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I Want to See How You See

Curatorial Practices of Exhibiting Virtual Reality

Displaying time-based media art poses major challenges for the presentation and reception in exhibitions. Sound overlays, distraction effects or the missing reset button, which would make it possible to start an artwork as soon as visitors enter the room are everyday problems in curatorial practice. Virtual reality (VR) installations can be understood in this tradition of time-based media art, while at the same time a fundamental change is taking place with the increasing availability of head-mounted displays (HMD) in exhibitions. While VR installations can be displayed on traditional screens (on VR monitors or as cave installations), most artists aim to let their virtual worlds be accessible through HMDs (fig. 1–2). So even if the VR artwork cannot be clearly defined, its usual combination with such a screen-set up has to be taken into account discussing the changes in the use and function of VR artworks.

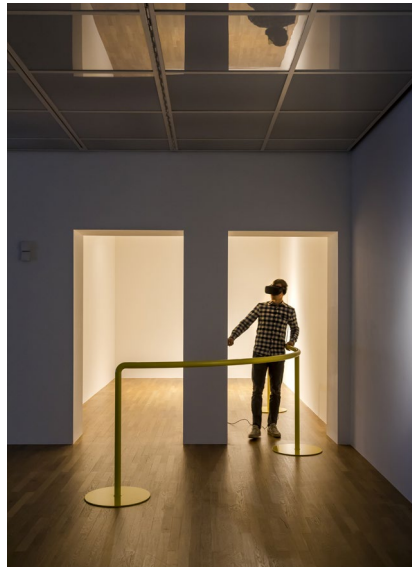
Approaching the topic through curatorial practice gained in the exhibition *Beautiful new worlds. Virtual realities in contemporary art* in the Zeppelin Museum Friedrichshafen, this essay aims to take stock of the possibilities and challenges of VR installations exhibited with HMDs, reflecting the presuppositions and specific modalities of individual artworks. The spectrum ranges from interactive, experience-orientated works to linear-narrative works, from VR displayed on headsets to room-filling installation settings, which also critically deal with the technology and

the process of seeing. Despite their diversity all works in the following essay can be characterized as VR-HMD thus virtual realities consisting of CG Imagery generated in real time and displayed on HMDs.

VR Headsets as Unbounded Displays

In VR installations with HMDs, the displays are no longer presented in a statically installed form, e.g. a monitor or a video projection, with which the visitors are usually confronted in time-based media exhibitions. Instead, the mobile display is flexibly available. The application starts whenever the visitors put the headset on and stops as soon as the HMD is taken off.

In this moment the screen as a physical object fades into the background. While video projections and monitors as displays are clearly delineated and always visible, the head mounted displays seem to disappear. In the immersive installations the visitors perceive the virtual images primarily as unframed image spaces. The boundary between image and non-image blurs as the virtual image offers a 360° view in which the screen is not visible anymore. As soon as the VR-HMD is put on, there is no possibility to look away; viewers are completely in the virtual world and with the only possibility to leave being to take the HMD off. Instead of merely viewing an art work from an outside view, virtual



1 *Beautiful new worlds. Virtual realities in contemporary art*, Zeppelin Museum Friedrichshafen, November 11, 2017–April 8, 2018, exhibition view.



2 Banz & Bowinkel: *Pala Alto*, 2017, anodized and powder coated aluminium tubes, 55" LCD monitor, HTC Vive VR, VR PC, custom printed carpet, installation view.

reality means experiencing works of art from an inside view and thus in a supposedly immersive way. Visitors become a part of the virtual world.

Further, viewers have an active part. They are directly addressed and involved by wearing VR headsets or experiencing interactive elements within the VR installation. Theoretically, it is even possible to move with the HMD relatively freely through the exhibition space. This mobility relates not only to the visitors' external freedom of movement but also to a large area of actions within the VR installation – when, for example, there is no longer an auctorial narrative, but the viewers become protagonists who interact with the virtual environment that is created by the technology. In the

installations of the artist duo Banz & Bowinkel the viewer navigates through virtual worlds by means of controllers operated by touching a button that leads to action sequences, such as movements through the space (fig. 2). The narrative is therefore developed non-linearly and always different depending on the choices that were made. These three elements, the inner and outer freedom of action as well as the disappearance of the technical equipment, lead to the impression that VR-HMDs are unbounded displays. But this is more a felt impression, as there are a lot of technical limitations that such installations, as almost all VR installations, impose.

