there is an added problem of sand damage from the surrounding landscape. The collaboration between the Getty Conservation Institute and the Dunhuang Academy seeks to slow, halt, or even reverse the natural deterioration that started the moment the artwork was created.

6 Environmental Factors on the Murals

One of the most damaging factors for the murals is water and humidity [4]. This paper studied the effects of humidity on the murals. The effects are dramatic and point to the need for a climate-controlled atmosphere in the caves to promote longevity. These problems were common throughout the rest of the caves, and many of the murals were lost over time. There was little expertise in conservation of earthen based paintings. This is what made the challenges at Mogao unique. It also meant that the focus of the research on conservation was on the murals, not the sculptures. In addition to the unstable nature of the materials and walls that formed the base for the plaster and paintings, there was an additional enemy – the wind and sand from the surrounding desert. This wind and sand combination further attacked the cave artwork from the outside.

As can be seen from the information above, taking no action could not be considered a viable option; the fact that many of the paintings had already disappeared when the plaster lost adhesion to the wall and crumbled meant that doing nothing would mean there would soon be nothing left of this amazing work. Its life would be very limited. The method of restoration had to be researched carefully because there was a real danger that the art itself would be forever changed through the restoration process. Even if the caves were closed to the public and efforts were made to control the environment, the work would have a very limited life. This provides an answer to whether doing nothing was an option – it was not. Doing nothing would have meant the cave artwork would soon disappear. Even closing off the caves to the public (and the external enemies of wind and sand) would not be enough [5].

7 Principles for the Conservation of Heritage Sites in China

Most countries now have legislation to protect their heritage sites, but few have the guiding methodology to effectively implement the conservation practice. It was only after the middle of last century that various charters (national and international) were drawn up. These included the Venice Charter (1964), (itself based on earlier documents) and at the national level, the Burra Charter of Australia ICOMOS (1979; revised 1999), which

“sought to base its guiding philosophy on the explicit identification and preservation of the values (artistic, historical, scientific, and social) of heritage places.” (ICOMOS China, 2015).

The Getty Institute describes the Principles as “a set of professional guidelines for heritage conservation. All those who work in heritage conservation, including public servants and persons involved in management, research, survey, design, construction, education, and the media, are bound by the Principles in matters of professional practice and ethics.” They are in fact more than a guideline. The Principles must be followed by all involved in the conservation of heritage sites. This document is a detailed and prescriptive set of guidelines, and it is a ‘living document’. Based on the experiences, it is constantly being updated and revised. It is organized into 38 articles. These are broken up into various Principles, Processes, and Interventions (ICOMOS China, 2015).

8 Documentation and ‘Virtual Restoration’

Before examining the articles contained in the ‘Principles’, it is worthwhile examining the concept of ‘Virtual Restoration’. This is a very complex process. It is not specifically mentioned in the Principles document, however it is consistent with the aim of not touching the original artwork in an attempt to restore or recreate it. The process of Virtual Restoration involves a great deal of mathematics and working through complex algorithms. One of the more recent advances that has made this possible is using ‘big data’ and sophisticated and powerful computing power. This very sophisticated technique uses detailed digital analysis and complex algorithms to create a virtually restored image of the murals. It can use images of existing art, even if they are badly deteriorated, and by complex methods re-create, or ‘inpaint’ missing pieces of the murals. Other algorithms can be used to re-create the original colours of the murals. This allows virtual restoration of the artwork. Although these techniques are regarded as extremely accurate, they are still subject to a margin of error. It does however allow curators to re-create the beauty of the original artwork without any physical intervention. The original art remains untouched. Not only does the re-created artwork image provide a representation that is extremely accurate, but it can be used (if absolutely necessary) as a blueprint for actual restoration work. It is worthwhile reflecting on the original Michelangelo masterpiece. Although the duplicate painting was commissioned and painted very carefully by a highly qualified artist, it is unlikely to be even close to a true replica. Modern technology has a significant place in art conservation. The process has been used on several badly deteriorated murals at Mogao [6].

9 The Mogao Grottoes – Cave 85

The cultural significance of the Mogao Grotto artwork is undeniable. Dating roughly from the fourth to the fourteenth century, the site contains 492 decorated Buddhist cave temples excavated into 1.6 km of cliff face. Unfortunately, the cliff rock is a relatively soft conglomerate rock. There is a very large area of wall paintings (approximately 45,000 square metres plus approximately 2,000 sculptures. It is the largest example of Buddhist art in China [7].

The project at Mogao Cave 85 had several extremely important priorities including the development of processes for the conservation of wall paintings at Mogao. The lessons learnt here would be used on the conservation of the other cave artwork at Mogao. High on the list of priorities was understanding the process of deterioration of the cave artwork. The Cave 85 project was divided into five sections: Information gathering; Assessments; Testing and development; Implementation and Monitoring.

