

## **Significance of Art Conservation for the Chairman Figure Sculptures of ISI Yogyakarta's Faculty of Visual Arts**

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### **Abstract**

The chairman figure sculptures at ISI Yogyakarta's Faculty of Visual Arts have value and meaning for the academic civitas of ISI Yogyakarta. This article explores the importance of art conservation, specifically focusing on the figurine sculpture of the Faculty of Visual Arts Chairperson at ISI Yogyakarta. This research uses a qualitative approach by implementing several data collection techniques: interviews, literature studies, and detailed documentation. Findings show the statue is infected with mushrooms, insect and bird dirt, and minor cracks in some parts. The result is that the preservation of art plays an important role in extending the existing statues.

**Keywords:** Art conservation; statue; tropical climate; ISI Yogyakarta

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### **1.0 Introduction**

The sculpture represents an institution's values, ideas, and history (Guidieri & Willis, 1983). One of the tangible manifestations of the representation of values and ideas within ISI Yogyakarta is the statue of the Chairperson of the Faculty of Visual Arts. Then, the Chairperson of the Faculty of Visual Arts statue also has a high historical value because it symbolizes leadership and vision within ISI Yogyakarta and the Indonesian art world. This statue is not only an art object but also a representation of the spirit and dedication of the Faculty of Visual Arts leaders to developing fine arts in Indonesia. However, over time, these statues face challenges in terms of conservation.

Art conservation is an urgent topic that needs further exploration in preserving the heritage of ideas. The statue of the Chairperson of the Faculty of Visual Arts, ISI Yogyakarta, as a symbol of the leadership and identity of the ISI Yogyakarta community, faces physical and environmental challenges that can threaten its sustainability. Therefore, a critical research question arises: Does art conservation have an essential role in maintaining the aesthetic, historical, and physical value of the statue of the chairman of the Faculty of Visual Arts, ISI Yogyakarta? Therefore, this article explores the importance of art conservation, explicitly focusing on the figurine sculpture of

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the Faculty of Visual Arts Chairperson at ISI Yogyakarta. The aim of this article is to describe the various challenges faced in the conservation and the impact of conservation on the sustainability and preservation of values. Through this study, awareness of the importance of art conservation efforts can be built in the future.

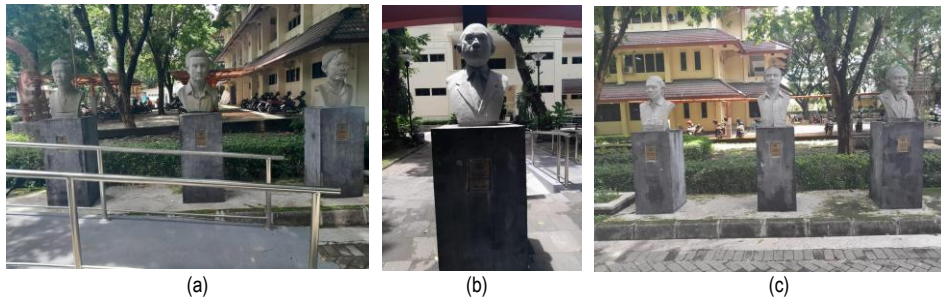


Fig. 1. (a), (b) & (c) The Chairman Figure Sculptures of ISI Yogyakarta's Faculty of Visual Arts.  
(Source: Purwanto, 2024)

## 2.0 Literature Review

Several case studies in the same context can provide insights into art conservation studies. For example, Chiara Coletti (2024) identified climate change builds threats to the integrity of cultural heritage. The emergence of agents of deterioration due to climate change causes degradation of the important value of cultural heritages. Long-term conservation treatment is needed with the aim of maintaining "messages of the past for future generations." In other words, a framework oriented towards future cultural value is needed in the context of conservation of cultural heritages (3279-3284). Several other articles and books published over the past two decades can also be referenced in art conservation. One important source is "Preventive Conservation: People, Objects, Place and Time in the Philippines" by Tse et al (2018) which offer conservation activities have a good impact on cultural objects, but conservation activities must be carried out with a broad and holistic approach that includes objects, people, places and time (Tse et al, 2017).

