UNIVERSITY OF AMSTERDAM

Conservation and Restoration
of Cultural Heritage

2018-2019
Contemporary Art Conservation Student Symposium

Re: New Media Art
Technology-based art conservation

7 October 2019 • Ateliergebouw • Amsterdam

We are

It is the framework which changes with each new technology and not just the picture within the frame

– Marshall McLuhan

Contents

Foreword

This collection of papers and abstracts is presented on the occasion of the *Contemporary Art Conservation Student Symposium 2019: Re: New Media Art.* It has become a continued tradition to celebrate the results of the Contemporary Art students of the Conservation and Restoration of Cultural Heritage programme at the University of Amsterdam (UvA) by disseminating their work to a wider audience. Previously we have been organising exhibitions and presentations in collaboration with NIMk at the Heritage Lab of UvA Special Collections in 2012; in collaboration with the Cultural Heritage Agency of the Netherlands (RCE) at Kunsthal Kade in Amersfoort in 2013; and in collaboration with LIMA at their Sustainability Lab in Amsterdam in 2013 and 2014. This tradition now continues with UvA's *Contemporary Art Conservation Student Symposium 2019* for which we first and foremost thank our students.

In addition to the symposium programme and case study details, this publication contains thesis abstracts and a selection of student papers written as part of the joint Master and Advanced Professional Doctorate programme of the academic year 2018-2019, except for the last one. This marks a period in which we have been re-organising the curriculum for the Contemporary Art students to integrate a newly developed module on the preservation and presentation of new media art. Whereas this subject has always been part of the Contemporary Art curriculum since the beginning in 2007, it was not necessarily part of the Master's phase of the full programme. This meant that in theory students who would quit their training halfway through the full programme after earning their MA degree – and thereby not qualifying themselves as conservators – would lack knowledge about time based arts conservation. With financial support of a Comenius Teaching Fellowship awarded in 2018, we have been able to develop a New Media Art module. Lecturers Ellen Jansen and Evelyne Snijders, both specialist contemporary art conservators themselves, have taken the lead in organising the New Media module and implementing it in the curriculum, of which this symposium and publication are a result.

Similar to the focus on Plastics in one of the larger modules, the New Media Art module provides the basis for a complete learning line that could be followed as part of the Contemporary Art conservation track, to be concluded with specialist work placements matching the student's interest. This takes shape within an enriching learning environment where education, research and practice come together through the actual treatment of artworks in a professional setting. To make this possible we are closely collaborating with artists, Dutch museums and institutions with contemporary art collections, in particular the Collection of the Dutch Cultural Heritage Agency (RCE), for which we are extremely grateful. This is also true for our valued colleagues at Video Projects, VideoArtlab and LIMA, who have all been instrumental in developing the New Media module. For inspiration we thank our colleagues in Europe at Tate, London and Bern University of the Arts and in New York: Bek & Frohnert, MoMA, and New York University. It is truly inspiring to see our students engage with professionals while embarking on complex conservation projects, conducting research and achieving wonderful results. With this symposium and publication, we want to support their work and share their contributions with a rapidly developing field of expertise.

Dr. Sanneke Stigter
Assistant Professor Conservation and Restoration of Cultural Heritage
Contemporary Art

Programme

12:30-13:00	Registration
13:00-13:10	Welcome and introduction **Sanneke Stigter**
13:10-13:30	*I am Stuck Between the Millstones, The Tenacious Immortality of Vincent* (1989) by Servaas **Laura Wolfkamp, Alice Watkins**
13:30-13:50	*Venus Neé / Preacox* (1988) by Peter Zegveld **Hedwig Braam, Claire Molgat Laurin**
13:50-14:10	*Listen to the Light -Score for J.B. (Joseph Beuys)* (1986) by Peter Heijnen **Lihi Levi**
14:10-14:30	*Selfportraits with Sleeping Masks* (1979) by Flavio Pons **Marieke Kruithof**
14:30-15:00	*coffee and tea*
15:00-15:20	*Fibonacci* Music (1981) by Ben de Rooij **Daphne Kramer**
15:20-15:40	*Labyrinth* (1981) by Ben de Rooij **Stefanie Janson**
15:40-16:00	*Structuurgenerator* (1983) by Ben de Rooij **Olivia Brum**
16:00-16:10	Closing remarks and opening exhibition **Ellen Jansen, Evelyne Snijders**
16:10-18:00	**VISIT EXHIBITION ARTWORKS**

Artworks

I am stuck between the millstones (The Tenacious Immortality of Vincent) (1989)

Servaas Schoone

Installation by the Dutch artist Servaas called 'I am stuck between the millstones' (subtitle: The Tenacious Immortality of Vincent) from 1989. It consists of a painted wooden pedestal that also houses the equipment, and with a talking, kinetic, artificial sunflower on top. In the background, there are three so called 'crimes' hanging on the wall, each consisting of an orange painted metal plate onto which a varnished poster is stuck with some cuts made in it. (RCE Art Collection. Photo: video still LIMA archive)

Venus Née / Praecox (1988)

Peter Zegveld

'Venus Née / Praecox' is not only the symbolic birth of Venus but also a 'Venus-machine', a polarized love-machine in which feminine and masculine essences react on each another (the ejaculation on the screen speaks volumes). A bucket of water filled to the brim, is placed on a stand; behind, on a plinth, a monitor with an image of a drum against a white background. The arrival of Venus is announced by a continually escalating resonance of sound, a vibration so shrill that it causes the water to become agitated, starting to swirl around and bubble over. Then on the screen we witness the inevitable eruption, after which all becomes calm again...Venus rises from the waters. The entire installation appears to be based on a series of contradictions: the tangible presence of the bucket of water as opposed to the illusory image on the screen; the silence versus the din; a classical story presented in high-tech materials; a conceptual form of an emotional content. Apollo bridles Dionysus. An ingenious system of dualities curbs the chaos of the emotions. The resonant sound-track in 'Venus Née / Praecox' has a powerfully evocative effect and largely determines the level of visual tension, increasingly so since it actually sets the images in motion, animating matter to become life. (RCE Art Collection. Based on: Jans Possel, exhibition catalogue 'Imago' 1990. Photo: video still LIMA archive)

Listen to the light – Score for J.B. (1986)

Pieter Heijnen

Slide-based installation with three projectors placed on three identical projection tables, each constantly projecting an image. The images are seemingly identical, of a light green wooden table with a black and white photograph next to an, a grapefruit or an orange. The master slides are mounted in silver plated mounts stored in a silver-plated box with an inscription: "LISTEN TO THE LIGHT – SCORE TO J.B.". Above the inscription there is a silver-plated sunflower seed. The box is to be displayed with the installation. (RCE Art Collection. Photo: RCE archive)


Selfportraits with sleepingmasks (1979)

Flavio Pons

The artwork *Selfportraits with sleeping masks* is a slide-based installation consisting of 30 colour sildes. The artist Flavio Pons is shown in 28 images wearing different sleeping masks and two images show a self-portrait of him without a mask. The images are taken in 1979 by Claudio Goular in artist's home in Amsterdam. In addition to the images the artwork also consists of 12 sleeping masks with ribbons. The masks are stored in a box, that is signed by Flavio Pons. (RCE Art Collection. Photo: Ron Kievits)
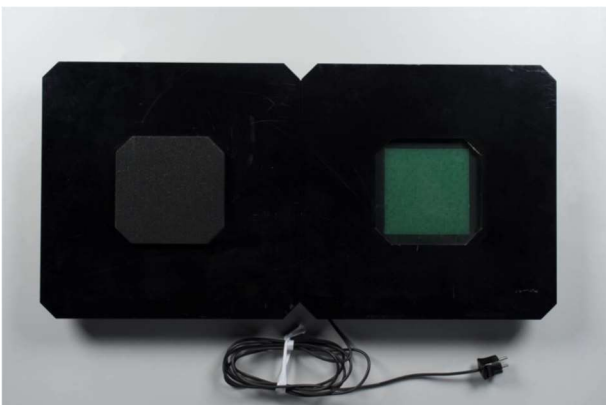
Fibonacci Music (1981)

Ben de Rooij

Fibonacci Music is a work made by the Dutch artist Ben de Rooij (1945). The work consists of a poly (methyl methacrylate) (PMMA) box with a PMMA plate attached to it in which an audio and light component have been placed. The box has a rectangular shape build from 4 plates. The frontal plate is divided into two squares with clipped corners, each having a smaller square with clipped corners in the middle. The square at the left is a speaker, which stands out 1 cm from the larger square. It is covered with a knitted textile made from a mix between a black thread and a silver metallic thread. The square at the right is cut out of the larger square and lays 2 cm deeper. It has a transparent PMMA plate under which a square is situated. This square consists of 1024 green square LED lights that are tightly lined up in rows of 32 x 32.

They are surrounded by a black matt frame, which is made out of paper. When the work is switched on scales are produces, which come from the speaker at the left. Timed on these scales the LED lights produce patterns. When a pattern is completed the last note of the scale is held a bit longer before the series is paused. After a short amount of time the work produces a new scale and a different pattern. When the switch is switched to the other side, the work produces the sound and patterns faster. (RCE Art Collection. Photo: Daphne Kramer)
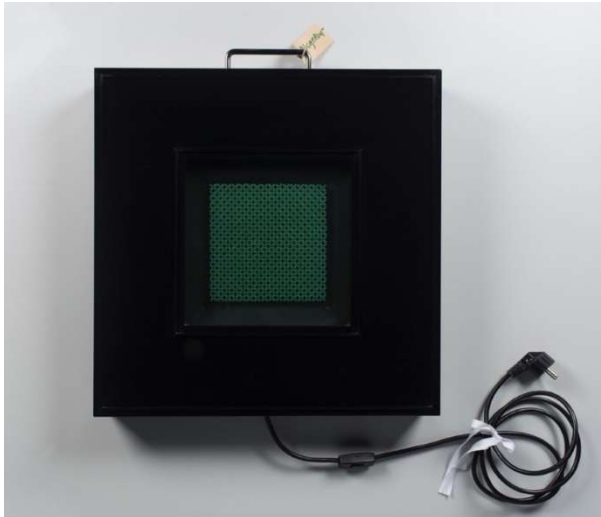

Stefanie Janson)

Labyrinth (1981)

Ben de Rooij

Labyrinth is an electronic object made by the Dutch artist Ben de Rooij in 1981. This Time-based Media Artwork consists of a box made from poly (methyl methacrylate) (PMMA), with LEDs inside, which are controlled by an electronic circuit. Changing patterns are created by the LEDs. The PMMA box, and the entire electronic circuit inside, are both assumed to be designed and made by the artist himself. (RCE art collection. Photo:
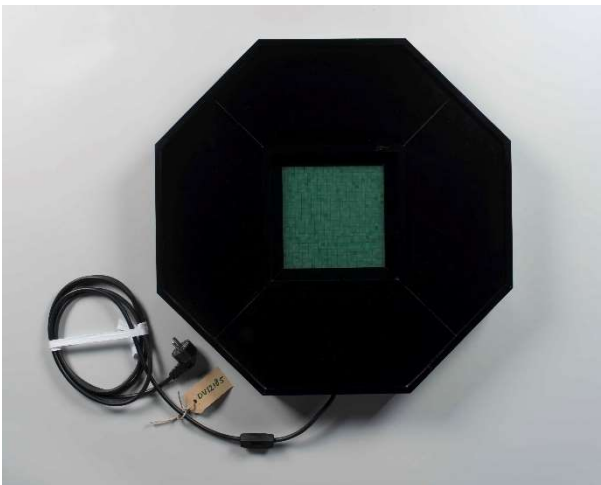
Structuurgenerator (1983)

Ben de Rooij

Structuurgenerator (1983) is the last work made by the artist Ben de Rooij in the Rijksdienst voor het Cultureel Erfgoed's (RCE) collection. The artwork utilizes light-emitting diodes (LEDs) encased in green PMMA cubes, that when the work is plugged in generate an initial random pattern on the screen, this is then modified one LED light at a time. To make this possible, the work is composed of an electronic circuit made up of the LEDs as well as other electronic components connected by printed circuit boards and wiring. The electrical circuit is contained in a black Poly(methyl methacrylate) (PMMA) casing with a clear PMMA window in the shape of an octagon and employs an Alternating Current (AC) supplied by a grounded type F plug and a black cord from a Type F socket. The cord displays a power switch near the top and connects to a toroidal transformer on the inside of the casing through a hole in the bottom-most side of the octagon. (RCE Art Collection. Photo: Olivia Brum)

Student papers

"Any Questions?"
The importance of asking the right questions as an aspiring contemporary art conservator when it comes to the preservation of time-based media installations

Stefanie Janson

Master Programme Year 2 First Semester

Introduction

All sorts of technologies, for example computers, have been in the past, and are still today, used by artists. The lifespan of these technologies is mostly short and on top of that the industry is innovating at high speed. The artworks artists create with these technologies can be very complex installations, which require conservators to update not only their toolkit but also their skill set to preserve them. This essay is about the challenges, considerations and solutions in the preservation of time-based media installations. The decision-making process in the conservation of a computer program named *DISP* (1979), made by the well-known Dutch artist Peter Struycken, is used as a case-study to explore these issues more in depth.

The case-study was encountered when researching a broader subject, *The conservation and canonization of digital art by collection-managing institutions in The Netherlands*, which was the subject of my Bachelor Thesis. During my Bachelor Art History at the University of Amsterdam, digital art was barely part of our curriculum. Recently, in the Master Conservation and Restoration of Cultural Heritage (specialization Modern and Contemporary Art), in particular during the past several months because of the time-based media art conservation module, questions about this case-study kept popping up in my head. Questions which were never asked, but should have been. This essay is aimed to be a conservator's testimony by an aspiring contemporary art conservator, who is currently learning more about time-based media preservation every day. And as a result, learns that being able to formulate and ask the right questions when in conversations with experts or artists is essential for a contemporary art conservator.

Terminology: Time-based media installation

In this essay, the term 'time-based media installation' will be used repeatedly. With this, the definition by Pip Laurenson, Head of Collection Care Research at Tate, is meant.[1] Her definition was chosen because she currently is a leading expert on the conservation of time-based media installations. According to Laurenson the term time-based media refers to artworks that incorporate a video, slide, film, audio or computer based element.[2] This media element is transformed into sound and/or image, which unfolds to the viewer over time, within the context of a prescribed environment.[3]

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[1] Louise Lawson and Deborah Potter, "Contemporary art, contemporary issues – conservation at Tate", *Journal of the Institute of Conservation* 40:2 (23 May 2017): 124.

[2] Pip Laurenson, "Authenticity, change and loss in the conservation of time-based media installations", *Tate Papers* 6 (Autumn 2006): 1.

[3] Pip Laurenson "The management of display equipment in time-based media installations," *Tate Papers* 3 (Spring 2005): 1.