First of all, the so-called invisible technology is revealed by cabling which curbs the movement space of the viewers. Secondly, there are the headsets themselves, which remain visible with their edges and noticeable in their weight. To create a perfect illusion, heavy displays are necessary that counteract with the immersive experience. Thirdly, the size of the exhibition space that can be tracked by infrared cameras is limited due to the bandwidth, and so the scope of action is limited as well. Standalone VR headsets might be launched within near future but quite possibly to the disadvantage of quality. Furthermore, elaborated VR installations that include, besides the VR environment, live simulation, tracking systems and interactive experiences are not as reliable and stable enough for everyday use. For instance, synchronization problems occur (moving one's head does not necessarily result in a simultaneous virtual movement), PC and HMD loose connection, the tracking system might not work or it is necessary to reset the PC due to technical problems.

With his series *Parallel* (2012–2014) Harun Farocki already showed very early that the seemingly unbounded virtual image spaces have perceivable boundaries (fig. 3). In these 2D videos the artist deals with computer generated images, especially with video games. The boundaries are, on the one hand, spatial ones that can be understood as consciously or unconsciously programmed endpoints. They limit the scope of action. Users are asked to return or come back if they are leaving the official part of the game, or insurmountable objects, barriers or parts of the landscapes appear. On the other hand, there are limits on social norms and interactions (i.e. which behaviors cause a reaction and how other players, authorities and leaders in the game impose sanctions). These experiences from video games can be transferred to virtual environments in which the bound-



3 Harun Farocki: *Parallel II*, 2014, single channel video installation, color, 9 min., still.

aries of virtual grid cages are very quickly perceivable, since viewers might step out of the programmed environments and cause the VR installation to fail.

Immersion and Corporeality

Most of the VR installations tend to aim to sensorily overwhelm the user with immersive effects. Although, probably in the not too distant future, VR-HMDs will become an integral part of everyday life; presently, they represent a new technological setup for a large part of the population, providing an entirely different visual experience. These lead to a strong physical involvement, which is a challenge for the



4 Florian Meisenberg: *Pre-Alpha Courtyard Games (raindrops on my cheek)*, 2017, VR-Installation, custom made VR Software build with Unity, VIVE VR Station, Leap Monitor Controller, custom made carpet, scaffold, plexiglass, projectors, installation view.

sense of balance, and reveals a different spatial experience of images as users move and change their perspective in the virtual worlds. At the same time this corporeal involvement is juxtaposed with a distance to the virtual images, because it is not possible to touch and feel objects as physical objects (The Swayze Effect).¹

VR-HMDs change the relationship between body, space and display. It is not only the exhibition space that is omitted by the virtual reality simulations, but the body seems to disappear too. For the visitors this might offer a very

unique experience: When they look down at their bodies, often there is no virtual representation; their bodies are invisible. Some artists therefore use avatars to overcome this difference of the real and the virtual world, and thus giving the invisible body a virtual stand-in-representation. It is interesting to note that processes of identification take place very quickly, and the virtual body of an avatar is perceived as one's own physical body.

At the same time, the physical body is strongly emphasized by interactive elements that enable new physical experiences in a lot of VR installation. Head movements lead to a direct change in perspective and angle of view. With the aid of controllers, viewers can move through space. Or the other way around, in Florian Meisenberg's VR installation hand movements in the exhibition room are transferred directly into the virtual space by means of infrared cameras (fig. 4).

Meisenberg created a VR installation on site for the Zeppelin Museum in which he works with the Leap Motion technology as a tracking tool. Instead of a "traditional" VR installation in which visitors have to use a controller to move around, the Leap Motion device makes it possible to track the movements of the hands without using controllers or gloves. The hand movements are directly tracked and translated to actions in the virtual space, where visitors can shape the appearance of wireframe objects intuitively. Here the hands are represented as avatars, as it would be too confusing for the visitors to have no corporal representation in the virtual world. Furthermore, it would be difficult to interact with the technology if the user is unable to see what their hands are doing. In a second step the visitor can place a texture on the wireframe to create a sculpture that can be uploaded on sketchfab.com, an online platform for publishing 3D, AR or VR content. Both the wireframe objects and textures are part of pre-programmed data-

1 <https://oculus.com/story-studio/blog/the-swayze-effect/> (accessed June 12, 2018).

base. Consequently, the viewers who are engaged actively are co-producers of these artworks. It has to be mentioned as well that Florian Meisenberg works closely together with a programmer to create the application, thus invigorating the interdisciplinary interface between art and technology.