Scholarly articles such as "Sculpture Conservation: Challenges and Solutions" by H. J. von der Osten (2007) also make an important contribution by discussing the specific challenges faced in sculpture conservation from a scientific perspective. Von der Osten (2007) emphasizes the importance of understanding sculpture materials and appropriate conservation techniques to ensure the sustainability of sculptures in various environmental conditions. In addition, "Advances in Sculpture Conservation Techniques" by M. Williams and S. Brown (2011) describes the latest advances in conservation technologies that can be applied to sculpture, including protective materials and advanced cleaning techniques. The article updates conservation practitioners' knowledge with the latest information on techniques and materials that can extend the life of sculptures. The literature as a whole demonstrates the importance of research and technological applications in meeting the challenges of modern sculpture conservation. Of the various studies on sculpture conservation over the past two decades, none has specifically looked at the importance of preserving the statue of the Chairman of the Faculty of Visual Arts. Therefore, this article specifically discusses the importance of art conservation, the various challenges faced, and the impact of conservation on the sustainability and preservation of the values contained in the figure statue of the Chairman of the Faculty of Visual Arts, ISI Yogyakarta.

## 3.0 Methodology

This research uses a qualitative approach which is divided into three main stages. **The first stage** is data collection by implementing several data collection techniques: interviews, literature studies, and detailed documentation of the research object. Interviews allow researchers to obtain in-depth data about the research subject (Patton, 2015, p. 43). An interview is a data collection method in which the researcher interacts directly with the resource person to obtain in-depth information about the figure sculpture of the Faculty of Visual Arts chairman at ISI Yogyakarta and its conservation. The interviewee in this research is Mikke Susanto, curator, museologist, lecturer at the Art Management Department, and art historian. He has been involved in several art conservation activities. A literature study is a data collection method conducted by reviewing various kinds of literature, such as books, journals, articles, and other documents related to sculpture conservation, especially those with similar cases to the object of this research. Literature studies provide a strong theoretical basis for scientific research (Creswell, 2014, p. 95). Object documentation is a data collection method that involves observing, recording, and archiving physical evidence of the sculpture of the chairman of the Faculty of Visual Arts, ISI Yogyakarta. Object documentation ensures the accuracy of data obtained from field research (Yin, 2018, p. 122). **The second stage** is analyzing by synthesize the data from object documentation based on the interviewees' opinions and the literature review results. last, **third stage** is display analyzed data into scientific writing.

## 4.0 Findings

### 4.1 The Significance of The Sculptures and Their Current Condition

According to Mikke Susanto, the statue of the chairman of the Faculty of Visual Arts, ISI Yogyakarta, was made as a form of respect for the services of the faculty's leaders from various periods, from the Indonesian Academy of Fine Arts (ASRI), the College of Fine Arts, to the current era of the Faculty of Visual Arts. Initially, the statues were placed at the Gampingan campus when the Faculty of Visual Arts was still there. However, along with the faculty's move to the new campus in Sewon, the sculptures were also moved following the change in faculty location. The statues are made of PVC cement. On one of the sculptures are the initials "Eko S 84," which is interpreted to mean that one of the sculptures was made by an artist named Eko S in 1984.



Fig. 2. The artist's initial on the sculpture.  
(Source: Luna & Dhea, 2024)

Although the statues of the chairman at the Faculty of Visual Arts, ISI Yogyakarta, have significant historical and artistic value, conservation according to scientific standards has never been carried out. This lack of appropriate conservation efforts can result in the physical degradation of the sculptures. Cleaning by washing the sculptures was carried out in 2020, ahead of a sculpture exhibition at the Faculty of Visual Arts at ISI Yogyakarta. Although this simple cleaning can provide a cleaner and tidier appearance, it is insufficient to maintain the integrity of the sculpture material in the long run. Adequate conservation measures involving various parties are needed to ensure its success.