Conservation of time-based media installations

These earlier discussed media components can have a purely functional value, or their significance might be broader. Therefore, in conservation it is important to determine what Laurenson calls 'the identity' of an installation.[4] That means, to decide which components are essential in identifying a particular installation as a faithful instance of that work. But, be warned, what is important to the identity of these installations is often uncertain. Especially interesting to aspiring contemporary art conservators such as myself, is the statement Laurenson makes about our role: conservators should understand what might constitute an authentic installation and to work to make such an installation possible.[5] Hereby, weighing different values (aesthetic, conceptual or historical) in a transparent and inclusive decision-making process is essential.[6] Exactly this, I will aim for in my analysis of the conservation of the chosen case-study.
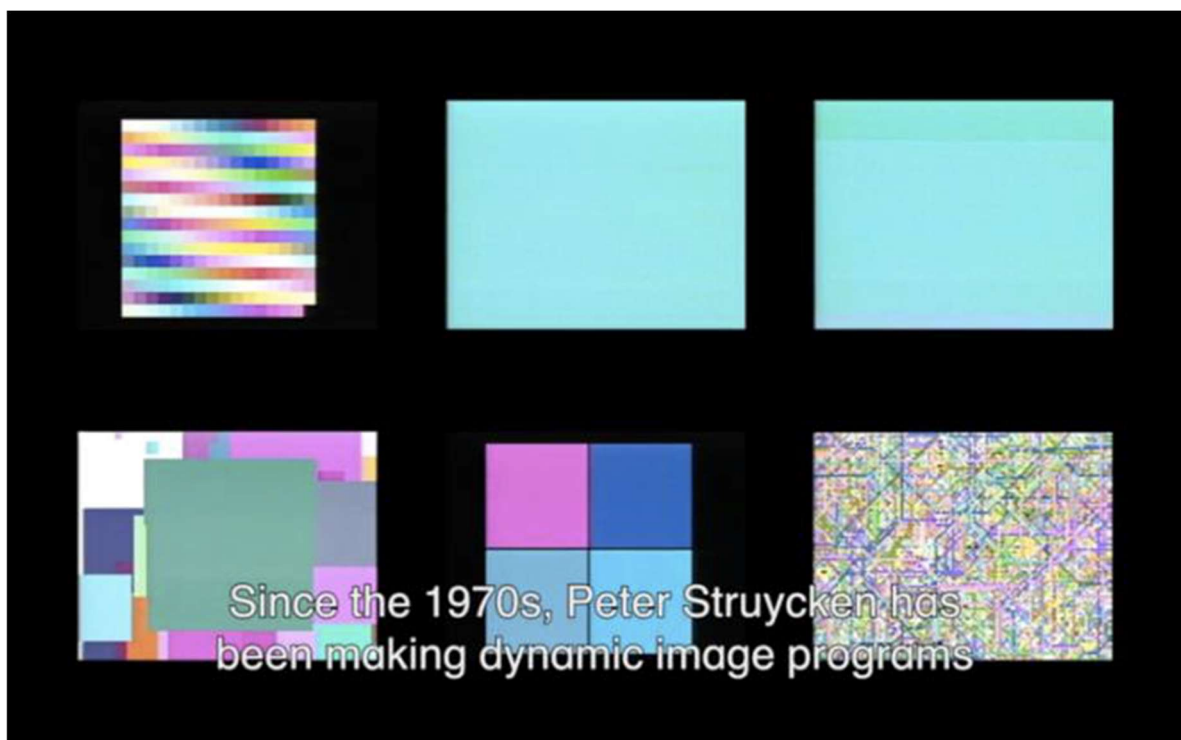

Figure 1. *WAVES, DISP, VLOEI, SQUARE, GRID 3* and *LIJN 1* (from left to right, top to bottom). Screenshot from: *Digital art: who cares? A documentary on born-digital art.* Maarten Tromp (director) and Rinske Hordijk (producer). arttube.nl. 19-02-2016. 11-11-2018 <https://www.arttube.nl/videos/digital-art-who-cares>. Duration video: 13:41 minutes. Screenshot: 05:05.

Introduction case-study

The Dutch artist Peter Struycken developed his earliest computerized artworks between 1976 and 1977. He made a series of six programs, one of these is the artwork *DISP*. This particular program shows various colours, one by one, in a specific sequence. *WAVES, DISP, VLOEI, SQUARE, GRID 3* and *LIJN 1* (the titles of his programs, in chronological order, *Figure 1*) were made with a PDP-11 computer at the Delft University of Technology (*figure 2*).[7] A monitor, which was sponsored by the paint manufacturer Sikkens, was connected to the computer by

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[4] Laurenson, "The management of display equipment in time-based media installations, 1.
[5] Laurenson, "The management of display equipment in time-based media installations," 2.
[6] Laurenson, "The management of display equipment in time-based media installations," 7.
[7] Maarten Tromp (director) and Rinske Hordijk (producer), *Digital art: who cares? A documentary on born-digital art.* arttube.nl. 19-02-2016. 11-11-2018 <https://www.arttube.nl/videos/digital-art-who-cares>. Duration video: 13:41 minutes.

the electrical engineering department of the University, especially for Struycken.[8] All the programs unfortunately no longer exist, their source code is also lost. What remains nowadays is a video-recording of the monitor with the programs running, made by the artist himself, including his voice-over.[9] This video is in the collection of LIMA and the Museum Boijmans van Beuningen.[10] During the project *Transformation Digital Art* (2014-2015) SBMK (Stichting Behoud Moderne Kunst) combined forces with LIMA and several Dutch museums to research the conservation of three case-studies. All of them are artworks by Struycken, all with different problems. *DISP* was one of the case-studies. After the project, a short documentary (duration 13:40 minutes) was released on ARTtube, anyone can access it online.[11] In 2016 an animation (duration 07:38 minutes) was made about the six programs, it was labelled as documentation as can be seen on the screen at the start of the animation.[12] Before the possibilities, problems and considerations in the conservation of *DISP* will be addressed, a closer look into digital art and its conservation is useful.

Figure 2. PDP-11 computer. Screenshot from: Digital art: who cares? A documentary on born-digital art. Maarten Tromp (director) and Rinske Hordijk (producer). arttube.nl. 19-02-2016. 11-11-2018 <https://www.arttube.nl/videos/digital-art-who-cares>. Duration video: 13:41 minutes. Screenshot: 03:20.

Terminology: Digital art

Similar to the term 'time-based media installations' (sometimes for example referred to as multimedia, media or new media art etc.), is the part which involves computer based elements also addressed using a lot of different terms and definitions. Digital art, computer art, computer-based art, software art, software-based art, internet art, net art, born-digital

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[8] Overzicht Transformatie Digitale Kunst expert meeting #1, on 02-12-2014 written by Nina van Doren (researcher LIMA).
[9] Tromp and Hordijk, *Digital art: who cares? A documentary on born-digital art.*
[10] *Overzicht Transformatie Digitale Kunst expert meeting #1*, on 02-12-2014 written by Nina van Doren (researcher LIMA).
[11] Tromp and Hordijk, *Digital art: who cares? A documentary on born-digital art.*
[12] Treffer & Tromp in cooperation with Nina van Doren and Sandra Fauconnier, *Animation WAVES, DISP, VLOEI, SQUARE, GRID 3 and LIJN 1.* 2016. Duration animation: 07:38 minutes. Available at LIMA.

art or digital born art are some terms which can be encountered. Not all artworks in these categories have to be time-based, nor do they have to be installations, but it is a possibility. Also, the relationship with the viewer is not described by using only these terms. Some are basically different labels with the same meaning. More often they have slightly different meanings. One artwork could be accurately described with more than one of these labels. Choosing the right label often already involves a lot of knowledge about the identity of the artwork.

Conservation of digital art

If (some) of the hardware is linked to the identity of the artwork storage, reparation or restoration of the equipment could be a conservation strategy. Or historical copies and/or new copies might be acquired.[13] If the hardware is no essential part of the artwork, LIMA uses the term software-based art.[14] Several other conservation strategies are still possible in this case. One might be transferring data to a new carrier, referred to as migration. Emulation is basically the same principle, but also retains the original look and feel of the original artwork. Virtualization involves running software within a virtual environment.[15] If all other strategies prove insufficient, or only in cooperation with the artist, re-interpretation could be an option. This conservation strategy uses contemporary alternatives to make an artwork accessible again.[16] If the work itself is inaccessible, a reconstruction based on the available information is the last option.[17]

A new attitude in conservation: Survival through change

The necessity for an approach in conservation which at first glance might seem less conventional is also discussed by Richard Rinehart and Jon Ippolito in their book *Re-collection*.[18] They explained parts of their "variable media preservation approach" _earlier, in a publication by the Guggenheim Museum.[19] Rinehart and Ippolito argue that variable media artworks (which are medium-independent) need the possibility to change, paradoxically, to stay the same.[20] The authors identify three threats when it comes to the preservation of contemporary artworks. The first being technology, often with a short lifespan and on top of that rapidly changing. Second, institutions, which often rely on preservation methods developed for older media and have rigid ideas about certain concepts such as originality, exclusivity, uniqueness and artistry. The third threat identified by Rinehart and Ippolito is law, which complicates access with intellectual property constraints and always needs time to adjust to the most recent developments in technology.[21] The book propagates not only that change is good, change is actually necessary, when it comes to the preservation of variable media. Here also, apparently determining the identity of an artwork is key.

Reconstruction of the decision-making process

DISP was chosen as a case-study in the *Transformation Digital Art* project to explore the (im)possibilities of reconstruction and/or re-interpretation as a conservation strategy for

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[13] Gaby Wijers, "Obsolete equipment: ethics and practices of media art conservation," in: *Preserving and exhibiting media art. Challenges and perspectives,* by Julia Noordegraaf, Cosetta G. Saba, Barbara Le Maître, Vinzenz Hediger (Amsterdam: Amsterdam University Press, 2013), 237

[14] Audio-recording of interview with Nina van Doren (researcher LIMA), interview on 09-05-2016 by Stefanie Janson, recording made by Stefanie Janson, total duration recording: 01:26:40. This fragment: 00:02:46.

[15] Wijers, "Obsolete equipment: ethics and practices of media art conservation,", 237

[16] Bernhard Serexhe, *Preservation of digital art. Theory and practice. The project digital art conservation,* (Karlsruhe: Zentrum für Kunst und Medientechnologie, 2013), 601.

[17] Wijers, "Obsolete equipment: ethics and practices of media art conservation," 237

[18] Richard Rinehart and Jon Ippolito, *Re-collection. Art, new media, and social memory (*Cambridge: The MIT Press, 2014).

[19] Alain Depocas, Jon Ippolito and Caitlin Jones,ed., *Permanence through change. The variable media approach* (New York: Guggenheim Museum Publications, 2003).

[20] Richard Rinehart and Jon Ippolito, *Re-collection. Art, new media, and social memory.* 10-11.

[21] Richard Rinehart and Jon Ippolito, *Re-collection. Art, new media, and social memory.*

digital art.[22] During a meeting between LIMA and Struycken reconstruction of *DISP* by the artist himself was discussed, possibly also of the other five programs. LIMA states that their priority is *DISP* because it is what they call the most primitive version of the program, it acted as a starting point for the other programs. *DISP* was according to LIMA very innovating. Struycken states that in his opinion reconstruction will be relatively easy.[23] During expert meeting one of the project the focus is still on reconstruction by the artist.[24] In the minutes of the second expert meeting it is stated that only re-interpretation is possible because the programs and their source code is lost. Two conservation options that are considered regarding *DISP* in this meeting are either reprogramming *DISP* or making an informative video, to provide context to the general public and to inform them about the challenges in the preservation of digital art.[25] During the third, and also final, expert meeting it was decided that this film was going to be an (re)introduction of the artist Peter Struycken.[26]

Unanswered questions
In this paragraph, some questions concerning the conservation of *DISP* will be discussed. Striking is that the difference between re-interpretation and reconstruction is not always verbalized very clear in the decision-making process. Examples of unanswered questions that rise from the documentation are: Will it be done by the artist himself? Is someone helping him? Will it be done with the original equipment? Has this equipment been repaired or updated since *DISP* was created? Or will contemporary equipment be used? Why does the artist state it will be relatively easy to reconstruct *DISP*? Does this suggest he is planning on using contemporary software? And how will the reprogramming itself be documented?

Another important question that remains is why the decision was made not to let the artist reprogram *DISP* with the original PDP-11 computer and on top of that document this process? Nina van Doren (researcher from LIMA) found out that the original PDP-11 computer is now in the *Computermuseum* of the University of Amsterdam and is still functioning. It could take some time, but a monitor can be connected.[27] In my opinion this could be very useful to do at this moment in time. The end result can be compared with the already existing video-recording (with voice-over), together with the artist. Even if in the future the PDP-11 computer and with that the reprogrammed version of *DISP* will be lost because the computer will go obsolete, more detailed information about *DISP* and general lessons about the involvement of the artist in reprogramming an artwork might be learned. Gaby Wijers (director from LIMA) wrote in another, non-related, article that the only accurate way to test if we have understood, documented and transferred the constituent parts of a work of art and the work itself is by re-installing the work.[28] Currently, this is still a possibility because the artist is still alive. Another reason time is of the essence, "*Monitors, in particular are regarded as the most urgent challenge facing preservation at the moment*".[29]

The animation, unlike the ARTtube video, is not accessible for the general public, this also raises questions. What is the status of this documentation? When will it be showed, and how? On its own, or always accompanied by the original video-recording with voice-over of the artist? In his art Struycken considers colour and timing as really closely linked to identity

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[22] SBMK-flyer; *project Peter Struycken, Transformatie Digitale Kunst, mei 2014 – _november 2015, Gezamenlijk project van de Nederlandse museum voor moderne en hedendaagse kunst*, 5.

[23] *Gecorrigeerd verslag van een bespreking tussen Peter Struycken and LIMA*, documented by Nina van Doren (researcher LIMA), 13-10-2013.

[24] *Overzicht Transformatie Digitale Kunst expert meeting #1*, on 02-12-2014 written by Nina van Doren (researcher LIMA).

[25] *Transcriptie project Transformatie Digitale Kunst expertmeeting II*, on 18-03-2015, written by door Nina van Doren (researcher LIMA).

[26] *Transcriptie expert meeting 3 Transformatie Digitale Kunst*, on 10-09-2015.

[27] Interview with Nina van Doren (researcher LIMA), 14:22.

[28] Gaby Wijers, "Ethics and practices of of media art conservation, a work-in-progress (version 0.5)"._ _scart.be. August 2010. 11-11-2018. <https://www.scart.be/?q=en/content/ethics-and-practices-media-art-conservation-work-progress-version05>.

[29] Gaby Wijers, "To emulate or not? Conservation case studies from The Netherlands," in: *Inside installations. Theory and practice in the care of complex artworks*, by Tatja Scholte and Glenn Wharton (Amsterdam: Amsterdam University Press, 2011). 87

of the artwork.[30] The timing is adapted in the animation, how does this affect the identity of *DISP?* And, will the screen on which the animation is shown be specified, to prevent colours from looking different?

Last but definitely not least, the question rises why the hardware in this case-study was always considered a non-essential component of the artwork? Van Doren explained that during an artist interview Struycken told that the specific equipment, the PDP-11 computer and the monitor, were not important parts of the artwork to him. He was mainly focused on progress, on stretching the possibilities of the technology.[31] This sounds like the conceptual, or maybe even the esthetical reason Laurenson is referring to.[32] But, what about the historical value of *DISP?* The ARTtube video states: "*Compared to modern-day computers, the programs look fairly simple but making computer-generated colour images was ground breaking at the time*".[33] In accordance with this is a remark which can be found in the minutes of expert meeting three, it is mentioned that the technique and the voice-over are the most significant parts of this artwork and need to be conserved.[34] It is questionable if the PDP-11 computer and the monitor were a part of the installation of this artwork initially, but what about today? I am inclined to think that without the PDP-11 computer and (a similar) monitor to show *DISP* the viewer might never understand this, at the time very cutting edge but currently looking very simple, artwork. The question remains, is *DISP* really software based?