The VR simulation is embedded in a space-filling installation of a giant carpet hanging from the ceiling that gives the impression of a photographic studio. So Meisenberg is weaving together the virtual and physical layers of the works. A live VR simulation is projected on this carpet. But viewers from outside can only see the isolated gestures of the hand avatars; they are not able to see the artworks.

Through movement and without further tools, one's own physicality becomes even more strongly represented in the virtual environment. This simultaneity of disembodiment on the one hand and at the enhancement of corporeality on the other is to be seen as a defining trait of VR installations, which is reflected on by numerous artists.

Challenges for Mediation

VR installations are a major challenge to master in the exhibition context. Just the simple fact that, the VR-HMDs used in exhibitions are regularly worn by many different people naturally raises questions about hygiene. Due to the close eye contact there is the danger of transmitting viruses and bacteria, e.g. a conjunctivitis. For proper care the use of special VR cleaning sets is necessary, also to maintain the function of the lenses. Despite the fact of producing an incredible amount of waste, we decided that every visitor should receive a personal hygiene cover that can be used at every VR station in the exhibition. Before putting the HMD on, the disposable hygiene cover is placed on the face.

VR works place new demands on art education especially. To be confronted with VR installations for the first time raises simple questions such as: How do I put on a VR-HMD? What about my belongings, if I cannot see (and hear) what is happening right next to me? Do I have to sit down while watching VR videos? The supervisory staff is now no longer solely responsible for guarding the exhibits but must also provide support as a *VR sitter*. They have to pay attention that the visitors do not get tangled up or stumble over a cable while they are *travelling* through virtual worlds.

This support is also necessary as the new spatial experiences make viewers feel their bodies in a very strong and direct sensation. In some cases they suffer from motion sickness. Nausea is caused by the lack of proprioceptive signals corresponding to the impression that you should be moving physically as your point of view changes. For this reason, the first-time or extensive use of VR-HMD is associated with a great deal of effort, especially for untrained visitors, which is revealed in quite physical reactions.

With only a few exceptions, it has generally been possible to watch time-based media art together with others. Viewing a VR installation is a thoroughly solitary experience. It is only possible that one person wears the VR-HMD at a time, so that another person is not able to see the video installation. The other visitors are thus excluded to a certain extent, and therefore the process of being observed while observing is reinforced. Furthermore, talking about the artworks thus becomes a challenge. The process of simultaneous art viewing and verbal exchange becomes a downstream process, and a very practical question for guided tour arises: How is it possible to speak about VR works that not everyone has seen or cannot even get a glimpse at together?



5 Salome Asega & Reese Donohue & Tongkwai Lulin: *ASM(V)R*, 2017, Oculus Rift VR, PC, headphones, projector, bean bag, 6.22 min., installation view.

This evokes the question of how many VR headsets are installed for each artwork in the exhibition space. If only one headset is available, the mediation is difficult at well-attended exhibitions or when groups are present. Projections or monitors have generally been available for (almost) all visitors; here a curatorial decision must be made in the case of works that are not bound to a certain setting. Installing more than one VR-HMD means also financial challenges. A perfect solution would be to enable as many individual art experiences as possible.

A provisional solution, which is already practiced in some exhibitions, is to show, in addition to the VR-HMD, a projection of what the visitor sees in the VR installation. The artists Salome Asega, Reese Donohue and Tongkwai Lulin decided to show their VR installation *ASM(V)R* combined with a welcome screen/image, before the visitor jumps into the Oculus Rift VR-HMD (fig. 5). This way the visitors can get an impression of the work by looking at a 2D video snippet of the VR simulation. It is, of course, important to note that a transfer from VR-HMD set-up to a conventional 2D screen is a profound intervention in the work, whereby the core characteristics of VR, the individual experience of the viewer and the specific reaction of the program to the viewer, are completely eliminated.

Discussing these challenges, it should also be mentioned that some common problems do not occur: Sometimes time-based media art raises questions about the protection of minors when watching videos with pornographic or violent content. This problem is not as virulent when using VR-HMDs, since actively donning the headset is necessary to watch the simulations, and additional warning signs will make sure that no one steps into the artwork by accident.