Based on its historical value and meaning, the statue of the Chairman of the Faculty of Visual Arts at ISI Yogyakarta has an important role in shaping the character of the ISI Yogyakarta academic community. But until now, there has been no serious effort to preserve the physical form of the statue. So the condition of this statue is quite alarming. Direct observation of the statue of the Chairperson of the Faculty of Visual Arts at ISI Yogyakarta shows that the condition is now quite troubling. The visible damage on the statue's surface is clear evidence of the degradation it has experienced over time. One of the most noticeable signs of damage is the appearance of minor cracks on the statue's surface. These cracks, while still in their early stages, have the potential to become more severe if not addressed immediately. In addition, the statue was also infected with mold, which usually grows in damp and poorly protected areas from the weather. Not only does this mold ruin the aesthetics of the sculpture, but it can also accelerate the weathering process of the materials used. Not only that but the sculpture is also exposed to bird and insect droppings, which adds to the complexity of the conservation problem. Bird droppings, which contain acid, can damage the sculpture's surface and accelerate the material's degradation. Meanwhile, insect droppings indicate the presence of insect activity that could cause further damage to the sculpture's structure.



Fig. 3. Statue Degradation.  
(Source: Luna & Dhea, 2024)

The degradation of the figure statue of the Chairman of the Faculty of Visual Arts at ISI Yogyakarta is related to the location of the statue. The statue is located under a fairly dense tree, and there is plant vegetation around the statue coupled with climatic and environmental conditions supporting destructive agents' growth. Climatic conditions around Institut Seni Indonesia (ISI) Yogyakarta are tropical with high rainfall. The average temperature ranges from 24°C to 31°C, with humidity reaching 90% or more at night. The area also experiences seasonal winds from the southeast that can reach speeds up to 18 km/h, especially during the dry season from June

to September. These winds cause drier conditions during this period. Motor vehicle emission sources and garbage burning mainly cause air pollution levels in the region. During the dry season, pollution levels tend to be higher as dust particles and pollutants can get trapped in the atmosphere due to the lack of rain that helps to settle pollutants (Iklim Yogyakarta – Stasiun Meteorologi Yogyakarta, n.d.).

The poor condition of the statue requires immediate conservation action. The conservation must use scientifically recognized methods to ensure the statue retains authenticity. Without proper conservation treatment, this statue is at risk of damage that can destroy its aesthetic and historical value. One of the first steps to be taken in conserving this statue is preventive action. Regular cleaning is necessary to remove dirt, such as mold, bird droppings, and insect droppings. This preventive measure keeps the statue clean and prevents further damage caused by these biological agents. In addition, semi-restorative conservation is necessary to deal with structural damage to the sculpture, such as cracks on the surface. This process involves patching or filling the cracks with suitable materials so the sculpture can return to a more stable condition. In addition, environmental control is an important step to slow down the intervention of destructive agents, such as moss, mold, bird droppings, and insects, which can accelerate the deterioration of sculptures.

## 5.0 Discussion

### 5.1 Impact of Conservation on the Sculpture's Integrity

Art conservation plays an important role in preserving the value and meaning of artwork, but this activity has the risk of changing the preserved object. According to Brown (2018), art conservation is about extending the object's lifetime and preserving the artistic and cultural integrity inherent in the work. However, in the process, conservators often face the challenge of deciding to what extent interventions should be carried out without changing the original character of the work. Schaeffer (2020) suggests that in some cases, restoration techniques can cause a change in color or texture that is different from its original condition. This leads to a debate about to what extent conservation is believed to have altered the original work and whether the final result can still be regarded as an authentic representation of the artwork. In this case, it is important to consider that any conservation action brings ethical decisions that can affect public perception and the historical value of the work of art. Based on information from Mikke Susanto, curator, art historian, and lecturer at the Department of Art Administration, Faculty of Visual Arts, ISI Yogyakarta, the conservation of artworks should be carried out by a professional conservator, taking into account the results of studies involving various disciplines. (M. Susanto, personal communication, August 10, 2024).