Conclusion

A lot of different terms and definitions are currently used to describe artworks which include some kind of media element. This essay aimed to show that choosing one of these labels often already involves a lot of knowledge about the identity of the artwork. When it comes to conservations strategies terminology is also not always crystal clear. Weighing different values (aesthetic, conceptual or historical) in a transparent and inclusive decision-making process, like Pip Laurenson is advocating, proved to be quite challenging. The decisions concerning the conservation of *DISP* were made by Dutch experts in the field of time-based media conservation, in collaboration with several Dutch museums. Therefore, I presume all the decisions that were made must have valid justifications. But are all considerations documented properly? And is this documentation accessible? If the answer to these questions is no, this emphasizes the importance of asking the right questions as an aspiring contemporary art conservator when it comes to the preservation of time-based media installations.

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Thanks my teachers at the University of Amsterdam: Ellen Jansen, Evelyne Snijders and Sanneke Stigter. Also, thanks to all the guest lecturers in our current time-based media conservation module. Special thanks to Paulien 't Hoen from Stichting Behoud Moderne Kunst and Nina van Doren, researcher at LIMA.

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DOREN, VAN NINA. *Transcriptie expert meeting 3 Transformatie Digitale Kunst*, on 10-09-2015.

[30] Transcriptie video interview met Peter Struycken, interview on 30-09-2003, by Elbrig de Groot and IJsbrand Hummelen, video by Ward ten Voorde, transcription by Monique Kwist.
[31] Interview with Nina van Doren (researcher LIMA), 15:00.
[32] Laurenson, "The management of display equipment in time-based media installations," 7.
[33] Tromp and Hordijk, *Digital art: who cares? A documentary on born-digital art.* 04:26.
[34] *Transcriptie expert meeting 3 Transformatie Digitale Kunst*, on 10-09-2015.

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Conserving slide shows: photography conservation practice versus temporary art conservation practice for slide transparencies

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ABSTRACT

As a photographic medium, slides should be treated by conservators of photographs. But slide based artworks hold more elements to consider, linked to its nature as installation, its display equipment and the relationship between the components. Looking at it from a time-based art conservation point of view, as well as a photography conservation one, will provide a more complete "tool kit" to treat slide-based artworks. This paper will explore this notion, by introducing the history of the technology and examining the nature of these artworks. A closer look will be taken on a case study treated by the writer of this essay, a student for modern and contemporary art conservation in the University of Amsterdam, as a part of a practical course. The practice of photography conservators that assisted in the treatment will be examined, as the measurements taken from a time-based media conservation point of view.

KEYWORDS: Slide, slide-show installations, slide-based artworks, time-based art conservation, photography conservation.

Introduction

When I was assigned a slide-based installation in the beginning of this school year (2018-2019), I knew I had to pave a way into something unfamiliar. "Listen to the light, a score for JB (Joseph Beuys)" is an installation made in 1986 by the artist Pieter Heijnen. It was acquired by the Dutch Cultural Heritage Agency (RCE) in the following year and was brought to the University of Amsterdam modern and Contemporary art conservation studio to serve as an educational case study to treat (*figure 1*).

Figure 1. Documentation photo by the RCE.

As a start to my research into this fascinating medium, I reached out to my peers from the photography conservation department. Although they kindly and willingly shared their expertise, some eyebrows were raised as to why were slides, a photographic medium, assigned to me, a modern and contemporary art conservation student. "Photography conservation students have colour film as a subject only in the second year, this is so chemically complex!".

In a way, they were not mistaken. Reversal film is indeed very chemically complex and treating it should be done by a trained photography conservator. But slide-based artworks are more than just the photographic material. One slide is an image, but a carousel of slides is a show. The projector, an optical devise, generates the sequence of the images. It is an event for an audience, sitting or standing in a dark room, watching the bright images, with the clicking sound in the background. For this reason, slides should be considered from a perspective of time-based art conservation.

In this paper, the practice of a contemporary art conservator (and more specifically time-based art conservator) will be examined as opposed to one of the photography conservator, when dealing with slides. These subjects will be stemming from the history of the medium and how its use shifted though time.

The uses of slides throughout time

The wonder of projected images has been a part of global culture for centuries. The magic lantern can be considered as the first apparatus for projecting bright images for the entertainment of people, being patented in mid-17th century. Bright and colourful illustrations painted on glass slides were projected through lenses, first using candles, then lamps in modern times.[1] With the invention of photography, the inevitable marriage occurred, and photographic transparencies were born. The 20th century brought advances such as colour reversal film and automatic projectors, which lead to the slide show as we know it today.

For the early part of its history, slides were a part of the entertainment and marketing industries, of the educational world and of the personal life.[2] Its role in the art world was pedagogical: already in the late 19th century photographic glass slides were projected in art-history classes. In 1850 Willian and Frederick Langenheim invented the positive transparency, that was processed on a glass plate. Artworks and objects could be seen in the classroom in large scale, instead on using illustrations as before.

In the mid-20th century the western world, slide projections were already a common household technology, and was seen as a "low" cultural mean of visual expression. In the 1960's there was a shift in what was considered as fine arts, and more formats were allowed into the acceptable "high" art world. Many artists utilized readily available technologies.[3] From this context, slide projections made their way into the fine art world. And so, from a photographic medium, it developed into a medium that can be used in many forms of contemporary art- installation, conceptual, performance and more.

A difference between traditional use of slides and how it is used in contemporary art can be recognized. The medium main use was shifted from a state-of-the-art illustration tool, a practical necessity, to a creative artistic tool. Slides that were used as a documentation tool, outside of the field of art, can be seen solely as a photographic object. Once entering the art world, more theoretical fields are added. furthermore, once the technology was no longer in use for its utilitarian function, it "freed" it from the regular use and artists could use it as they wish.[4] These shifts can also illustrate a shift in methodology of conservation of these slide works. Meaning, when slides were an "active" photographic medium, many times much of the artwork's character lied in the photographic object.

For example, Nan Goldin's "*The ballad of sexual dependency*" (1979-96) is constructed like a family slide show, depicting Goldin's close environment and relationships. In this work, the photographic content plays a central role, arguably making the original technology of

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[1] Willis 2012
[2] Alexander 2005
[3] Alexander 2005

historical value, but the aesthetic and conceptual value might be considered weaker here. Evidently, Goldin has initiated a project to digitize her slides. Although, by digitizing and exhibiting it with newer technology we lose major aspects of the work. For example, in 1978 the work was first displayed in a club, having a performative aspect as Goldin was holding the projector in one hand, replacing the carousels in the other.[5]
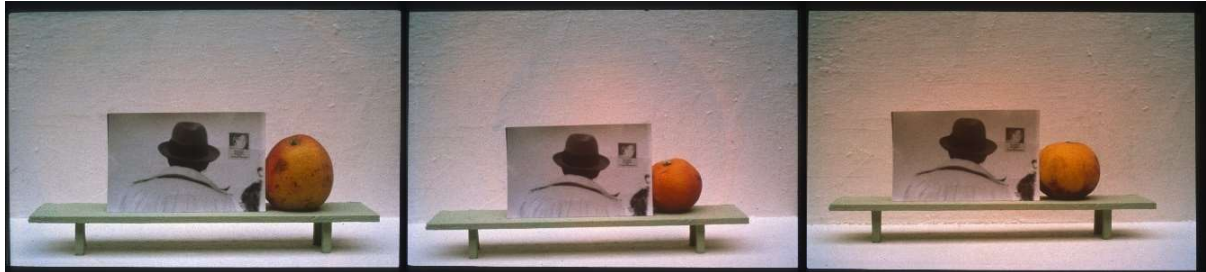

Figure 2. Images depicted on the slides shown in the installation.

Our case study, "*Listen to The Light...*", has a more distinct installation-like character. On three identical projecting tables, three projectors are placed. Each projector shows one image, they all seem alike. Portraying an and image of Joseph Beuys's silhouette in his studio (that Heijnen took years before), placed on a small table. In each image a different fruit is placed next to it: an apple, an orange and a grapefruit. each slide is to be projected for an entire exhibition day (*figure 2*). Aside to this there is a silver plated box with the inscription "*LISTEN TO THE LIGHT: A SCORE FOR JB*", storing the three master slides, mounted in specially made silver plated mounts (*figure 3*). In this case, the acquisition included several components other than solely the slides. The projection tables, specifically bought by the artist to match ones that Joseph Beuys used before, and the hand-crafted silver box that was specially made by a silversmith.[6] Questions of the relations between the components (and the display equipment) rise here, as well as planning for the future of the photographic material: making exhibition copies and considering the available possibilities.

Conservation of photographs started to manifest itself in the 1970's, referring to the photography heritage of the 19th and 20th century. The pioneers of the field claimed that the photograph as an object, not just the image, requires the conservation measurements.[7] That is, conservators of photographs are concern with the photographic materials. In the case of modern slides, this material is reversal film, a colour photographic film that creates the colourful image by the process of dye coupling, or chromogenic process. The film consists of three layers of dye-coupler emulsion, each sensitive to red, green or blue, applied on a plastic support. A chemical reaction induces the production of cyan, magenta or yellow dyes in the different layers of the film.[8]

Kodachrome was the first commercially successful colour film on the market. It solved problems of earlier dye coupling film, like the leaking of dye couplers between the layers. The product was a result of the research of Leopold Mannes (1899-1964) and Leopold Godowsky (1902-1983), that were invited to join the Kodak research Laboratory in 1930.[9] The dyes in the film are considered chemically instable, and with the inevitable exposure to a strong light source (aprox. 6000 lumen), the slide fades in a rapid pace.[10] When talking to a photography conservator from the post initial program in conservation of photograph in the University of Amsterdam, Magdalena Pilko, she emphasized the chemical complexity of the film. Only after extensive study and years of experience one can gain the skills of treating a colour reversal film.

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[5] Alexander 2005
[6] Heijnen 2018
[7] Romer 2010
[8] Pénichon 2013
[9] Pénichon 2013
[10] Pénichon 2013

In practice, the way to keep displaying the images in the slides is by duplication: making exhibition copies. This has proven to grow more complicated with time, since the duplication film was taken off from production in 2009, causing resources and means to decrease in time.[11] In recent years, there have been efforts to research the challenges in dealing with slides in museum collections. These projects focused on the complexity in managing and duplicating the slides. Notable is the project "Dying Technologies: the end of 35 mm slide transparencies", held in the Tate by Tina Wilder between 2001-2012. In the project, knowledge of the technology was gathered, and the problems of duplication of exhibition copies were explored. The possibility and complexity of digitizing the slides was examined, and the accessibility of keeping this technology on display in the future was assessed.

An experienced photography conservator can have the knowledge to find practical solutions for the duplication issues, working pragmatically with the available resources. Working standards are critical for producing adequate copies. The best scenario of acquisition will provide us with a master slide set, which is the film that was in the camera. This is the best quality set and is not to be touched other than once while making a copy from it. That copy is the "duplication set", from which exhibition copies are made. A reference set should be made for assessing the copy set's quality. A digitize version is highly encouraged as well.[12] When these standards are harder and harder to reach for pragmatic reasons, extensive knowledge on working with photographic materials can provide a toolbox from which one can choose the possible method for each case.

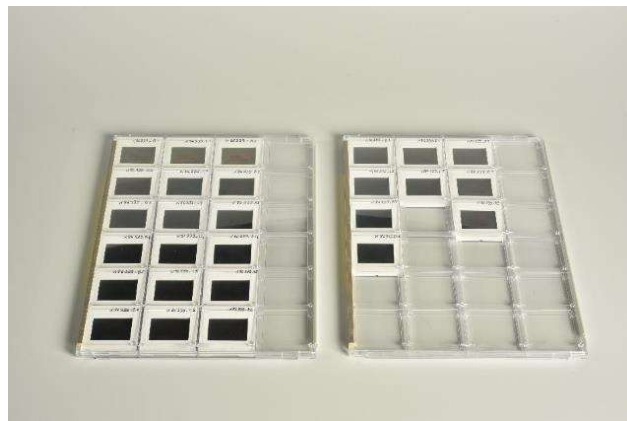Figure 3. Silver box and silver frames with three master slides. Photo: RCE archive.

Figure 4. Exhibition copies of the three slides. Photo: Lihi Levie, 2018.

Going back to the example of "*Listen to The Light...*", the master copy set was a major part of the artwork, being carefully placed in a silver box like a precious jewel (*figure 3*). This emphasized its status as an untouched copy, making it less accessible as the silver mounts are more difficult to open. For these reasons, the master copy set is left to be treated in a later stage by a photography conservator. Luckily, other than the master set, there were numerous exhibition copies available, approximately ten slides per image (*figure 4*). Working with a peer, Marieke Kruithof, the copies provided a chance to explore the possibilities of making more exhibition copies. finding a commercial company for duplicating the slides proved difficult and gave less leeway to oversee the process. From here on this was a trial an error process, starting with an un-successful attempt to photograph a computer screen with slide reversal film.

After consulting Clara von Waldthausen, photography conservator and the coordinator and teacher of the photography conservation department at the University of Amsterdam, the requirements of an attempt as such were starting to come to light. We had the chance to work with Hans Meesters, professional photographer and digitization expert.

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[11] Warda and Munson 2012
[12] Warda and Munson 2012

With his help, a method of duplication was carried out: each slide was photographed by an analogue camera with a slide reversal film. This required the right film (a reversal film with a low iso such as Fujifilm Velvia with 100 or 50 iso), a special macro lens that will prevent a lens distortion of the image, a flash box to place the slide on, light meter and so on. These methods and considerations come from knowledge and expertise in photography and photography conservation. But as complex as these conservation challenges are, it refers solely to the photographic aspect of it, but more aspects must be considered.

Problems in conserving slides as an installation

Making exhibition copies is a complex issue, but to display these slides in an authentic way, installations requirements are needed, as slide based art cannot be experienced if it's not installed. A slide projection contains many variables that effects and are affected by the relationship with the projector and the environment. When setting up a slide show, one must think of aspects such as the projection size. This can be controlled by different lenses, and the distance of the projector from the projection surface, meaning the position of the projector which affects the space. The order of the slides should be considered, as well as the speed of changing the slide. In some installations involving multiple projectors there are synch machines (more modern ones could be programmed), or sound equipment. These variables do not include the relationship to other components that might be in the installation.

This brings us to practices from the installation conservation world. Installation art developed throughout the 20th century, challenging the traditional conception of materials in artworks. The arrangement of objects in space was becoming more important that the originality of the material, many times considered as ephemeral. This makes the interconnections within the different elements of the works highly important. This nature of installations brings new criteria for conservators approaching it.[13] Caring for the individually object is important, but the meaning of the work is in high priority when thinking about the artwork's identity, and installation instructions become a crucial component in the life of the artwork. The conservator must analyze for each case the artwork's defining criteria.

Figure 6. The artwork installed throughout House Visser, Bergeyk (NL), 1986. Different lighting moments. Image courtesy of the artist Pieter Heijen.

One practice that is often used is the artist interview. In the case of "*Listen to The Light…*", an artist interview proved to illuminate aspects of the artwork. A short installation instruction was documented in the acquisition papers of the Dutch Cultural Heritage Agency where a projection size was specified ("40x70cm"), and the projection times: 12 hours a day, from noon to midnight, for a three-day exhibition. These specifications raised questions regarding the projection times, as the specific hours seemed difficult for an institution to follow, and a single slide projected for 12 hours can fade it rapidly. Heijnen stated that the hours are more of an ideal, with the idea of the lighting in the room changing with the sunset, but he was

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[13] Jadzinska 2011

aware of the limitation of exhibition hours in institutions and flexible with changing this (*figure 6*). A single slide should be projected for the entire duration of the exhibition, Heijnen did not seem to be worried with the fading of the image ("as long as it's readable").[14] Another question that Heijen clarified is the silver box. It was not stated what is its role in the installation before, but Heijnen assured it should be displayed together with the projections. He also emphasized the importance of the projection tables, which lead to a closer examination of their condition and their treatment.