Artistic Potentials of VR Technologies

VR technologies open up many new possibilities for artists to reflect on their aesthetic potential while at the same time critically examining their technical conditions. Most VR artists give precise instructions how the artworks should be installed, which VR system they prefer, how many headsets have to be installed in an exhibition, if headphones are necessary, the sitting (or standing) accommodations (e.g. color and material of the bean bags) as these aspects are a fundamental part of the artworks. Of course these instructions depend on the specific spatial (and financial) situation of the museum and are adapted for every exhibition.

Sidsel Meineche Hansen's VR installation *Dickgirl 3D(X)* deals with VR pornography as the porn industry is one of the biggest engines of innovation for VR technologies. It is a critical pornographic VR production that examines not only post-human sexuality but also the voyeuristic view. By using VR-HMD and because of the isolation from the outside world, the installation of immersive pornography gives the impression of a private setting. The setting is specifically defined by the artist: The VR-HMD has to be positioned on a black vegan leather beanbag that allows viewers to sit comfortably. This setting of the installation creates the illusion of privacy, of watching porn on your own sofa or bed. At the same time, however, you find yourself in the public setting of an exhibition space, which allows other visitors to watch you watch porn. Thereby the act of waiting for a set of VR-HMD to be freed up while observing other visitors becomes an important part. But only by watching the videos themselves can the viewers understand what they just saw the person before them do. A special situation arises as the knowledge about the VR video generates an information advan-



6 The Nest Collective: *Let This Be A Warning* – A VR Short Film, 2017, VR video, 10.43 min., Oculus Rift VR, still.

tage, which makes the visual process appear in a new light that underlines the performative aspect of the installation.

The artist duo Banz & Bowinkel deals with the question of how virtual image worlds and physical spaces can be connected to one another and how virtual reality can be made visible to outsiders. Their VR headsets are embedded in installations with sculptural elements and printed images. The virtual environment is transmitted to a monitor, so the actions are also visible to outsiders. Banz & Bowinkel thus discuss the visual process as a central element of VR works, which raises questions of participation: Who can see which video and who is excluded? Within their VR installations, there is no linear timeline. There is no particular starting or end point, so the visitors will become protagonists who act



7-8 micha cárdenas: *Becoming Dragon*, 2008, VR-HMD, photographs, video, 3 min., still and exhibition view.

in the virtual and physical world simultaneously. Thus the boundaries of physical and simulated spaces blur.

VR technologies open up new forms of narration as well. As viewers are addressed and involved directly, they can become part of the narration. The Nest Collective, a Kenyan art collective, created a science fiction film as a VR experience. The storyline follows a group of African people who have left earth to colonize a distant planet. Putting on the VR headsets, visitors are instantly immersed in the installation as they arrive on the planet and have to ask themselves if they would be welcomed in a black world (fig. 6).

Curatorial Potentials (and Challenges) of VR Technologies

From a curatorial perspective, the aforementioned challenges underlie the pressing question of how VR works should be installed in an exhibition. Should the technical infrastructure be hidden according to the claims of invisibility or is it necessary to counteract at this point, to show the physical presence of technology? The latter choice enables viewers to adopt a distance to the artwork they are confronted with and hopefully to open up a critical point of view. Therefore, we decided to make the whole technical infrastructure, with all the cables, computers and displays, visible in the exhibition. Next to VR-HMD that can be used as displays, we show a headset that micha cardenás wore in her perfor-



9 *Beautiful new worlds*, exhibition view.

mance (fig. 7–8). It is the only exhibited object that cannot be used. It is placed in a showcase, turning into a museum piece.

Another focal aspect of the exhibition is showing the long tradition of immersion in illusionary worlds that is by no means without its history. Panoramas, dioramas or stereoscopy illustrate the centuries-old history of mankind's interest in immersive media. We have therefore decided that the starting point of the exhibition should be stereoscopic images, which accompany the history of the Zeppelin from 1900 to the 1930s (fig. 9).

VR technologies open up new exhibition formats. In a very radical understanding, the Kunstsammlung NRW established a completely new exhibition format for VR technology with the exhibition *Unreal* in 2017. In contrast to the exhibition *Beautiful new worlds* at the Zeppelin Muse-

um, a purely virtual exhibition space was developed (programmed), which can be entered through a virtual reality lounge in the physical museum. Once the visitors have put on the VR-HMD, they can move through the simulated exhibition rooms with the help of a controller, and zoom into the artworks in the different virtual rooms. Such display formats are, of course, only possible in the case of VR works, in which the installation in the surrounding physical exhibition room is irrelevant to the work. Artistic positions in which the physical exhibition space is part of a specific installation, e.g. with Halil Altindere, who installed his VR work *Journey to Mars* in an oval room and with an airspace wallpaper, are excluded. In *Journey to Mars* the HMD as a display becomes a fundamental part of the artwork as visitors look like astronauts who are flying to Mars. Therefore,