Preserving an artwork's originality represents a fundamental aspect of art conservation, particularly in the case of culturally significant artifacts such as the Chairman Figure sculptures housed within the Faculty of Visual Arts at ISI Yogyakarta. In the context of art conservation, the term "originality" denotes the objective of maintaining the artist's intended form, materials, and techniques with the greatest possible degree of fidelity. These sculptures must be preserved to continue conveying their historical, cultural, and aesthetic values to future generations (Smith, 2019). However, the challenge lies in the natural process of deterioration that affects all materials over time, with the rate of deterioration being accelerated by factors such as environmental conditions, pollution, and human handling. Consequently, art conservators must achieve a delicate equilibrium between preserving the original artwork and implementing measures to forestall further deterioration. To prevent deterioration without compromising originality, it is essential to possess a profound comprehension of the materials utilized and the factors contributing to their deterioration. However, each conservation effort must be meticulously documented to record the artwork's history, allowing future conservators to understand the rationale behind each intervention and its impact on the piece's originality. By considering these things, conservators ensure that the sculptures endure for future study and appreciation while truly resembling their original form and function (White, 2018).

### 5.2 Challenges in Sculpture Conservation at ISI Yogyakarta

Implementing effective conservation strategies often faces a range of complex institutional challenges. At the educational level, one of the major challenges is the lack of resources, both in terms of funds and the skilled people who specialize in art conservation. As revealed by Setiadi (2019), institutions are often stuck in other priorities, such as curriculum development and research funding, so attention to art conservation tends to be sidelined. In the context of the Faculty of Visual Arts at ISI Yogyakarta, efforts to prioritize art conservation also face similar challenges in integrating conservation as an integral part of wider art education.

In response to this challenge, the Faculty of Visual Arts at ISI Yogyakarta has taken a progressive step by establishing the Arts Conservation Study Program. The program is designed to address the lack of expertise and raise awareness about the importance of conservation among students and lecturers. According to Hermawan (2020), establishing this study program is a strategic step to address institutional challenges, especially in providing the specialized training needed to care for and preserve the Indonesian art heritage. Thus, these efforts are expected to enhance institutional capacity to implement more effective and sustainable conservation strategies in the future.

### 5.3 Environmental factors and their impact on the sculpture.

The environment where sculptures are housed is critical to their long-term preservation, especially in academic institutions like the Faculty of Visual Arts at ISI Yogyakarta. The tropical climate of Yogyakarta, characterized by high humidity and temperature fluctuations, presents significant challenges to preserving sculptures. High humidity levels, often exceeding 80%, can lead to the proliferation of mold and fungi on the surface of sculptures, particularly those made of organic materials such as wood or mixed media. Temperature variations, common in the region, can cause the expansion and contraction of materials, leading to cracks, warping, or other forms of physical degradation. Moreover, pollutants in the air, such as sulfur dioxide and nitrogen oxides, can contribute to the chemical

deterioration of sculptures, especially those made from metal or stone. These environmental factors, if not properly managed, can significantly reduce the lifespan of sculptures, leading to a loss of aesthetic and historical value (Johnson, 2019).

In addition to the physical impacts, the socio-cultural environment within ISI Yogyakarta also influences the condition of the sculptures. The high level of human activity within the campus, including frequent exhibitions, workshops, and student interactions, increases the risk of physical damage through accidental contact or improper handling. The lack of adequate environmental controls within the exhibition and storage spaces exacerbates these risks. For instance, inadequate ventilation and lighting systems can further stress the sculptures by increasing exposure to harmful ultraviolet light and creating microclimates that foster A comprehensive conservation strategy that takes into account both the physical and socio-cultural environment is essential to ensuring the sculptures at ISI Yogyakarta are preserved over the long term. The institution's cultural practices and attitudes regarding conservation, in addition to deterioration, all impact how these sculptures are maintained (Brown & Davies, 2020).