Another aspect to consider is the display equipment: the projectors. To understand the identity of the work, the relationship of the projector to the artwork must be researched. As mentioned earlier in this paper, in many installations the projector has a role greater than its function. This present a challenge for displaying the work, as display equipment becomes obsolete and is destined to fail.[15] The greater part the equipment plays in the artwork, the greater the vulnerability to loss. The conservator must assess this relationship and work towards an authentic installation of the artwork. [16] Pip Laurenson suggests a series of questions that can guide the decision-making process. Questions regarding the artist's involvement in choosing the equipment, the visibility of the machine in the installation, its context and history and how significant it is to the work, the quality the machine produces and its availability.[17]

In the case of "*Listen to The Light…"*, the three projectors were not a part of the acquisition. The artist interview revealed that in all iteration different projectors were used. In some cases it was borrowed for the exhibition period, in some cases the projector was owned by the gallery displaying it. Heijnen did not specify the three needing to be identical, or a specific model should be used. This leaves some freedom in choosing more readily available projectors when the installation will be re-installed later this year (2019). In other cases, it might pose a greater problem. An extreme example of this is "Auto Focus", and installation from 2002 by Ceal Floyer, that consists solely of a projector on auto focus mode, projecting light with no slides. In this case, the technology takes the central role in the installation, and it will not exist without it.[18][19]

If diving into the mechanical component of a slide-based artwork, the projector can be seen as both sculptural and as generator of movement in the artwork. This brings us to questions rising from kinetic art conservation. the challenges in kinetic stem from the movement playing a central role in its meaning. An artwork has an "off" and "on" mode, but keeping the mechanism going might involve replacing original parts. Questions of authenticity and the relationship of the machine with the artworks rise.[20] What happens when a specific projector is "assigned" to an artwork and stops working? What if the projector was modified by the artist? How do we make sure we are fixing it while maintaining the original movement and sounds it makes? For now, this machine remains common, and some professionals are still around for maintenance and repair, but at some point, the distinctive movement and clicking of the change of the slides will be familiar no more.

Conclusion

This paper illuminated the difference between a photography conservator's practice when encountering slides, and that of a contemporary art conservator. The nature of slide-based artworks was analyzed with relation to the history of the technology and its use in art. Through this nature, that encompass factors from the history of photography as well as the history of contemporary art, the complexity of its conservation should be understood. By discussing the practice of each discipline, focusing on a case study, the difference and the significance of each practice to the slide-based artwork was expressed. As slide based

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[14] Heijnen 2018
[15] Laurenson 2005
[16] Laurenson 2005
[17] Laurenson 2005
[18] Alexander 2005
[19] Questions of authenticity are interesting in this case: What if the specific projector is replaced with a different machine but the same exact model?
[20] Bek 2018

artworks pose questions beyond the field of photography conservation, working in an interdisciplinary collaboration is necessary to grasp the full essence of each slide-based artwork.

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Preservation of Screen-reliant Media Installations

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ABSTRACT
Since the beginning of this century conservators have been trying to find solutions for artworks that are reliant on specific technology that has become obsolete over time. This also marks the starting point of the accompanying discourse on changes within conservation practice, from a focus on historic materiality towards the artistic concept of the work. In addition, conservators should pay attention to the way artworks function. Setting parameters to determine this is a difficult task as the function includes phenomenological, environmental, ontological and experiential aspects. This essay seeks to set parameters for the conservation of media installations by zooming in on screen-reliant media art by investigating non-material aspects of artworks.

KEY WORDS: Time-based media art, installation art, video art, screens, conservation theory, moving image, preservation, virtual space, phenomenology.

Introduction

Since the 1970s artists have started experimenting with the use of media in their artworks. These objects or installations have a technological character, presenting new challenges for conservators. Set in a certain period in history, they are bound to available technology that artist could use at that time, which often makes up a great part of the work's identity. An excessive amount of works is made using analogue or digital methods and electronic equipment, with aspects that are both tangible and intangible. For conservators this means that they face problems that cannot be solved within established frameworks using conservative methods, mere do they have to find new solutions trying to preserve these artworks for the future. But how can we set parameters for the conservation of these works?

During the last couple of decades, consumer technology has rapidly changed and improved, leaving behind a trail of obsolete equipment of which replacement parts are increasingly harder to obtain. Hardware, playback equipment and display devices start to fail. In addition, software to read digital signals can get unsupported by new computers, making entire artworks disappear. For many artworks that rely on signals, what we eventually perceive as the artwork, is not the material it is made off. The depicted image is dependent on hardware, software and/or a signal carrier, that are not inherent to the artwork, but make up a great deal of their identity. When conserving a video work for example, it is not the material of the videorecorder or the videotape that we conserve, but the final output when the signal is read. It is therefore important to understand which immaterial parts of the object are major aspects that make up the artistic concept or identity of the artwork.

Several studies have been done on the importance of documentation of immaterial aspects of installations. Especially Tate Modern has been a pioneer institute researching the conservation of time-based media installations. Attention is paid to visitor experience in relation to space, sound and light when re-installing artworks or when technology needs replacement. Trying to define non-material aspects of media art further, this paper focusses on installation art that is screen-based and tries to find parameters for selecting a display technique when display equipment has become obsolete. This paper will deal with non-material aspects of screen-reliant installations and zoom in on the aesthetical and non-aesthetical functions of screens.

Conserving the ephemeral

The amount of different techniques and materials used in contemporary art is excessive, which makes it hard to categorize artworks. Conservators and institutions that are involved with their conservation, use different terms that, often, refer to the same categories. A broad term used is 'media art', which often describes artworks that embrace electronic technology. It is an overarching term for more specific terms such as video art, computer art and net-

based art. Another broad term used is time-based media art, which is defined by Tate Modern, as "art that is dependent on technology and has a durational dimension."[1] This definition excludes all art works that use technological equipment but that are static or, in contrary, supposedly never ending, such as internet artworks. Often the broader term 'installation art' is used, which, according to Barbara Ferriani and Marina Pugliese from the Getty Conservation Institute, refers to the verb 'to install' which is related to the installation of exhibitions.[2] "(...) it derives a dialectic relationship with space and with the physical and, at times even only mental 'immersive' experience. At the same time, however, installations represent a hybrid of traditional sculpture with other arts, such as architecture, theatre, performance and cinema. As well as amalgamating different media and techniques and (...) installations also succeed in borrowing forms of language, social conventions, and other cultural forms from fields outside of arts."[3] Tate modern uses a more concise definition of the term installation art. They state that the term is used to "describe large-scale, mixed media constructions, often designed for a specific place or for a temporary period of time."[4] In this paper the term screen-reliant art is used for artworks that contain monitors or screens. This term does not necessarily mean the involvement of video or moving image and so distinguishes from the term video art.

The above categories have in common that they use a certain technology that makes them vulnerable, that make their lifespan very short. For example, the first television sets for example, made use of CRT monitors. These monitors have a specific look as they consist of a heavy cubic box and a glass screen with a phosphor layer. An electric beam inside the cube lights up the phosphor layer resulted in a depicted image. The monitors are no longer made today. When the technology fails, or the phosphor layer degrades, conservators must look for solutions to keep the artwork running. Conservators can consult technicians to repair the monitors and store spare monitors and parts but may eventually run out of options to keep the old monitor running. At some point we may not have any working monitors from a specific time, nor might we have replacement parts or possibilities to restore them. Gaby Wijers (2010), director at LIMA, explains several options conservators have when dealing with obsolete equipment.[5] They can restore or repair the original equipment with the help of a technician. They can make a historical copy by replacing the monitor with the same model. They can make a new copy by replacing the monitor with the same model from a later period. When this is not possible the work can be migrated by reconstructing the equipment with modern technology. This is slightly different from the emulation technique in which the work is reconstructed with modern equipment while retaining the look and feel of the work. A different approach is re-interpreting the work by replacing equipment while considering metaphorical values related to the sculptural function of the work.[6]

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[1] Tate Modern is one of the most important institutes in the field of time-based media conservation. Tate. "Time-Based Media Art," Art and Artists, Tate, accessed November 2, 2018, https://www.tate.org.uk/art-terms/t/time-based-media.

[2] Barbara Ferriani and marina Pugliese, *Ephemeral Monuments: History and Conservation of Installation Art.* Los Angeles: Getty Publications, 2013, 9.

[3] Ibidem.

[4] "Installation Art," Art and Artists, Tate, accessed November 2, 2018, https://www.tate.org.uk/art-terms/i/installation-art.

[5] LIMA is an institute based in Amsterdam, The Netherlands that deals with the storage, archiving and preservation of media art.

[6] Gaby Wijers, "Ethics and Practices of Media-Art Conservation: A Work-In-Progress," *Scart*, (August 2010).

Figure 1. Nam June Paik, TV Garden, 1977. 2000 version shown at Solomon R. Guggenheim Museum, New York, United States. Photo: Ellen Labenski.

An example of an emulation technique can be seen in the work *TV Garden,* by Nam June Paik *(figure 1).* The work features several televisions of various sizes which are placed between plants in a dark space. On the monitors, Paik's videotape *Global Groove* is played. When re-installing the artwork, the Solomon R. Guggenheim Museum consulted the artist to ask what televisions they should use as the original monitors no longer worked. The artist answered that "he envisioned ideas that could change with time and technology and that could exist despite the threat of no longer having cathode-ray tubes."[7] In this artwork the CRT monitors were replaced with modern plasma screens, while leaving them inside the shell of the original CRT monitors. It is arguable whether it is acceptable to 'destroy' the original monitor as one might want to keep them in storage. But not doing so, the monitor will function merely as relic, using up space in storage while the artwork is no longer functioning.

Wijers distinguishes two types of approaches within these techniques towards the conservation of media art. "[The] 'purist/original-technology-at-all-costs' approach, and the 'adapted/updated-technology-approach'."[8] She stresses that both approaches are valid. "It would be an error on the part of collecting institutions to give up too quickly on old technology. Decisions have to be made about the value of that technology for the work."[9] Determining this value is an important but hard task as screens can have multiple functions in artworks. Pip Laurenson from Tate Modern (2005), stresses that this should not be underestimated.

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[7] John G. Hanhardt, "Nam June Paik, TV Garden, 1974," in Permanence Through Change: The Variable Media Approach, edited by Alain Depocas, Jon Ippolito, and Caitlin Jones (new York, 2003), 70-77.
[8] Wijers, "Ethics and Practices of Media-Art Conservation,"
[9] Ibidem.

"It is appropriate for conservators to be reluctant to change any element of the original technology and consider it a loss. It might also be argued that precisely reproducing the function is impossible, in the same way that purists argue about the difference between the sound of a CD and a vinyl recording, However, just as it might be necessary to replace old varnish in order to be able to still see a painting, it is important to prepare for the replacement of these elements of equipment in order to continue to be able to show the work. As with any intervention, the conservator must justify such a change in accordance with the code of conservation ethics which governs the profession."[10]

An example of a function related to technology is the quality of the work. Artist worked with certain materials that were available at the time. Technological possibilities were limited, as well as budgets for equipment. When preserving a screen-reliant work this should be considered. A conservator should not try to improve the quality of a video or screen. It is important to assess whether the quality of a work has decreased or whether in fact nothing has changed. A low-quality shot can also be intentional or caused by the limitations of the artist's skills. In a way the quality is part of the artworks function. All functions should be mapped, documented and discussed prior to altering any parts of the artwork. On the other hand, artist may also have used different, more advanced techniques if those were available. The case study *TV Garden,* shows that Nam June Paik embraced the use of newer technologies. It is therefore important to document how the artist would like the work to function in the future.

Conserving the non-tangible

Technological equipment has both aesthetical and technological functions. Besides there are non-tangible aspects that should be considered, such as the context of the object or installation. These aspects can for example be environmental, phenomenological, experiential, and/or ontological and are intertwined with the meaning or identity of the artwork. Choosing an alternative display device can be a difficult task. In case of *TV Garden,* many different monitors were used originally. Changing them all to plasma tv's may cause a loss in difference between the light, colour, brightness and sharpness, giving a different feel to the work. Research into the way screens are perceived by the spectator can help conservators to set up points of attention when technology needs to be adapted. A great deal of this lays in the documentation of installations, in particular, their contextual aspects. Pip Laurenson (2005) stresses the importance to broaden the focus and to "include elements of an installation that affect the viewer's experience. This might mean documenting the space, the acoustics, the balance of the different channels of sound, the light levels and the way one enters and leaves the installation."[11] In doing so the conservator continues to display the work according to the artist's intent.

Screens also have a sculptural function. It is important to determine in each artwork whether this sculptural element is important. The importance of the sculptural function is often based on aesthetical qualities. Old TV sets had a certain volume, as the technique inside the box needed the space. Some artists, such as Bruce Naumann, use the spatial character of the screen in their work. In *Floor Positions* (1968), Naumann emphasizes the shape of the monitor by a video in which he investigates the frame of the TV with his body. Replacing the screen with a flat screen will cause loss of meaning of the work. The spatial character of the TV was no choice for artists as no other screens were available. Artists might have chosen screens with other qualities or other shapes if those were available. Even if an artist agrees on displaying a work on a more modern device, an additional problem occurs; the age gap between viewers. Some people may remember the old days with black and white CRT monitors while others grew up with flat screens. An artwork transferred to a modern screen

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[10] Pip Laurenson, "Authenticity Change and Loss in the Conservation of Time-Based Media Installations," *Tate Papers,* 6 (2005).
[11] Pip Laurenson, "Developing strategies for the conservation of installations incorporating time-based media: Gary Hill's Between cinema and a hard place," *Tate Papers, 1* (March 2007).

may look the same but will be understood differently as it is interpreted in the wrong context. Screens can function in a certain way as monuments, referring to an older time. This is largely connected to the appreciation an artwork gets that is made with a certain technology as the technology used was new at the time but is not anymore today.

Video art is related to installation art as it has strong connections with its environment; the exhibition space. As explained earlier, it is with this reason that categorizing artworks within existing terms can be hard, as explained earlier. According to Kate Mondloch (2010) screens have another important function; they function as barrier between the physical and virtual space, creating a double spatial dynamic.[12]. Spectators are both 'here' and 'there', both in the material exhibition space and looking in screen spaces. The virtual space that is created is an important factor determining the way an artwork is being experienced. Sometimes the physical and virtual space overlap, as explained in the work *Floor Positions* by Bruce Nauman.

In addition, the relationship between body and screen is often an important part of the artistic concept. This can be seen in the artwork *Tillie the Telerobotic Doll* (1995) by the artist Lynn Hershman *(figure 2)*. The installation consists of a doll of which the eyes are replaced by a camera and a webcam. Tillie the doll holds a mirror and sits opposite of a screen on which the camera footage is displayed and holds a mirror. Visitors of the exhibition space can see the recordings of themselves in the mirror. Simultaneously, the webcam is operated by internet users who can go to a website to move around the camera and the doll's head. Helen Westgeest (2016), describes the variety of spaces in this artwork. "The physical space of the doll, the closed-circuit system, and the gallery visitor; the space in which the external user is physically present; and the virtual space in which the virtual user visits the gallery and directs Tillie's webcam eye. Finally, there is the complicated social space between the virtual visitor and the visitor to the gallery, who is not aware of the virtual manipulator of Tillie's right eye and head."[13]

When conserving an artwork like this, attention should be paid to all the different spaces. When the website to operate Tillie's eye is not accessible, the work loses an inherent part of its meaning as the connection between gallery visitor and spectators at home will get lost. If the website would only be accessible in the gallery space on a touch screen for example, the work will lose another important aspect: the feeling of being a voyeur. Being at home and able to move Tillie's head while using your own laptop is important to create this experience of voyeurism. All spatial dimensions in this work are therefore important to conserve.