The specialists in the interdisciplinary project team undertook detailed examination and recording of the wall paintings' condition, collection of information on the physical and conservation history of Cave 85, investigations into the paintings' composition and technique, quantitative analysis of the salts in the materials, environmental monitoring of the climate inside and surrounding the cave, development and implementation of conservation interventions, and condition monitoring strategies. This study is very structured and detailed. There was significant involvement from the Chinese government authorities at all stages.

Without detailing each of the 38 articles of the Conservation Principles, it is worthwhile highlighting those that are most relevant in the case of the Mogao Grottoes. The most important are the rules that conservation must be undertaken 'in situ' and intervention should be minimal (Article 18). The rules further state that intervention should only be undertaken when 'absolutely necessary and then should be kept to a minimum' (Article 19).

In addition to this, 'Physical remains' should be conserved in their historic condition and without loss of evidence (Article 21). Another very important Article (22) relates to 'Techniques and materials'; Distinctive traditional technology and craftsmanship must be preserved. Any new technologies or materials must only be used after extensive testing. Closely related is Article 23 which states that the "aesthetic value of a site derives from its historic authenticity. Alterations to the historic condition may not be made for cosmetic purposes or to attain completeness." This last Article has special relevance to the tragically poor work done at the Sistine Chapel. Also highly relevant to the Mogao sites are Articles 24 and 25. The setting of a heritage site must be conserved. This relates directly to the fences that were erected to stop the sand being blown into and against the caves. Equally, a building that no longer survives must not be reconstructed. This means that 'virtual restoration' as described on page 14 above, becomes a very important part of preserving the history of the artwork.

Further articles relate to the important activities of reconstruction. "Both the design and materials for replacement elements should be consistent with the evidence provided by existing fabric". Articles 34 and 35 further specify the rules around removal of materials to reveal the historical condition of a site and the placement of service buildings etc. The conservation of the Mogao site has followed these rules faithfully.

10 Conclusion

There is little doubt that art restoration and conservation projects can raise questions on the ethics of interfering with the completed work of celebrated artists. In the case of cave artwork, the artists may be unknown, however their work is often extremely significant and valuable for the generations that follow its creation. In the case of the Mogao cave

paintings they form a record of the Buddhist influence along the route of the ancient Silk Road. The artwork is an excellent example of a culturally significant heritage site that is under threat from the elements and time yet must be preserved for future generations. It is therefore extremely important that any restoration or conservation interventions do not destroy or even compromise the value of the artwork. There is a commonly held, and perfectly rational belief that interventions, conservation or restoration work will compromise the authenticity of the site. In many ways, it is no longer truly authentic. But the counter argument is also flawed; doing nothing to restore or preserve the artwork means it will probably be lost forever.

What would happen if nothing was done? In the case of the Sistine Chapel the water seepage and the effects of the salt on the surface of the artwork would quickly destroy the artwork. The colours would quickly fade and the surface of the painting would crumble. The efforts of overpainting the figures for censorship are an entirely different matter. This was something that defies every ethical question; the overpainting was done by artists who had no relationship with Michelangelo. There is little doubt that Michelangelo would have been horrified by what was done. There was no possible justification based on extending the life of the artwork. The original artwork was severely compromised.

In the case of the Mogao cave artwork the justifications are much more ethical. The reasons for the interventions are pure – to extend the life of culturally significant artwork so that future generations can admire its beauty and learn about the history of life along the ancient silk road. Doing nothing or even closing off the caves to the public would not save the artwork from rapid decay and destruction. Looking at the two sites, there are significant differences in the methods of intervention. Unlike the work done at the Sistine Chapel, Mogao had a guiding plan (*Principles for the Conservation of Heritage Sites in China*). Those guiding principles include:

A detailed plan for the conservation and the reasons for carrying out the conservation work was carefully prepared.

The original artwork and surrounding area were carefully studied and documented before any work was commenced.

The documentation also included a digital restoration of much of the artwork. This allows the enjoyment of the treasure without any physical intervention.

Any restoration was carefully planned with every effort being made to avoid touching or compromising any of the visible parts of the artwork. Any strengthening of the surfaces that support the actual painted surfaces were kept to a minimum and were done only to ensure the artwork would be supported for as long as possible.

No changes were allowed to be made to any of the visible art – for any reason. The integrity of the work has been preserved.

All of these were achieved by following a strict set of rules that were developed solely to extend the life of the artwork. The conservation and restoration work has been extensive, however by following the rules set out in the Principles document, the integrity of the artwork itself has been maintained. It is true that some of the structural work to strengthen the base that holds the artwork has meant that certain parts are no longer ‘original’. These parts are not visible and without them, the visible artwork would crumble and be lost forever.

The main implications of the study are the Principles document has enabled the visible components of the artwork to be preserved in its original form. The activities have been faithful to the integrity of the original art form; the main ethical issue has not been violated and the Mogao Cave Art has been preserved for future generations to enjoy.

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