#### *5.4 Future directions for art conservation*

One of the crucial aspects of the preservation of the figure of the Chief of the Faculty of Visual Arts at ISI Yogyakarta is the application of sustainable conservation practices based on scientific methodologies. In the future, the Arts Conservation Studies Program, Faculty of Visual Arts, Institute of Indonesian Arts (ISI) Yogyakarta, is expected to pioneer the development of a more comprehensive conservation program. The proposed program will involve collaboration between academics, professional conservators, and students. The program should not only focus on the physical rehabilitation of the figure of the Chief of the Faculty of Visual Arts at ISI Yogyakarta but also include preventive efforts through routine maintenance, environmental monitoring, and public education on the importance of conservation. (Warsono, personal communication, August 12, 2024). In addition, the Arts Conservation Studies Program, the Faculty of Visual Arts, and the Indonesian Institute of Art (ISI) Yogyakarta can be centers of art conservation studies that will strengthen the scientific foundation of any intervention. The study center could be a reservoir for interdisciplinary studies integrating art, chemistry, and material technology knowledge, thus producing innovative conservation techniques that fit the Indonesian cultural context. Given that each artwork has a unique historical and artistic value, a thorough understanding of the materials, methods of manufacture, and the object's history is required before doing conservation. With the presence of this research center, the Arts Conservation Studies Program, the Faculty of Visual Arts, and the Indonesian Institute of Art (ISI) Yogyakarta can be a national and international reference in the preservation of art while protecting the cultural heritage of Indonesia for future generations (Wijaya, 2020; Dewi, 2018).

## **6.0 Conclusion and Recommendations**

The statue of the head of the Faculty of Visual Arts of ISI Yogyakarta preserves historical and aesthetic value. The statue honed its predecessors' efforts to promote visual arts education. However, the statue's condition is not good; its surface has minor cracks, mollusks, and bird and insect dirt. The potential for damage is becoming increasingly intense due to the climate and environmental influences that trigger the acceleration of the growth of destructive agents. If this is left unchecked, it will threaten the physical condition of the statue and will slowly take away the value of the message contained therein. Conservation measures such as cleaning, folding of cracked parts, and environmental control are required to inhibit the growth of destructive agents. With a holistic conservation approach, it is expected to be able to give birth to conservation methods that fit needs and conditions. However, conservation measures against the figure of the head of the ISI Yogyakarta Fine Arts Facility face two major challenges: tropical climate conditions and institutional challenges. The institutional challenge is the lack of a priority scale from the Institute for Conservation Activities. It is an opportunity for the Art Conservation Studies program to make art objects in the Faculty of Visual Arts ISI Yogyakarta environment as learning material and research.

Recommendation, Given the importance of the figure of the head of the Faculty of Visual Arts of ISI Yogyakarta, it is expected that the faculty can make conservation activities one of their priorities. Conservation action must involve a pre-professional conservatory, students, and lecturers from various disciplines. Increased awareness of the entire academic community at ISI Yogyakarta played a major role in the conservation efforts of art at ISI Yogyakarta. The art conservation study program should pioneer the preservation of art objects in the ISI Yogyakarta neighborhood. In addition, the Art Conservation Study Program is expected to be the center of future art conservation studies. Furthermore, the art conservation studies program is expected to be a center for developing art conservation.

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## **Paper Contribution to Related Field of Study**

This study emphasizes the importance of art conservation within academic institutions, focusing on preserving a significant sculpture at ISI Yogyakarta. The findings highlight environmental threats and the need for proactive conservation to protect institutional heritage.