Figure 2. Lynn Hershman, *Tillie the Telerobotic Doll, 1995-1998, Interactive video installation. Photo: Lynn Hersman, Courtesy of the artist.*

Translating the spatial aspect into a parameter for conservation results in considering phenomenological aspects of artworks as part of their function. This can be the physical space we are in, but also the relation between our bodies and the artwork. For example, the light radiation coming from the screen shining on our bodies. Helen Westgeest explains our phenomenological relation with screens from a historic perspective. Historically, we are used to sit in front of a screen and float away into its virtual world.[14]

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[12] Kate Mondloch, *Screens: Viewing Media Installations*, Minneapolis: University of Minnesota Press, 2010, 62.
[13] Helen Westgeest, *Video Art Theory: A Comparative Approach* (West Sussex: John Wiley & Sons Inc, 2016), 84.
[14] Ibid, 96.

When multiple screens are used in a multi-channel installation one does not experience this and actively relate to the amount of elements (screens) in the installation by turning one's head, looking at different screens. In this case the visitor stays more actively present in the physical world. It is arguable that the single and multichannel artworks have different functions and will have different priories while emulating or replacing their display techniques. How well the virtual world is perceived according to the artist's intentions depends on the screen's success to let the viewer float away and understand the virtual world how the artist intended it. This highly depends on factors such as brightness, colour, sharpness and spatial dimensions but also relates to the number of screens and other elements in an installation. While assessing the look and feel of screens and making decisions on alterations or replacements, phenomenology and dual-spatial relations influences the list of priorities.

Conclusion

When setting parameters for the conservation of screen-reliant art, conservators should pay attention to several functions that screens can have within media installations and prioritize these functions. Screens have a sculptural function, making up part of the visual aesthetics of an artwork. They also have a technological function, making (part of) the artwork visible. Conserving screen-reliant art however, goes further than looking at these functions. There are non-tangible aspects that will determine whether the artwork is installed and shown according to the artist's intention. This can be seen by looking at the way an artwork connects the physical space and the virtual space. Humans always use their bodies to connect or relate to objects. When changing something about the screen or replacing it for a different model, these phenomenological aspects should be considered. Determining whether the artwork takes place mostly in the physical space, mostly in the digital space or somewhere in between, helps to make decisions on the conservation of screen-reliant media artworks.

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Web Archiving: An Assessment of the Options for Documentation of Born Digital Media

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ABSTRACT

An increasing amount of information and cultural heritage is being stored and displayed online but the web is an inherently transient medium. In the late 90s libraries and institutions began to take notice of this as important content was disappearing from the web at a rapid rate. Institutions hurried to develop techniques to document and archive ephemeral material resulting in 3 main methods of web archiving which are used today: remote harvesting, database archiving, and transactional archiving. These tools provide a basis with which to approach web archiving but still exhibit limitations in their abilities to properly represent a website in all of its context. These limitations require transparency in the form of further documentation on the part of the archivist.

KEYWORDS: Web, Archiving, Documentation, Transparency, Limitations

Introduction

The World Wide Web has become the most commonly utilized source of knowledge in the modern era due to its convenience and high degree of accessibility, yet it is a common misconception that information and media found on the web have a lasting longevity. This misconception in part stems from the idea of the web as a self-preserving medium that retains intellectual resources and culturally indicative websites by rote of their importance. Yet in several studies, that have already been conducted, the average lifespan of a website was found to be only 100 days in 2003 and even half that in 1997.[1] Many aspects related to the inherent vices of the web as a medium contribute to this including annual server payments and domain name renewals, which must be completed every year to every 10 years.[2] In view of this, it is not surprising that much of the information and the born digital media art available on the web in the early 1990s has already disappeared forever.[3] It wasn't until 1996 that the public began to stand up and take notice of this loss in cultural heritage resulting in the formation of such initiatives as the Internet Archive and Australia's Web Archive.[4] As these initiatives have developed, grown and multiplied three main methods of web archiving have come to the fore: remote harvesting, database archiving and transactional archiving.[5] These three methods utilize different techniques to cull data from the web which can give disparate end results and can affect how information is contextualized. This paper aims to provide a short description of these three different methods, an analysis of the obstacles they each form to authenticity and finally a discussion of how transparency of documentation can be used to give a more accurate idea of the 'original.'

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[1] Mike Ashenfelder, "The Average Lifespan of a Webpage," Library of Congress, accessed 8 April 2019, https://blogs.loc.gov/thesignal/2011/11/the-average-lifespan-of-a-webpage/.
[2] Steven McDonnel, "How Often Do You Have to Renew Domain Names?" It Still Works, accessed 8 April 2019, https://itstillworks.com/renew-domain-names-28767.html.
[3] *Web Archiving Guidance*, (Surrey: The National Archives, 2011), http://www.nationalarchives.gov.uk/documents/information-management/web-archiving-guidance.pdf.
[4] "About the Internet Archive," Internet Archive, accessed 8 April 2019, https://archive.org/about/.

Method
Remote Harvesting
Remote harvesting is the most common of the methods used for web archiving and the only one that utilizes a client-side approach, meaning that it accesses web pages from the front end instead of the back end. This method of access has increased its popularity of use as it allows any freely available material on the web to be archived irrespective of who it is managed or owned by.[6] To harvest information targeted programs called crawlers, often written in Java, Python, Perl or C/C++, start with the URL of a website and methodically work through it following links and copying information as they go.[7] Crawlers can be programmed to target certain types of websites, as with the National Library of the Czech Republic which integrated a WebAnalyzer with a web crawler to recognize and document Czech websites, or to avoid others, such as ignoring links to large image files which may quickly fill limited server space.[8] To negotiate limited archival server space the digital media sector also commonly uses a method of crawling called batch crawling in which one or several snapshots of a website are created over time.[9] The results are 'frozen' web pages from that specific time that can be navigated in a similar way to the original available on the live web.

Database Archiving
Database archiving and transactional archiving which will be discussed in the following section are server-side approaches that require acquiescence and cooperation on the part of the manager or owner of the website. In the case of database archiving this is because it entails the copying of files directly from the server of the website to be archived. Often used with government websites or other database-driven pages the method includes the transfer of content, the database management system and scripts that are non-accessible from the client-side.[10] These are often converted to open source formats like XML using a tool like DeepArc or Xinq to make them easier to access without requiring the same working environment as was used by the original website.[11] Yet to retain some semblance of context concerning the information transferred this involves the manager of the website or someone else with a thorough understanding of the information to be transferred creating an XML Schema which addresses the structure of the database.[12] The result is an archival XML document that combines file data with database data.

Transactional Archiving
Transactional archiving, the last method that will be described briefly in this paper, works by documenting the HTTP requests that take place between the web server and the web browser. This being said, it can be executed either from the server-side or from the browser-side, as with database archiving. Since this method is an event-driven approach its main advantage lies in time stamping what information on a website was accessed when and providing consistent updates when changes are made.[13] The result is a dynamic time stamped representation of a web page at a certain point in time which does well to capture JavaScript

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[6] *Web Archiving Guidance,* (Surrey: The National Archives, 2011), http://www.nationalarchives.gov.uk/documents/information-management/web-archiving-guidance.pdf.
[7] Denis Shestakov, "ICWE' 13 Tutorial: Current Challenges in Web Crawling," (presentation, 13th International Conference on Web Engineering, Aalborg, Denmark, July 8, 2013).
[8] Jinfang Niu, "An Overview of Web Archiving," D-Lib Magazine 18, no. 3 (2012): doi: 10.1045/march2012-niu1.
[9] Denis Shestakov, "ICWE' 13 Tutorial: Current Challenges in Web Crawling," (presentation, 13th International Conference on Web Engineering, Aalborg, Denmark, July 8, 2013).
[10] *Web Archiving Guidance*, (Surrey: The National Archives, 2011), http://www.nationalarchives.gov.uk/documents/information-management/web-archiving-guidance.pdf.
[11] Jinfang Niu, "An Overview of Web Archiving," *D-Lib Magazine* 18, no. 3 (2012): doi: 10.1045/march2012-niu1.
[12] Michael Rumianek, "Archiving and Recovering Database-driven Websites," D-Lib Magazine 19, no. 1 (2013): doi: 10.1045/january2013-rumianek.
[13] Robert Sanderson, Lyudmila Balakireva, Harihar Shankar, and Herbert Van de Sompel, "Transactional Web Archives," (presentation, Web Archive Globalization Workshop, Ottawa, June 16-17, 2011).

and keep it from connecting to the web.[14] An example of a transactional archive service is SiteStory developed as part of the Memento Project, a collaboration between the Los Alamos Laboratory and Old Dominion University, which was used to address crawler limitations concerning updates to important government and cultural websites.[15]

Obstacles

Each of the techniques described above brings its own obstacles to accurately relaying the content of born digital media while remaining faithful to its context. For all the techniques, a large part of this has to do with the ongoing misunderstanding of the maintenance needs of digital repositories which, unlike their object-based counterparts, need constant monitoring to ensure that what they are receiving, mirrors what was expected. In an article by Kalev Leetaru concerning the state of web archiving in libraries he details just such a case, "I found that they were not properly stripping RSS and session tracking codes off the URLs they were pulling from each RSS feed and that some of the feeds they monitored appended a new timestamped tracking code to every URL in the feed every time they fetched it (and these feeds coincidentally happened to be annual RSS feeds containing all content from the previous year), meaning every few minutes they were fetching the same set of millions of articles all over again and counting them as new articles."[16] A discussion of these gaps in knowledge concerning the documentation of born digital media while retaining its coherence would be remiss without first putting this forward as an overarching problem.

Considering the knowledge is available, remote harvesting then forms the most significant issues because of its high degree of use and the distance of the archivist from the process. Its popularity lies in its ability to archive vast amounts of websites at a time, the Internet Archive boasts 351 billion websites archived to date, but as described above they can only archive those aspects of a website that are not highly secured.[17] Where this becomes a problem is with websites containing dynamic web content such as plug-ins, streamed media files, or extensive databases. [18] Often requiring the archivist to manually archive these elements if there is time. Some crawlers can be adapted to crawling multimedia, but it becomes more complicated due to the larger file sizes also making the removal of duplicates caused by repeated crawling difficult.[19] The creation of duplicates through repeated crawling can cause further issues in conjunction with this method's remote nature, resulting in the duplication of whole web-pages which have not been updated between crawls. This remote aspect can also become an issue when links on a web page that contribute to its context, are not archived or when a website with a fast turnover is being archived and content changes before the crawler can reach the end. This creates a documentation that is not an accurate documentation of the web page at that point in time.[20]

Database archiving requires the more active participation of the archivist and thus is easier to control than remote harvesting, but its nature as a server-side approach creates more obstacles to authenticity, as it results in an interpretation of the back-side or "harder to reach" aspects of the web page. It is especially fraught as it usually entails the conversion of information into an XML schema which requires a certain level of interpretation in the

[14] "Web Science and Digital Libraries Research Group," Blog Spot, accessed 8 April 2019, https://ws-dl.blogspot.com/2013/07/2013-07-09-archiveis-supports-memento.html.

[15] Justin F. Brunelle, Michael L. Nelson, Lyudmila Balakireva, Robert Sanderson, and Herbert Van de Sompel, "Evaluating the SiteStory Transactional Web Archive with the ApacheBench Tool," (conference paper, International Conference on Theory and practice of Digital Libraries, Valletta, Malta, March 23, 2013).

[16] Kalev Leetaru, "Why are Libraries Failing at Web Archiving and are we Losing Our Digital History?" Forbes, accessed 8 April 2019, https://www.forbes.com/sites/kalevleetaru/2017/03/27/why-are-libraries-failing-at-web-archiving-and-are-we-losing-our-digital-history/#579a85016ecd.

[17] "About the Internet Archive," Internet Archive, accessed 8 April 2019, https://archive.org/about/.

[18] Jinfang Niu, "An Overview of Web Archiving," D-Lib Magazine 18, no. 3 (2012): doi: 10.1045/march2012-niu1.

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[20] Annet Dekker, "Preserving Digital Art, a Tension between Objects and Processes," (lecture, University of Amsterdam, Amsterdam, Netherlands, 6 February 2019).

instruction of how the information should be presented.[21] While it makes the information more accessible and easier to preserve, it removes it from its original working environment causing much of the original layout and behavior of the website to be lost.[22] This being said, some degree of link relation and a general sense of hierarchy can be retained especially if this information is stored in a web-based archive versus offline. In this case, associated information can be stored in the same file container and the original URIs can be preserved while embedded links can be redirected from the web to other archived files.[23]

Transactional archiving is the least used of the other two and the technique with the least written about it in terms of how it works to capture information on the web. Like database archiving it requires a more active approach on the part of the archivist, as cooperation needs to be secured from the server or from the browser depending on which way data acquisition is approached.[24] After this step collection happens remotely making deduplication an issue in cases of URL related error. Archive.is, a web archive that cooperates with the Memento project and uses their transactional archiving method, requires a demand to archive a web page, contrary to how crawlers will crawl an entire site.[25] Thus, a whole website will not be archived unless instructed page by page to do so, losing important context and the interrelation between the web pages that make up a website.

Remaining Transparent

All the methods described above have their strengths and their limitations which it is important to highlight in the documentation of born digital media. In some cases, using multiple of these methods in tandem with each other can create a more accurate representation of the website. For instance, with the interactive net art piece *Mouchette.org* by the artist Martine Neddam database archiving could be used to address the large degree of content contributed by users to the many submission forms that populate the site, and transactional archiving could be used to address the aesthetics of the site and its numerous updates.[26] In the metadata included with the files in the database archive information transparency can be retained by including information regarding the original format, working environment and method by which the content was received giving albeit still a 'frozen' image of the work at a certain time but a more complete idea of its appearance and functionality.

Other types of documentation in combination with web archiving techniques can also contribute to transparency and highlight what forms the inherent traits of a website as well as what aspects of that a web archival method may not be able to capture. For instance, in the case of, the net artist, Rafael Rozendaal's websites remote harvesting was used to capture the aesthetics of some of his websites, as the Internet Archive did with his work *whitetrash.nl*.[27] Further documentation was then supplied by the artist in combination with LIMA, a preservation and distribution institution for media art, in the form of a screen recording session in which the artist went through his websites to date narrating how they were expected to behave.[28]

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[21] Michael Rumianek, "Archiving and Recovering Database-driven Websites," D-Lib Magazine 19, no. 1 (2013): doi: 10.1045/january2013-rumianek.

[22] *Web Archiving Guidance,* (Surrey: The National Archives, 2011), http://www.nationalarchives.gov.uk/documents/information-management/web-archiving-guidance.pdf.

[23] Jinfang Niu, "An Overview of Web Archiving," D-Lib Magazine 18, no. 3 (2012): doi: 10.1045/march2012-niu1.

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[25] "Web Science and Digital Libraries Research Group," Blog Spot, accessed 8 April 2019, https://ws-dl.blogspot.com/2013/07/2013-07-09-archiveis-supports-memento.html.

[26] Martine Neddam, "My name is Mouchette," Mouchette, accessed 25 February 2019, mouchette.org.

[27] "www.whitetrash.nl," web archive, accessed 8 April 2019, https://web.archive.org/web/20190218135953/http://www.whitetrash.nl/.

[28] Rozendaal, Rafael Rozendaal, "Rafaël Rozendaal, Websites 2001 - 2016 (Produced by LIMA)," LIMA, accessed 28 March 2019, https://www.youtube.com/watch?v=GjR1lsem6tw.