10–11 Halil Altindere: *Journey to Mars*, 2016, 360° VR Video, 4K, 5:10 min., wallpaper, installation views.

the display is transferring the storyline of the VR work (the artist ironically proposes that the refugees be relocated to mars, if no country will receive them: outer space as refuge for the refugees) in the physical exhibition room (fig. 10–11). Thus works which operate at the interface between analogue and digital to query traditional perceptions and definitions of virtual and real worlds cannot be integrated into these solely virtual exhibition formats.

Nevertheless, the exhibition *Unreal* has made it very clear that curators and artists have just begun to explore the potentials the new technology creates for the conception of exhibitions with VR works. With its Arts & Culture App, Google is offering virtual tours through traditional exhibitions of the MoMA in New York, the Naturkundemuseum in Berlin and the Louvre in Paris to make museums, their

exhibitions and collection accessible for people far away. That the visit to the physical museum itself will be replaced completely seems rather doubtful nonetheless.

At the moment, it seems more sensible to open an exhibition for the visitor that focuses not only on the experience effect, overwhelming and immersion. Rather, a parcours is necessary, one that places the critical reflection in the foreground. To show the visitors the displays and technologies themselves, as the VR-HMD must be consciously raised and lowered, is a central component of the exhibition. For the exhibition *Beautiful new worlds. Virtual realities in contemporary art* in the Zeppelin Museum a circuit was developed together with the exhibition architects Kooperativ für Darstellungspolitik that makes the entanglement of virtual and physical spaces perceptible for the audience



12-13 *Beautiful new worlds*, exhibition views.

through bodily experience. One focal point is to open the window shutters of the exhibition space, which are normally closed to create black boxes for the presentation of time-based media works. Thus it is possible to make a connection between the exhibition space and the world outside and to question what is real, what is virtual and what is just an exhibition space. In the exhibition a system of yellow hand-rails known from public transport is installed – a metaphor of orientation that counteracts the feeling of getting lost in virtual reality (fig. 12–13).

It is very likely that within the next years new exhibition formats and new ways of art mediation will be developed, even to the extent of purely virtual exhibition formats that allow for meeting other visitors in virtual environments in order to exchange ideas or to interact. At the moment

many of these available applications do not offer multiuser experiences, i. e. Tilt Brush gives the chance to paint in 3D space with virtual reality but not as a multiplayer activity.

Critical voices already complain that the physical museum abolishes itself, but they are only partly right. It might be true that in the future it might become unnecessary to physically visit exhibitions to view virtual art, but these challenges are not uniquely linked to the development of VR technology. They have accompanied museums for many years, when one looks at the discussions about technical reproducibility and digitization. Nevertheless, physical museums have not lost their fascination. The museums, however, are now more than ever challenged and encouraged to rethink themselves as social places that offer and create discourse about art.

Figures

1, 9, 12–13 *Beautiful new worlds. Virtual realities in contemporary art*, Zeppelin Museum Friedrichshafen, November 11, 2017–April 8, 2018, exhibition views. © Zeppelin Museum Friedrichshafen, photos: Markus Tretter.

2 Banz & Bowinkel: *Palo Alto*, 2017. © Zeppelin Museum Friedrichshafen, photo: Markus Tretter.

3 Harun Farocki: *Parallel II*, 2014. © Harun Farocki GbR.

4 Florian Meisenberg: *Pre-Alpha Courtyard Games (raindrops on my cheek)*, 2017. © Zeppelin Museum Friedrichshafen, photo: Markus Tretter.

5 Salome Asega & Reese Donohue & Tongkwai Lulin: *ASM(V)R*, 2017. © Zeppelin Museum Friedrichshafen, photo: Markus Tretter.

6 The Nest Collective: *Let This Be A Warning – A VR Short Film*, 2017. © Electric South.

7 micha cárdenas: *Becoming Dragon*, 2008. © the artist, photo: Elle Mehrmand.

8 micha cárdenas: *Becoming Dragon*, 2008. © Zeppelin Museum Friedrichshafen, photo: Markus Tretter.

10–11 Halil Altindere: *Journey to Mars*, 2016. © Zeppelin Museum Friedrichshafen, photo: Markus Tretter.