## References

- Appelbaum, B. (2007). *Conservation treatment methodology*. Butterworth-Heinemann.
- Brown, A., & Davies, S. (2020). *Art conservation in tropical climates: Challenges and strategies*. Cambridge University Press.
- Brown, M. (2018). *Art Conservation and Preservation: Balancing Integrity and Intervention*. New York: Routledge.
- Charola, A. E., & Lazzarini, L. (2018). *Conservation of Cultural Heritage: Key Principles and Approaches*. CRC Press.
- Clavir, M. (2014). *Preserving what is valued: Museums, conservation, and First Nations*. UBC Press.
- Coletti, C. Climate Change Threats to Stone Cultural Heritage: State of the Art of Quantitative Damage Functions and New Challenges for a Sustainable Future. *Heritage* 2024, 7, 3276–3290. <https://doi.org/10.3390/heritage7060154>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Dewi, S. (2018). *Teknik Konservasi Karya Seni di Indonesia*. Yogyakarta: Pustaka Sanata Dharma.
- Guidieri, R., & Willis, S. A. (1983). Statue and mask: Presence and representation in belief. *Res: Anthropology and Aesthetics*, 5, 14–22. <https://doi.org/10.1086/resv5n1ms20166685>
- Haskins, C. (2015). The role of art in academic institutions. *Art Education Journal*, 68(2), 34-41.
- Hermawan, T. (2020). Pengembangan Program Studi Konservasi Seni di ISI Yogyakarta: Tantangan dan Peluang. *Jurnal Seni dan Budaya*, 15(2), 45-60.
- Iklim Yogyakarta – stasiun meteorologi yogyakarta. (n.d.). Retrieved August 12, 2024, from <https://stamet-yogya.bmkg.go.id/iklim-yogyakarta/>
- Johnson, P. (2019). Environmental degradation of sculptures: A case study of Southeast Asia. *Art Conservation Journal*, 15(2), 45-58.
- Lutz, A. P. (2020). The Impact of Digital Tools on Art Conservation. *International Journal of Heritage Studies*, 26(7), 660-675. doi:10.1080/13527258.2019.1696150
- Pardo-Igúzquiza, E. (2015). The effect of temperature fluctuations on outdoor sculptures. *Journal of Cultural Heritage*, 16(4), 444-450. <https://doi.org/10.1016/j.culher.2015.01.002>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Pearson, C. (2013). *Conservation and management of archaeological sites*. Routledge.
- Price, C. A. (2019). *Stone Conservation: An Overview of Current Research*. The Getty Conservation Institute.
- Rodriguez-Navarro, C., & Van Grieken, R. (1999). The role of humidity in the degradation of limestone in tropical environments. *Science of the Total Environment*, 227(1-2), 165-176. [https://doi.org/10.1016/S0048-9697\(99\)00032-8](https://doi.org/10.1016/S0048-9697(99)00032-8)
- Schaeffer, T. (2020). The Impact of Restoration Techniques on Artworks: A Critical Review. *Journal of Art Conservation*, 45(3), 312-329.
- Schilling, M. R., Von Aderkas, P., & Wachowiak, M. (2021). Advances in the Preservation of Cultural Heritage Using Digital Technologies. *Journal of Cultural Heritage*, 48, 123-136. doi:10.1016/j.culher.2020.12.001
- Setiadi, R. (2019). *Tantangan Institusional dalam Konservasi Seni di Indonesia*. Yogyakarta: Penerbit Seni Nusantara.
- Smith, A. (2019). Modern Materials in Art Conservation: Challenges and Solutions. *Journal of Cultural Heritage*, 36(2), 174-189.
- Smith, R. (2019). The importance of originality in art conservation. *Conservation Journal*, 22(4), 189-203.
- Susanto, M. (2024, August 10). historical background and conservation effort of chairman figure sculptures of Fine arts faculty ISI Yogyakarta (T. Sihno Purwanto, L. Chantiaya, & G. Adheana, Interviewers) [Personal communication].
- Torre, M. (2017). Air pollution and its impact on the preservation of outdoor sculptures. *Environmental Science & Policy*, 77, 18-26. <https://doi.org/10.1016/j.envsci.2017.07.015>
- Tse, Nicole et al (2017). *Preventive Conservation: People, Objects, Place and Time in the Philippines*. Studies in Conservation
- von der Osten, H. J. (2007). Sculpture conservation: Challenges and solutions. *Conservation Science Journal*, 15(2), 108-115. <https://doi.org/10.1016/j.csj.2007.01.002>
- White, L. (2018). Documenting art conservation interventions: A guide for conservators. *Journal of Preservation Studies*, 9(4), 301-315.
- Wijaya, A. (2020). *Pendekatan Ilmiah dalam Konservasi Seni: Studi Kasus di ISI Yogyakarta*. Jakarta: Gramedia Pustaka Utama.
- Williams, M., & Brown, S. (2011). Advances in sculpture conservation techniques. *Journal of Cultural Heritage*, 12(3), 275-284. <https://doi.org/10.1016/j.culher.2011.02.004>
- Worrall, J. (2020). Art and education: A critical examination. *Journal of Arts Education*, 22(1), 12-29.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.