Conclusion

To conclude, due to the fast-growing nature of the web and its budding development as a tool for the dissemination of knowledge web archiving is becoming more important in the preservation and documentation of our contemporary cultural heritage. Context plays a large role in our understanding of information which in varying degrees may be lost in the implementation of current web archival methods. In this paper the three most widely used current methods of web archiving have been described in terms of their strengths and limitations. In their use they can begin to form a representation of a website, but this paper argues that it is only in providing additional documentation or using these methods in conjunction with each other that their limitations can be highlighted and a more accurate image of the 'original' can be formed.

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Casus: The White Cube // Giny Vos

Marieke Kruithof

Minor Conservation and Restoration 2017-2018

Introductie

Een smalle steeg in het centrum van Amsterdam. Middenin een uitgaansgebied met talrijke coffeeshops en een aantal prostitutiekamers. 's Nachts, maar ook overdag is het een veelgebruikte doorgang voor voetgangers tussen de Nieuwezijds Voorburgwal en de Nieuwendijk. Tussen de graffiti, uithangborden, etalages met tatoeages bevindt zich in de steeg een 12 meter lang lichtkunstwerk. Sober vormgegeven, met strakke lijnen: *The White Cube* van Giny Vos. *The White Cube* is een perspectivische lichttekening, aangebracht op de gevel van een appartementencomplex van Woonstichting De Key in de Nieuwezijds Armsteeg (*afbeelding 1*). Jarenlang wordt de steeg geteisterd door wildplassers, vandalisten en graffitispuiters. Diverse maatregelen worden genomen om de overlast terug te dringen, niks helpt. In een poging om de leefomgeving te verbeteren, benadert de bewonerscommissie de woonstichting en zo ontstaat het idee om een kunstwerk te plaatsen.[1] Vervolgens wordt kunstenaar Giny de Vos benaderd voor deze complexe vraag: een kunstuiting ontwerpen die bijdraagt aan de verbetering van de verloederde steeg. Na een grondige analyse van de omgeving en veel gesprekken met buurtbewoners, woonstichting en aannemers wordt in 2012 het kunstwerk *The White Cube* geïnstalleerd. Deze paper focust op de huidige stand van zaken van het kunstwerk en onderzoekt welke factoren de conditie van het werk beïnvloeden.

Sinds de laatste tien jaar is er in Nederland een lange lijst ontstaan aan kunstwerken van licht in de openbare ruimte, lichtkunstroutes en lichtkunstfestivals zoals Glow in Eindhoven en het Amsterdam Light Festival. Dit heeft vooral te maken met de verschillende functies die een lichtkunstwerk kan vervullen: het is esthetisch, biedt veiligheid, zorgt voor emotie en diepgang.[2] Daarbij is het positieve belang voor de stad belangrijk. (Interactieve) Lichtkunstwerken dragen in steeds meer gemeentes bij aan een gevoel van veiligheid op straat. Niet alleen in Nederland. Lichtkunst als gebiedsverbetering is wereldwijd een groeiend fenomeen.[3] Naast lichtkunstenaars dragen ook lichtarchitecten op hun wijze bij aan een aangenamere sfeer in een stad, vaak door het fraai uitlichten van een gebouw. Het verschil tussen kunst en ontwerp verwoordt Giny Vos als volgt: "Het aanlichten van een gebouw 'gaat' nergens over, het voegt niets toe. Een lichtontwerper benadrukt alleen maar wat er al is. Ik voeg met mijn werk iets toe aan een plek dat er nog niet was."[4]

De kunstenaar Giny Vos

Giny Vos (1959) studeerde aan de Gerrit Rietveld Academie en de Rijksakademie. Zij is beeldhouwer, installatie- en lichtkunstenaar. Momenteel maakt ze voornamelijk in opdracht kunstwerken in de openbare ruimte. In haar kunstwerken maakt ze met name gebruik van video, computer, neon en led-displays. Het gebruik van leds is ontstaan uit praktische overweging.[5] In haar beginjaren maakte ze vooral video-installaties. In de jaren negentig wilde ze met bewegend beeld werken, maar er was nog geen dvd en de video en monitors waren heel kwetsbaar. Met ledlampen was het wel mogelijk een duurzaam werk te maken met bewegend beeld. Zo ontstond in 1993 het eerste werk waarin ze leds gebruikte, *Time and Time again*, voor een schoolgebouw in Amsterdam. Waar ze licht in het begin vooral gebruikte om beweging te verbeelden, is haar aandacht de laatste jaren meer en meer

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[1] Kunst bij De Key. *kunstbijdekey.nl*. 2 februari 2017. <http://kunstbijdekey.nl/kunstwerken/the-white-cube>.
[2] Madelon Brouwer. "In de ban van licht. Een onderzoek naar lichtkunst en lichtarchitectuur." (Masterthesis. Erasmus Universiteit Rotterdam, 2007) 30.
[3] Sam Smets. "Slim licht is de toekomst." *Nrc.nl*. 1 februari 2017.
<https://www.nrc.nl/nieuws/2015/11/05/slim-licht-is-de-toekomst-1553037-a441969>.
[4] Madelon Brouwer, "Over lichtkunst in de openbare ruimte." *Kunstlicht* 4 (2008): 22.
[5] Pauline Sepers, "Giny Vos over werken met licht in de openbare ruimte." *Kunstlicht* 4 (2008): 46.

verschoven naar het fenomeen zelf. Door licht te verbergen of te laten bewegen is het mogelijk de kracht van licht zichtbaar te maken.[6] Inmiddels heeft Giny Vos vele prijzen gewonnen met haar lichtkunstwerken. Zo ontving ze in 2004 de Witteveen+Bos-prijs voor Kunst+Techniek voor haar hele oeuvre. Later volgde onder andere de International Art & Work Award (2010) en de Amsterdamse Straatkunstprijs (2011).

Bij haar werken speelt de directe omgeving een belangrijke rol. Hiermee hebben haar werken heel duidelijk een relatie. Voor Giny Vos is de openbare ruimte de ultieme werkplaats. "De hele wereld is mijn materiaal."[7] Karakteristiek voor haar werk is dat het de gegeven situatie letterlijk en figuurlijk in een ander licht plaatst.[8] Giny Vos gebruikt hierbij techniek om het verhaal te vertellen van het werk en de ruimte waar het zich toe verhoudt. Zo maakt ze poëzie van techniek.[9] De beelden die haar werk oproepen krijgen pas betekenis in relatie met de toeschouwer. Giny Vos probeert, door de interventies die ze toepast in de ruimte, de toeschouwer een andere en nieuwe ervaring van diezelfde ruimte te geven. "Dat wil zeggen dat er een nieuwe situatie ontstaat terwijl de oude niet aan het zicht wordt onttrokken, het werk is nooit overheersend en dwingend aanwezig, maar is een voorstel om naar de dingen te kunnen kijken."[10] Het werk *The White Cube* laat dezelfde werkwijze zien doordat reeds bestaande ramen, deuren en brievenbussen een rol hebben gekregen in de tekening die de gehele gevel beslaat.

Het kunstwerk *The White Cube*
Het creatieproces van *The White Cube* bestond uit veel stappen. Nadat Giny Vos werd benaderd door Woonstichting De Key heeft het 4 jaar geduurd voordat het kunstwerk daadwerkelijk in de steeg is geïnstalleerd.[11] Naar aanleiding van een grondige analyse van de omgeving heeft Giny Vos de eerste schetsontwerpen gemaakt. Deze werden aan de woonstichting en de omwoners gepresenteerd. De presentatie van de ontwerpen was een belangrijke fase in het proces. Tachtig procent van de bewoners moest actief hun handtekening zetten ter bevestiging dat ze dit kunstwerk wilden hebben.[12] Er komt veel kijken bij de creatie van een lichtkunstobject in de openbare ruimte omdat het werk aan veel randvoorwaarden moet voldoen om er goed uit te blijven zien, zoals bestendigheid tegen vandalisme en weersomstandigheden. Dat heeft ook gevolgen voor de materiaalkeuze en de detaillering van het ontwerp. In Kunstuur vertelt Giny vos: "Ik wilde in eerste instantie reliëf in de tekenlijnen aanbrengen, maar iemand zei: niet doen. Dat stoppen ze vol met kauwgom en sigarettenpeuken."[13] Op basis van het idee dat Giny Vos voor ogen had, werkte ze samen met aannemersbedrijf Boonzaaijer en architect Bart Jan Hooft. Dat is gebruikelijk bij de realisatie van kunstprojecten in de openbare ruimte omdat je als kunstenaar van allerlei zaken verstand moet hebben, zoals de grondgesteldheid of materiaal technische eigenschappen.[14]

[6] Giny Vos. *Ginyvos.nl*. 2 februari 2017. <http://www.ginyvos.nl/intro>.
[7] Sepers. 'Giny Vos': 45.
[8] Sepers. 'Giny Vos': 45.
[9] Witteveen+Bos-prijs voor Kunst+Techniek. "Juryrapport Witteveen+Bos-prijs voor Kunst+Techniek 2004 Giny Vos." 18 november 2004. 31 januari 2017.
<http://www.kunsttechniekprijs.nl/files/1613/7112/6158/KT2004_GinyVos.pdf>.
[10] Brouwer. 'In de ban van licht': 100.
[11] Avro Kunstuur. *Vimeo.com*. 1 februari 2017. <https://vimeo.com/78245056>.
[12] Idem.
[13] Avro Kunstuur. *Vimeo.com*.
[14] Brouwer. 'Over Lichtkunst': 23.

Afbeelding.1 The White Cube - Giny Vos. Foto: Gert Jan van Rooij

Het lichtkunstwerk *The White Cube* beslaat de gehele voorgevel van het wooncomplex: het is 12 meter lang en 3,7 meter hoog. De bestaande ramen, deuren en brievenbussen maken onderdeel uit van het werk. Voor de realisatie van het kunstwerk zijn verschillende materialen gebruikt. De wanden van de gevel zijn bekleed met glaspanelen, gemaakt van gehard glas, met daar overheen fijn geribbelde aluminium platen (*afbeelding 2*). De deuren zijn eveneens bekleed met aluminium en het onderste deel van de deur is bekleed met een stalen plaat. In het aluminium bracht Giny Vos iets verdiept een tekening aan met lichtlijnen van leds. Het werk is zo gemaakt dat het minder kwetsbaar is voor weersinvloeden en tegen een stootje kan. Dat is gedaan door het werk verdiept in de gevel aan te brengen waardoor niet al het regenwater van de hoger gelegen verdiepingen over het werk naar beneden stroomt. Aan de onderzijde van de aluminium platen op de deuren is een stalen plaat geschroefd. Dit beschermt de deur tegen stoten. De buitenste zijdes van het werk en de hoeken zijn afgewerkt met stalen profielen. De onderkant van het kunstwerk bestaat tevens uit een stalen plint. Alle naden zijn afgewerkt met een hoogwaardige en weerbestendige afdichtkit siliconenkit Sikasil®WS-605 S.[15] De aluminiumplaten zijn afgewerkt met een anti graffiti coating (Nano Coatex Shield).[16] De apparatuur van de led-verlichting bevindt zich in de ruimte van de berging, waardoor de lichtbron minder kwetsbaar is voor invloeden van buitenaf. Daarbij is de dimmer van de ledverlichting zo ingesteld dat verlichting nooit maximaal wordt belast, maar voor 70%. Hierdoor is de levensduur van de led-verlichting veel langer dan bij maximaal gebruikt.[17]

Voor dit ontwerp heeft Giny Vos zich laten inspireren door museumzalen. Ze wilde een heldere, bijna sacrale ruimte maken.[18] De titel verwijst daar naar. *The White Cube*, representeert een tentoonstellingszaal als witte kubus met de strakke, kraakheldere witte muren waarin stilte en aandacht heersen. Dat beeld heeft ze verbeeld door over de gehele gevel de zalen van het museum in perspectief te tekenen. Daardoor ontstaan inkijkjes in de

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[15] Informatie verkegen via emailwisseling op 27 januari 2017 met Ruben van Overeem van aannemersbedrijf Boonzaaijer.
[16] Idem.
[17] Idem.
[18] Avro Kunstuur. *Vimeo.com.*

zalen waar de blik van de toeschouwer naar toe getrokken wordt. "Als je in het museum bent heb je het gevoel dat je naar iets kijkt wat bijzonder is, waar je respect voor hebt en daardoor ook anders behandelt," vertelt Giny Vos in het interview met Kunstuur.[19] Het beeld moet samen met de kwaliteit van het materiaal en de manier waarop het gemaakt is ervoor zorgen dat er meer respect is voor de plek, waardoor het gedrag van mensen verandert.[20] Het lichtkunstwerk vervult tegelijkertijd verschillende functies: "Het zijn verschillende verhalen die ik over elkaar heen vertel. Je kunt *The White Cube* zien als een oplossing tegen wildplassen, maar ook als een autonoom kunstwerk."[21] Met haar werk wil Giny Vos verschillende doelgroepen aanspreken: "Ik wil dat kunstliefhebbers net zo goed als toevallige passanten mijn werk appreciëren."[22]

Observaties van *The White Cube*

The White Cube is op 31 oktober 2012 'in gebruik genomen.' Ruim vier jaar later in de buitenlucht ziet het werk er niet meer exact hetzelfde uit als op het allereerste moment.[23] Wel is de algemene staat van het werk op het eerste gezicht goed. Het belangrijkste onderdeel van het werk, de lichtlijnen, zijn helder en functioneren goed. Het eerste dat opvalt is dat het werk, in een steeg waar voorheen voortdurend overlast was van graffitispuiters, er ongeschonden uitziet. Ook is er geen doordringende urinelucht te ruiken. De conditie van de rest van de steeg is rommelig. Verspreid door de steeg staan fietsen en brommers geparkeerd (*zie afbeelding 3*). Op veel plekken ligt afval op de grond. Op een aantal wanden is graffiti te zien.

Afbeelding 2. Detail wandplaat uit gehard glas bedekt met geribbeld aluminiumplaat.
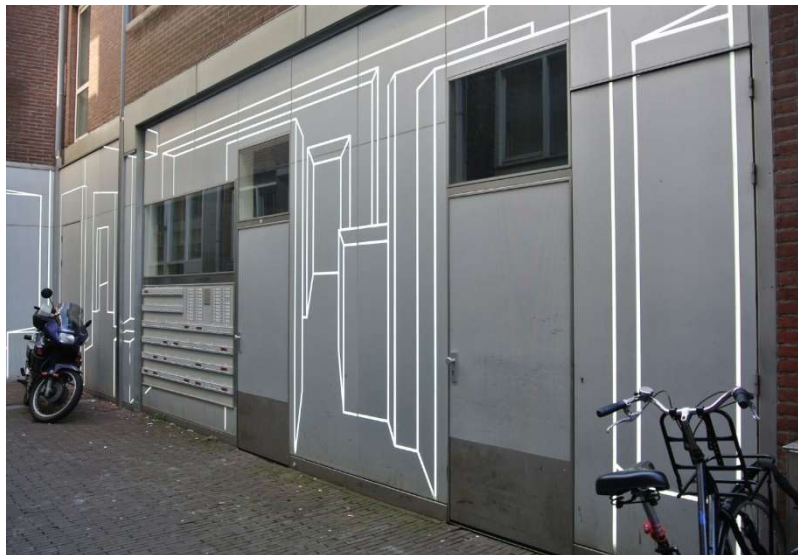
Afbeelding 3. Overzicht huidige toestand van kunstwerk. Foto's: Marieke Kruithof, 2017.

Bij een meer nauwkeuriger observatie van het werk valt op dat dat over de gehele gevel op de aluminiumplaten vuil zit. Aan de onderkant van het kunstwerk is de concentratie vuil hoger dan aan de bovenkant (*zie afbeelding 3*). Het vuil op het oppervlak zijn spatten en vegen. Deze zijn ook te zien op de twee stalen platen die op de deuren zijn bevestigd.

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[19] Avro Kunstuur. *Vimeo.com.*
[20] Rob Witman. "De week van The White Cube." Volkskrant.nl. 1 februari 2017.
<http://www.volkskrant.nl/archief/de-week-van-the-white-cube~a3337556>.
[21] Idem.
[22] Idem.
[23] Observaties uitgevoerd op: 9, 19 en 26 januari 2017 door de auteur.

Afbeelding 4. Vervuiling in hoek van het kunstwerk.
Foto's: Marieke Kruithof, 2017.

Afbeelding 5. Deuk in aluminiumplaat boven deurknop.

Daarnaast zit vogelpoep op het stalen profiel in de linkerhoek. In de hoek zijn urinesporen te zien (*afbeelding 4*). Daar zijn de stalen plint en de kitrand aan de onderkant ook verkleurd. Op drie plekken is kauwgom geplakt. Verder zijn er beschadigingen, zoals krassen en deuken, van het aluminiummateriaal te zien. Deze komen het meest voor op de deuren (*zie afbeelding 5*). Bij het merendeel van de krassen is het aluminium licht beschadigd. Op één plek is de kras diep waardoor het aluminium stuk is gegaan. Daarnaast is op één plek een hoek van de lichtlijn beschadigd. Ook laat op één plek de afwerkstrip los, aan de onderkant waar het werk aan de straatstenen grenst. Bij nadere inspectie blijkt toch graffiti op het stalen profiel van de afwerking van het kunstwerk te zijn aangebracht. De diverse schades bevinden zich over het gehele oppervlak van het kunstwerk (*zie afbeelding 6*).

Degradatie van *The White Cube*
Het verval van *The White Cube* ontstaat door verschillende type schadefactoren. De aangetroffen schade kan onderverdeeld worden in: mechanische en gebruiksschade (krassen, deuken), vandalisme (kauwgom, beschadiging lichtlijn, bekrassing), schade door weer en wind (vuilspatten en vegen), biologische schade (vogelpoep).

De mechanische schade is in de afgelopen vier jaar ontstaan door fysische krachten van buitenaf. Dit kan door een stoot tegen de gevel van bijvoorbeeld een omgevallen fiets of brommer. Deze staan regelmatig voor het kunstwerk geparkeerd. De meeste deuken bevinden zich op de deur ter hoogte van de deurknop en kunnen ontstaan zijn tijdens het naar binnen of buiten dragen van voorwerpen. De kans op mechanische schade bij dit werk is groot, doordat het kunstwerk tegelijkertijd ook de voorgevel van het appartementencomplex is. De toegangsdeuren tot het appartement en de berging die zich in het kunstwerk bevinden worden dagelijks veelvuldig gebruikt. Het is niet vast te stellen hoe alle krassen zijn ontstaan. Het is heel waarschijnlijk dat een aantal krassen is ontstaan door opzet. Vandalisme is de grootste schadevorm die beheerders van kunstwerken in openbare ruimte ervaren.[24] De vuilspatten en vegen zijn waarschijnlijk ontstaan ten gevolge van weersinvloeden. Er is vuil uit de lucht en van de daken met de regen meegekomen. De spatten bestaan uit aarde die is opgespat doordat de straat nat was van de regen. Doordat het kunstwerk zich buiten bevindt in een zeer drukke omgeving, treden er naast bovengenoemde zichtbare schades ook langzame veranderingen op. De aantasting door regen, wind, vorst, zonlicht, uitlaatgassen en urine van mensen en dieren, veroorzaakt schade en slijtage aan het materiaal. Deze schade is nu, na vier jaar, zeer lokaal zichtbaar. In

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[24] Rijksdienst Cultureel Erfgoed. "Enquête Kunst in de Openbare Ruimte en bevindingen 2008-2012." *Kennisvoorcollecties.nl.* 2 febuari 2017. <http://www.kennisvoorcollecties.nl/programmas/object-in-context/kunst-in-de-openbare-ruimte/>.

een later stadium zal de aantasting op meerdere plekken zichtbaar worden wanneer er geen onderhoud wordt gepleegd.
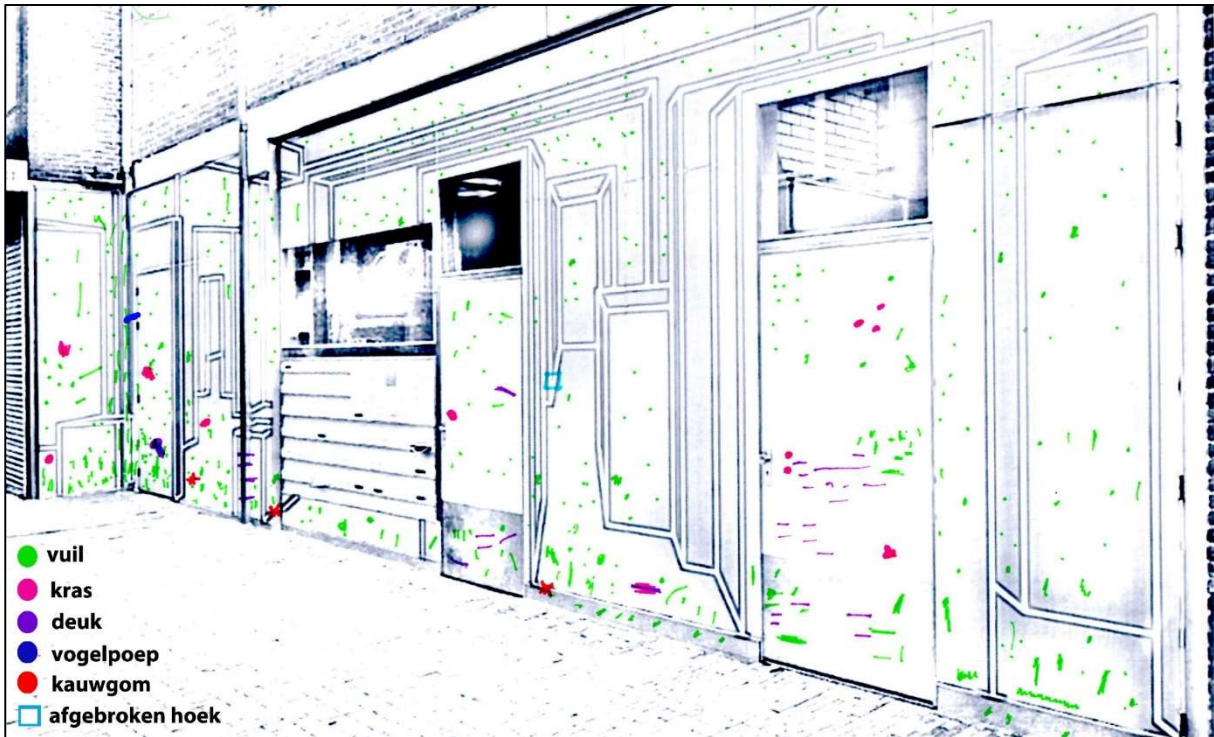
Afbeelding 6. Conditietekening van alle schades. Conditietekening: Marieke Kruithof, 2017.

De conditie van de *The White Cube* ziet er van enkele meters afstand op het eerste gezicht goed uit. Op deze afstand zijn de vlekken en krassen niet of nauwelijks zichtbaar. De gevel is strak. De lichtlijnen helder. Het kunstwerk functioneert zoals het oorspronkelijk bedoeld is. Het trekt de aandacht en zorgt ervoor dat de steeg een eigen 'karakter' krijgt. Dat draagt bij aan een positievere beleving van deze plek. De urinelucht die jarenlang in de steeg heeft overheerst is verdwenen. Dichterbij gekomen, vallen de kleinere schades wel op. De plekken met vuil zijn talrijk en met name de donkere vlekken en kauwgomstukjes doen afbreuk aan de beleving van het werk en het sacrale uiterlijk dat het oorspronkelijk moet hebben. Het tast de visuele kwaliteit van het kunstwerk aan.

In een omgeving waar *The White Cube* staat, is het moeilijk om de schades die nu ontstaan zijn te voorkomen in de toekomst. Preventieve maatregelen die schaderisico verminderen zijn al uitgevoerd: het werk is verdiept in de gevel aangebracht en de buitenste laag is geïmpregneerd. Wel is het belangrijk dat *The White Cube* met zorg wordt behandeld door het regelmatig te controleren, zodat beginnende schade tijdig vastgesteld wordt. Schoonmaken van het kunstwerk biedt een eenvoudige oplossing tegen de schades die ontstaan zijn door vuil. Een schoner oppervlak dwingt bovendien meer respect voor het werk af, waardoor de kans op opzettelijke vervuiling kleiner wordt. Daarnaast is het schoonmaken van het werk noodzakelijk om grotere en onomkeerbare schade in de toekomst te voorkomen. Vogelpoep en urine zijn zuurhoudend en kunnen daardoor chemische schade aan de oppervlaktelaag veroorzaken.[25] En luchtvervuiling en stofneerslag hebben metaal-ionen en zouten in zich en hebben daardoor een corroderende werking.[26] De tweecomponenten coating op basis van chemische nanotechnologie (polyethersiloxanen met

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[25] Instituut Collectie Nederland. "Kunst in de kou. Collectiemanagement van kunst in de openbare ruimte." ICN-informatieblad 15, juni 2007, 1 februari 2017 < https://cultureelerfgoed.nl/publicaties/kunst-in-de-kou>.
[26] Breder, Frederike, et al. "Behoud en beheer van moderne en contemporaine buitenbeelden," *Kennisvoorcollecties.nl.* Datum van bezoek: 2 febuari 2017.
<http://www.kennisvoorcollecties.nl/programmas/object-in-context/kunst-in-de-openbare-ruimte/>.

UV additieven) die op het buitenste oppervlak is aangebracht beschermt tegen vuil en is resistent tegen chemicaliën. Deze laag zorgt ervoor dat zouten en zuren niet direct inwerken. Toch kan met deze extra beschermlaag niet alle schade voorkomen worden. Als het vuil jarenlang op het oppervlak blijft zitten, kan het alsnog het oppervlak beschadigen. Daarom dient deze laag ook jaarlijks gecontroleerd te worden. Net als de kitnaden. Wanneer er in de naden holtes ontstaan waarin regenwater blijft staan, kan corrosie optreden op het onderliggende aluminium en staal. Bij het schoonmaken van het werk moet er op gelet worden dat er geen bijtend middel gebruikt wordt. Dat kan de coating niet verdragen.[27] Met het verwijderen van het vuil moet ook de graffiti weggehaald worden. Het is raadzaam om tegelijkertijd met dit onderhoud ook kleine reparaties uit te voeren: het vervangen van de losgelaten afwerkstrip en het paneel met opengewerkt aluminium, het repareren van de hoek van de lichtlijn. Dit voorkomt dat de conditie onnodig hard achteruit gaat.

Behoud van *The White Cube*
Uit navraag met Woonstichting de Key blijkt dat er na de installatie in 2012 geen inspectie meer heeft plaatsgevonden door bezuinigingsmaatregelen.[28] De kunstcoördinator die sinds 2005 betrokken was bij de totstandkoming van diverse kunstwerken is ook niet meer werkzaam bij De Key. Bij de realisatie van het kunstwerk is er geen budget gereserveerd voor jaarlijkse onderhoudskosten. Op moment van schrijven start De Key met een inventarisatie van hun kunstwerken om vervolgens de conditie te inventariseren. Dat is een positieve en noodzakelijke ontwikkeling waarmee het achterstallig onderhoud van *The White Cube* weggewerkt kan worden.

 Een goede registratie is de basis van de zorg voor *The White Cube*. In publicaties zoals 'Kunst in de kou', 'Handreiking beelden buiten beheer & behoud' en 'Behoud en beheer van moderne en contemporaine buitenbeelden'[29] staan richtlijnen voor het opstellen van een onderhoudsplan voor korte- en lange termijn onderhoud. In ieder geval zou het onderhoudsplan voor *The White Cube* moeten bestaan uit:
• Documentatie van de basisgegevens (precieze beschrijving van object, kunstenaar, titel, ontstaansgeschiedenis, intentie van de kunstenaar, materiaal, technische data, afmetingen, datering en standplaats);
• Conditie opname van het object en de omgeving met daarbij een onderverdeling in schadegroepen en de urgentie van conservering of restauratie pers schadegroep;
• Prioriteitenlijst voor te behandelen schades;
• Plan van aanpak voor korte en lange termijn;
• Registratie van uitgevoerde activiteiten en behandelingen;
• Bijhouden van de gegevens.
Daarnaast moet ook nagedacht worden over de coördinatie van de onderhoudsmaatregelen. In de praktijk is gebleken dat een systematische aanpak waarbij één persoon verantwoordelijk is voor de kunstwerken het beste werkt.[30] Toch zijn er nog belangrijke vragen te beantwoorden. Is dit ook de persoon die de inspectie uitvoert? Hoe wordt geïnspecteerd, op het oog of met meetapparatuur? Wie bepaalt dat er een actie volgt op de inspectie? Hoe kan schade vermeden worden? Wordt de uitgevoerde actie gecontroleerd?

Conclusie
The White Cube is vier jaar geleden aangebracht op een wooncomplex dat al jaren werd geteisterd door wildplassers en graffitispuiters. Hoewel op het kunstwerk urinesporen zijn aangetroffen is de indringende geur in de steeg verdwenen. De geconstateerde schades doen geen afbreuk aan de beleving van het kunstwerk. Het werk functioneert nog steeds zoals het bedoeld is. Het roept verwondering op en draagt bij aan een positievere sfeer op deze plek. Wat betreft het onderhoud van *The White Cube* is het belangrijk dat De Key zich

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[27] Productinformatieblad van Nano-Coatex Shield - Chemtec Chemicals BV
[28] Informatie verkregen tijdens telefoongesprek op 1 februari 2017 met Gerrie van 't Woudt (gebiedsbeheerder bij Woonstichting De Key van 3000 woning in het centrum van Amsterdam).
[29] Zie bibliografie voor volledige details van alle publicaties.
[30] Raymond Querido, *'Tenminste houdbaar tot...': verslag van het symposium over onderhoud en beheer van kunst in de openbare ruimte georganiseerd door het Centrum Beeldende Kunst Utrecht op 11 november 2004 in het Centraal Museum Utrecht.* (Amersfoort: CBK Utrecht. 2005) 22.

bewust wordt van de noodzaak van een aantal schades die zonder behandeling op een later tijdstip groter onderhoud vragen. Het kunstwerk is zo gemaakt en geprepareerd dat het weer- en vuil bestendig is. Maar het kunstwerk staat aan extreme omstandigheden bloot. Veranderende weersomstandigheden, uitlaatgassen en een heel divers publiek. Daarbij heeft een deel van het kunstwerk ook een woonfunctie: het is de toegang tot het achterliggende appartementencomplex. Het werk trotseert dus dagelijks veel en grote risico's. Daarom zijn preventieve conserveringsmaatregelen, een jaarlijkse inspectie en schoonmaak, zeer belangrijk. Dat voorkomt dat de schades die nu zijn ontstaan onomkeerbare schades worden. Ook is er een budget nodig om onderhoud te plegen als dat noodzakelijk is, zodat er snel en direct gereageerd kan worden. Dat zorgt er niet alleen voor dat het materiaal langer behouden blijft, het zorgt ook voor het behoud van de oorspronkelijke intentie van het kunstwerk.

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Thesis abstracts

The Lives of Internet Artworks in Institutions: How to Begin to Construct a Long-term Conservation Strategy Master's Thesis

Olivia Brum

Internet artworks are extremely volatile depending on software that is subject to obsolescence as well as a network of people who bring their knowledge to providing regular maintenance. In their "immateriality" they create issues for institutions regarding what to acquire and when they do enter collections in some form, they do not withstand benign neglect requiring an ongoing conservation approach that institutions are in most cases unprepared for. This thesis thus hopes to begin to create a framework for acquiring the information necessary to create a farsighted preservation strategy that will address their ongoing maintenance needs. To do this it will take as its main case study Martine Neddam's *mouchette.org-Version 01* (2016) which was acquired by the Stedelijk Museum Amsterdam and the MOTI Museum Breda in 2016. Guided by literature research, oral history and comparative studies it will attempt to answer the main research question: How does one develop a preservation strategy that addresses the unique needs of an internet artwork?

Interviews with the varied stakeholders revealed that the acquisition of *mouchette.org-Version 01* included a time-stamped data dump that could be reactivated given the correct server environment and a contract permitting the exhibition of the live *Mouchette.org*, which is maintained by the artist. Confusion though persisted concerning a 2nd part of the acquisition that was supposed to concern the "participatory" aspect of the artwork that never happened, likely because the MOTI Museum Breda which had spearheaded the acquisition had shut down.

Literature research and comparative studies revealed similar cases of material objects that were acquired representing works of internet art that came in time to replace the "live" object. Leaving the Stedelijk Museum Amsterdam, now the sole owners of the artwork, at a crossroads concerning whether to lean towards preserving the object or acquiring and preserving the "live" work. To create a preservation strategy determining how to continue this research suggests looking to the diffuse network of knowledge surrounding what was acquired and how the "live" version is maintained. Interviews and primary source research with the artist provide the beginnings of a road map concerning what tasks the artist regularly undergoes to maintain the website and what the Stedelijk Museum Amsterdam might be expected to conduct if they were to acquire the artwork in full.

Preservation of Virtual Reality Artworks: Diagnosis to Determine Viable Conservation Strategies

Daphne Kramer

Virtual reality (VR) is a complex medium. It has a wide range of applications, can contain several types of hardware and play a variety of content, creating a countless number of experiences. Artworks made in VR are hybrid, and share characteristics with VR content of other industries that focus on entertainment, storytelling, education documentation or simulation. Within these industries, research is done into preservation strategies for VR. These are tailored to the characteristics that are being valued in the medium and that should therefore be preserved. For artworks, it is important to find out whether a suggested strategy to preserve a VR artwork will work in a way that attention is paid to authenticity and artist intent. The strategies discussed in this thesis are storage and repair, migration, emulation and reinterpretation, which are conservation strategies that have been widely applied to time-based media artworks for a considerate amount of time. However, research is lacking into ways to diagnose virtual reality artworks, so changes to their meaning caused by the implementation of the conservation strategy can be determined. Documenting this is important as hardware may become obsolete and disappear over time. It will not be possible to change strategies and go back to the artwork's original appearance. The user experience plays an important role in this thesis and is explained by looking at characteristics that are inherent to virtual reality, such as interactivity, navigation and immersion. By explaining these aspects and documenting the experience that is generated from technical aspects of the medium, change can be monitored better. In addition, it will help to select which version of the work should be acquired or archived.

Conservation of Time-based Media Artworks in the Public Space: a Research into five Case Studies in the City of Amsterdam, the Netherlands

Marieke Kruithof

More and more artists integrate technical elements into their artworks for the public space. All artworks in the open air are exposed to distinct threats from weather, pollution and passers-by. A specific category of these technical artworks is called time-based media artworks. These artworks are experienced in the context of the passing of a period of time. Time-based media art in public space is particularly vulnerable due to their electronic equipment. Even with extensive testing, detailed documentation and elaborate discussions about conservation in the development process, technical equipment may fail unexpectedly. This research examines whether existing conservation guidelines for artworks in public space are applicable for time-based media art and makes recommendations for these. For this research existing Dutch guidelines and the most detailed international guideline in English language for the conservation of public art are evaluated. Also relevant conservation strategies for time-based media artworks in museums are discussed. Furthermore the phases and roles in the development process of time-based media artworks in public space are studied. But the main part of the research is based on practice with the thirteen in-depth interviews with the various stakeholders of five time-based media artworks in the city of Amsterdam, The Netherlands.

It is concluded that existing guidelines for art in public space give insufficient guidance to conserve time-based media artworks in public space well and a lot can be learned from time-based media conservation in practice and in museums. Time-based media artworks are found to experience many unexpected failures and because of their technical nature, obsolescence of parts is an important issue to anticipate on. Several recommendations are made that together help to ensure the long-time functioning of the work. It starts with addressing the conservation strategy in the development process of the artwork from the assignment on. Good conservation requires complete artistic and technical documentation, a multi-year conservation plan and sufficient budget. Clear agreements must be made with the organisations that are involved in the conservation of the artwork, for conservation maintenance as well as conservation treatment. A separate approach should be used for traditional materials and technical equipment. Extensive testing before commissioning is important. Next, this conservation strategy should be carefully implemented and executed in practice. Here the owners' personnel is indispensable for monitoring the functioning of the artwork. Last it is important to evaluate the conservation after one or two years and update the conservation strategy and the agreements made accordingly.

Projecting to the Future: Conservation of Slide Projectors in Slide-based Installations

Lihi Levie

Slide projections have entered the art world in the 1960's and have fascinated artists and their audience since then. Since the end of commercial support of the medium, slide-based installations are at risk. The implications stemming from the slides as a photographic medium have been the centre of several researches, but little has been written about its obsolete display equipment: the slide projector. Drawing from theory of time-based art conservation, this research's aim is to explore the challenges in conserving slide projectors as obsolete equipment in slide-based installations.

Since the early 1960's, when the first Kodak Carousel slide projector was introduced, the slide projection has been a part of many aspects of the day to day lives from lectures to documentation in institutions to the renowned family vacation slideshow. It quickly entered the artworld, with artists utilizing its special characteristics. But like other 20th century technologies, the digital age has caused this analogue medium to be slowly replaced, resulting in the cease production of the slide projector in 2004. Nevertheless, young contemporary artists are still showing a great interest in the technology.

A remarkable example of this interest is *Blackout* exhibition, curated by Julian Ross. The exhibition travelled between three locations in 2018-2019, consisting of slide-based installation from eleven international artists, all made after 2004. The challenges that occurred during the production of this exhibition provide a practical list of implications for producing a slide-based exhibition of this extent. Focusing on one of the installations, *Sedimentation of Memory* (2017) by Kristina Benjocki, shows the effect of the history of a single projector's use, and the importance of documenting it.

Zooming in to the projector itself, a Kodak Carousel S-AV 2000 was dismantled, and the mechanism explained. The research collected and mapped common malfunctions of slide projector, sourcing from interviews, surveys and manuals. Following which, an instrumental analysis was conducted on the same projector to gain knowledge on the conditions inside. Thermographic photos were taken of a working projector over time, revealing the heat spread behaviour in the machine. Then, some plastic parts that were predicted as weak spots were identified using Fourier Transform Infrared (FTIR) analysis. The findings illuminated the technical challenges that a slide projector can pose.

Assessing Value and Vulnerability for the elements of Lydia Schouten's installation *Shattered Ghost Stories*

Stefanie Janson

In this thesis the idea of risk assessment is used as a tool to *diagnose* the condition of *Shattered Ghost Stories* (1993), a complex installation made by the Dutch artist Lydia Schouten. The installation includes many objects, made from a wide range of materials. During the inaugural exhibition the installation also included audio and fog. Additionally, a blue colour was created in the exhibition space by a filter on the window; through the window a beautiful view could be seen. *Shattered Ghost Stories* has been exhibited three times, the installation is now part of the collection of Museum Arnhem (Arnhem, The Netherlands). This study's point of view is that of conservation; the conservation of the installation *Shattered Ghost Stories* in its entirety.

It is adopted from the risk assessment approach that the biggest loss of value for *Shattered Ghost Stories* can occur if an element of the installation has both a high value as well as a high vulnerability. The first step is a value assessment of all the elements of the installation. The elements with relative value are: the material elements that are distributed over four columns, construction, audio, blue colour, fog, view and mediated daylight. These elements are then subjected to a vulnerability assessment, in which external risks as well as internal weaknesses are considered. This assessment results in the identification of the weakest link of *Shattered Ghost Stories*, meaning the element that is most at risk.

In case of *Shattered Ghost Stories,* the weakest link turned out to be one of the material elements, namely the heads of the installation. The main identified risk, basically the *reason* why the heads were assessed as the weakest link, was dissociation. The four heads are very detailed casts of the head of the artist herself, made from natural rubber and polyurethane foam. This thesis *diagnosed the vulnerability* of the heads, which besides dissociation mainly turned out to depend on physical vulnerability (meaning, the vulnerability of the materials that are used to make the heads). In this thesis an initial lack of information is tackled mainly by interviews, (with the artists and other stakeholders), the use of *Statements of Significance*, archival research, depot visits, and Fourier-Transform Infrared spectroscopy.

Biographies

Hedwig Braam is a postgraduate conservator in training at the University in Amsterdam, specializing in modern and contemporary Art. In 2017 she graduated from the master's programme Conservation and Restoration of Cultural Heritage with a thesis on the conservation of socially engaged artworks. She is currently enrolled in the post-master phase of her training, in which she has researched the effect of polishing pastes on abraded high-gloss synthetic sculptures. In 2019 she will be undertaking internships at the Kröller-Muller Museum in the Netherlands and the Queensland Art Gallery of Modern Art in Australia.

Olivia Brum is a first year student of the Advanced Professional Programme in Conservation and Restoration of Contemporary Art at the University of Amsterdam. She received a BFA in Studio Art and a BA in Chemistry at Alfred University before continuing onto her masters at the University of Amsterdam where she is concentrating in Modern and Contemporary Art Conservation. She has also completed preprogram conservation fellowships at the Library of Congress, Hirshhorn Museum and Sculpture Garden, Reading Public Museum and Philadelphia Museum of Art.

Ellen Jansen is a conservator of modern and contemporary art. After finishing her MA study in Art History in 2006 at the VU University Amsterdam, she enrolled in the training program in Conservation and Restoration of Modern and Contemporary Art at the UvA (2007-2012). During the program she did internships at the Stedelijk Museum in Amsterdam, Rijksmuseum Twenthe in Enschede and the Kröller-Müller Museum in Otterlo. She has a long history in museum practice, mainly focusing on analogue and digital imaging, working closely with conservation departments. In 2012, she started as a lecturer in conservation practice and assistant coordinator within the contemporary art training program at the UvA. With her colleague Evelyne Snijders, she coordinates the Advanced Professional Programme in Conservation and Restoration of Cultural Heritage at the same university.

Stefanie Janson is a first-year student of the Advanced Professional Programme in Conservation and Restoration of Contemporary Art at the University of Amsterdam. She has a bachelor's degree in Art History, with a minor in Conservation and Restoration, from the University of Amsterdam. In the past academic year, she has obtained her master's degree in Conservation and Restoration of Contemporary Art at the University of Amsterdam. For her master's thesis, she researched the installation *Shattered Ghost Stories* created by the Dutch artist Lydia Schouten. In 2017, while waiting for the master to start, she completed the first year of the Bachelor Dutch Law at the Amsterdam Law School.

Daphne Kramer is a first year student of the Advanced Professional Programme in Conservation and Restoration of Contemporary Art at the University of Amsterdam. She obtained her bachelor's degree in Art History in 2017 and a master's degree in Conservation and Restoration of Contemporary Art at the University of Amsterdam in 2019, with a thesis on the preservation of virtual reality artworks. Since 2017, she has been working as registrar at Galerie Fons Welters in Amsterdam.

Marieke Kruithof is a student of the two year Advanced Professional Programme in Conservation and Restoration of the University of Amsterdam in the specialization Contemporary Art. She has a background in new media studies. She worked over the past decade in arts and theatre programming. In 2017 she decided to change her career and become a contemporary art conservator. She obtained her Master in Conservation and Restoration in the specialization Contemporary Art at the University of Amsterdam (July 2019). Her interests lie in installation art, time-based media art, contemporary art in the public space.

Lihi Levie is a first year student of the Advanced Professional Programme in Conservation and Restoration of Contemporary Art at the University of Amsterdam. She recently Graduated with a Master's degree from the same programme. She earned her BA in art history from the University of Tel Aviv, where she was born and raised. Alongside her Bachelor studies she participated in projects in the cultural field, such as the digitization of 1970's 16mm experimental films of a local artist, held by the Tel- Aviv based non-profit Marcel Art Projects. She worked as a painter and conservation apprentice in Studio Tchelet for conservation of wall painting and architectural paint.

Claire Molgat Laurin completed a master's degree in the Conservation and Restoration of Cultural Heritage at the University of Amsterdam, specialising in contemporary art. Over the past years, she has gained experience working as a conservator in training at the University of Amsterdam and interning at the Cultural Heritage Agency of the Netherlands (RCE), conserving the Dutch state collection of contemporary art. She is currently completing an internship with the conservation studio of Bek & Frohnert in New York City, focusing on time-based media art and kinetic sculpture.

Evelyne Snijders is a conservator of modern and contemporary art. After graduating from the Gerrit Rietveld Academy and obtaining her Propedeuse in Art History at the university of Amsterdam, she started the postdoctoral training program in Conservation of Modern Art at the SRAL in Maastricht (2005-2009). Since 2011 she has been a lecturer in conservation practice for the programme Conservation and Restoration of Cultural Heritage at the University of Amsterdam in the specialisation contemporary art. Together with her colleague Ellen Jansen, she is coordinates the Advanced Professional Programme in Conservation and Restoration of Cultural Heritage at the same university.

Sanneke Stigter Dr. Sanneke Stigter is Assistant Professor Conservation and Restoration of Cultural Heritage at the University of Amsterdam, having set up the Contemporary Art specialisation in 2007. She worked at several museums and was Head Conservator for Contemporary Art and Modern Sculpture at the Kröller-Müller Museum, where she also curated several exhibitions. She sits on various boards (SBMK, INCCA, and ICOM-CC Fund) and was involved in many international research projects on contemporary art conservation (Inside Installations, NeCCAR, NACCA). She has published widely on the subject, focussing on conceptual art, artist interviews and new approaches in conservation research, such as autoethnography.
©Photo: Milette Raats, ComeniusNetwerk

Alice Watkins is a contemporary art conservator in training. Since completing a master's degree in the Conservation and Restoration of Contemporary Art in 2017, she is currently in the last year of a two-year post-masters training programme at the University of Amsterdam. Presently, she is an assistant sculpture conservator within the loans department at Tate.

Laura Wolfkamp is a soon-to-be graduate of the University of Amsterdam's program in Conservation and Restoration of Cultural Heritage, specializing in modern and contemporary art. Her master's thesis focused on the participation of the artist in the conservation of contemporary art. During the post-master training programme at the University of Amsterdam she conducted research into cleaning methods for hyperrealist silicone rubber sculptures. She gained practical conservation experience as a conservator in training at various locations, including the Cultural Heritage Agency in Rijswijk, the Stedelijk Museum Amsterdam, and Roeck Restaurierung in Berlin, Germany.

Colophon

The papers in this publication have been written by students during the Minor and Master's programmes in Conservation and Restoration of Cultural Heritage in the specialisation Contemporary Art. They are the original papers and the text is not edited or proofread by English native speakers.

For more information, please visit UvA's Conservation and Restoration of Cultural Heritage department website http://www.uva.nl/conservation-and-restoration, and for the programme scan this QR-code: