**The Virtual Reconstructions of Camp Westerbork & Bergen-Belsen**

**Visitor Survey Memorial Centre Camp Westerbork, October 2017 – January 2018**

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From Friday the 13th of October 2017 until Sunday the 7th of January 2018 a virtual reconstruction of both camp Westerbork and the German concentration camp Bergen-Belsen was shown in the Memorial Centre Camp Westerbork. In 2012 the SPECS Research Group had, in collaboration with the Gedenkstätte Bergen-Belsen, started with the virtual reconstruction of Bergen-Belsen. Since then, visitors can walk through the former concentration camp using a tablet to see, among other things, the contours of buildings that are not there anymore. Moreover, in the Gedenkstätte a highly visualised version of the VR is shown on big screens.

The virtual reconstruction of Bergen-Belsen uses the ALDES approach developed by the SPECS Research Group: Active Learning in Digitally Enhanced Spaces. In the ALDES approach, digital visualisations and spatial reconstructions are combined with historical sources, “put back” in the historical place they speak about. ‘In this way, it is possible to learn about the organisation and extent of the crimes that the Nazis have committed, as well as personal experiences that are related to this’, according to SPECS.[[1]](#footnote-1) The ALDES approach is based on extensive psychological and neuroscientific research.

The virtual reconstruction of camp Westerbork, developed between 2013 and 2015 by former employee of the Memorial Centre, Jaap Kooistra, was integrated in 2017 within the ALDES approach by the SPECS Research Group.[[2]](#footnote-2) Various historical sources were added to the VR by scholars from the University of Amsterdam (UvA) and staff from the Memorial Centre Camp Westerbork and, just like an adapted version of the Bergen-Belsen virtual reconstruction, from October 2017 onwards the VR was displayed. In the hallway that led to the room where both reconstructions were placed, a banner exhibition about Bergen-Belsen could be viewed for the general context.

The display and further development of the virtual reconstructions of camp Westerbork and Bergen-Belsen took place under the banner of iC-ACCESS/HERA. This European joint venture between various scientific institutions and memorial centres such as Westerbork and Bergen-Belsen is looking for new (innovative) ways to tell the stories of the Second World War.

**Visitor Survey**

During the period that the virtual reconstructions of camp Westerbork and Bergen-Belsen could be seen in the Memorial Centre Camp Westerbork, a visitor survey was carried out by the staff of the Memorial Centre. This visitor survey had a number of components.

First, visitors of the Memorial Centre were monitored during their visit to the virtual reconstructions. From the 13th of October 2017 until the 7th of January 2018, approximately 25,000 people visited the Memorial Centre Camp Westerbork.[[3]](#footnote-3) Staff members of the educational service were asked to monitor the behaviour of these visitors several times a day on the basis of an observation plan. It was asked to pay attention to, among other things, the visitors’ initial response, the interaction with the reconstructions (does the visitor actively use the reconstruction or not), the performed actions, the duration of the visit and the influence of the visitors’ (estimated) age on the above questions.

Secondly, fifteen employees of the Memorial Centre were asked to work with the virtual reconstructions. Afterwards, the employees were interviewed about their experiences. In order to obtain the most representative image, it was decided to ask employees of various ages (19 to 79 years) with a wide range of positions and backgrounds: volunteer/paid employee; much/little knowledge of the history of camp Westerbork and Bergen-Belsen; experience/no experience with virtual reconstructions; man/woman.

Thirdly, both virtual reconstructions were integrated into the program of a number of visiting groups. Here too, groups with diverse backgrounds were chosen: 19 guides from the State Museum Auschwitz-Birkenau, 8 excellent students from various disciplines (including Game Design) from the Hanze University of Applied Sciences Groningen, 50 history teachers in training from University of Applied Sciences Windesheim Zwolle, 15 history teachers in training from the Northern Leeuwarden University of Applied Sciences, 30 vmbo (lower vocational education) students from the Penta College Assen, 25 havo/vwo (higher general education and pre-university education) students from the Technasium. Dr. Nassaucollege from Assen, 10 (Jewish) students from various schools/institutions from Boston (United States) and 15 forest rangers from *Staatsbosbeheer* who are active in the area around camp Westerbork. All people viewed the virtual reconstructions after their visit to the museum and/or a tour of the former camp site. After the groups had viewed the virtual reconstructions on their own, they discussed their findings or their findings were discussed.

Fourthly, survivors of the Holocaust were spoken with about the reconstructions. Micha Gelber (1935) survived camp Westerbork and Bergen-Belsen, Micha Schliesser (1938) was imprisoned in camp Westerbork from 1939 until the liberation on the 12th of April 1945, Mirjam Weitzner-Smuk (1930) survived camp Westerbork, Bergen-Belsen, Theresienstadt and Auschwitz-Birkenau and Stella Lens (1940) survived the war in hiding.

The results of the visitor survey were tested against other visitor surveys with regard to the use of virtual reconstructions in museums and/or on memorial places, experiences gained by the Memorial Centre’s staff when visiting museums with a similar VR, conversations with fellow institutions about virtual reconstructions and the necessary (background) literature. The most important frame of reference is the research of Kees Ribbens, Carolien Rieffe, Harry van Vliet, Sytse Wieringa and Paul Verschure, *Virtueel omzien naar de Holocaust* (2016). On the basis of the virtual reconstruction of Bergen-Belsen and a virtual reconstruction of Sobibor, research was carried out into the question ‘to what extent young people develop a greater historical awareness of the Holocaust through the use of presentations using VR.’[[4]](#footnote-4)

**Virtual Reconstructions as Educational Tools**
In the research of Ribbens, Hieffe, Van Vliet, Wieringa and Verschure, 159 people looked at a virtual reconstruction of the Sobibor extermination camp, commissioned by the Ministry of Health, Welfare and Sport, made by the RUIM company. The virtual reconstruction was viewed using a “VR headset”, a Head Mounted Display (HDM), which is worn on the head and like a pair of glasses takes over the whole field of vision. Part of the research took place in the Camp Vught National Memorial, part in the University of Applied Sciences Amsterdam (HvA) where a laboratory set-up was built. The group was divided into several subgroups: a number of people had previously learned information about Sobibor, a number of others did not. Moreover, part of the group looked at a reconstruction of 1943, another part looked at the situation of 2015.[[5]](#footnote-5)

Also for the research of Ribbens, Hieffe, Van Vliet, Wieringa and Verschure on the Bergen-Belsen virtual reconstruction, in which 100 people took part, various subgroups were made. A first group looked at the virtual reconstruction on a tablet in a building of the University of Amsterdam without having previously learned information. A second group had learned information through an information board. A third group had previously looked at the information board, but in the VR the historical sources (characteristic of the ALDES approach) were removed from the reconstruction. A fourth group had to do without the information board and without the historical sources in the VR.[[6]](#footnote-6)

The conclusion drawn by the researchers on the basis of discussions with the participants was clear: ‘Based on these outcomes, we can therefore state that a VR presentation of concentration camps as tested here in principle suggests an effective learning method for historical education.’[[7]](#footnote-7) Based on the measurements, according to the researchers, the ALDES approach with the “restored” historical sources deserved preference over the approach that the company RUIM took (without historical sources):

*‘Our results show that the provision of contextual information within the VR environment, as was the case in the presentation of Bergen-Belsen, did show a strong effect on the outcomes. This suggests that ‘digital learning’ is preferred by many young people over the traditional form of books and paper, as recent research on digital learning also shows regarding other subjects (Singer & Alexander, 2017). The learning effect occurs especially if the information is also offered interactively (Clark, Tanner-Smith & Killingsworth, 2016).’[[8]](#footnote-8)*

The question is, however, whether this statement also applies when, for example, the factors of time, reason of visit, level of education, location (at a museum/historical place) and age change. The 159 participants in the research on the virtual reconstruction of Sobibor were all between 13 and 19 years; the average age of participants in the Bergen-Belsen VR study was 18.63 years.[[9]](#footnote-9) The average age of visitors to the Memorial Centre Camp Westerbork, on the other hand, has been around 53 in the past two years.[[10]](#footnote-10) Moreover, logically students were overrepresented when researching the Bergen-Belsen VR at the UvA. The annual reports of the MuseumMonitor show that for years the Memorial Centre has been visited by people from all layers of the society, both highly educated *and* lower educated.[[11]](#footnote-11)

Do the conclusions of Ribbens, Hieffe, Van Vliet, Wieringa and Verschure thus correspond with the results of the visitor survey into the virtual reconstructions of camp Westerbork and Bergen-Belsen? Partly they do. People up to 35 years of age who participated in the visitor survey were predominantly enthusiastic. This applied to some younger employees, as well as, for example, to the high school groups of the Penta College and the Dr. Nassaucollege from Assen. In the group of tour guides from Auschwitz it was noted that virtual reconstructions can serve as a tool for young people. A student from Boston shared this observation. He indicated that many young people hardly (want to) read and VR can serve as a good alternative for these young people to get to know the history of historical places. During the monitoring, it was also noted that people until the age of about 35 years were more active and spent more time with the virtual reconstructions.

Other visitor surveys regarding the use of virtual reconstructions in museums and/or on memorial places also show that there is a lot of potential in VR as a learning tool for young people.[[12]](#footnote-12) In a weekend during the summer of 2015, a virtual reconstruction of the Bronze Age was shown in the British Museum in which objects from the collection of the museum had been included. 351 people, mostly young adults and teenagers, were asked about their experiences afterwards. 80 percent rated the VR as good to very good. ‘In responsive to the question “How did the VR technology help you learn about the Bronze Age?” the response was overwhelming: visitors felt they had benefited educationally from the event.’[[13]](#footnote-13)

In her doctoral research dr. Iris van Ooijen studied the memory and (contemporary) dealing with the former concentration camps Westerbork, Amersfoort and Vught. She gives a possible explanation for the attraction that a VR of a concentration camp can have on young people. ‘Because of the greater distance to the war, young people have a different emotional bond with the war and camp’s past than their (grand) grandparents. Younger visitors usually have a greater need for a concrete representation of the past and it is assumed that experience appeals more to young people.’[[14]](#footnote-14)

**Experience With Virtual Reconstructions**

However, the above does not mean that a virtual reconstruction is a suitable learning tool for *everyone* and in every form. Ribbens, Hieffe, Van Vliet, Wieringa and Verschure already stated themselves, pointing out that their research was entirely based on self-reporting, that an ‘alternative interpretation should be taken into account, although it is not likely, that the subjects feel morally obliged to claim that they have learned.’[[15]](#footnote-15) In a way, that also applies to the time spent in the virtual reconstructions that were investigated. Under the “pressure” of participating in a scientific experiment, subjects may have taken longer (to gain knowledge) than they would have done in a “free situation”.[[16]](#footnote-16)

During the monitoring in the Memorial Centre it appeared that the majority of the visitors took only a few minutes to view the virtual reconstructions. After having viewed at most two sources/buildings, most visitors left the room in which the reconstructions were placed. This limit of a few minutes corresponds to the expectations of the compilers of the reconstructions and the expectations of the permanent exhibition maker of the Memorial Centre, curator Guido Abuys.

Age seemed to influence the length of time spent: elderly walked away from the reconstructions earlier than young people. During conversations with employees of the Memorial Centre, however, this turned out to be more nuanced. The amount of time spent was partly dependent on the extent to which a person had previous experience with a VR or a similar technique, so the degree to which a person felt at ease with the reconstructions. Older employees who had already learned about VR headsets through their (grand) children were very interested, while some younger colleagues dropped out because it was completely unclear to them how exactly the installation worked. During the monitoring, too, some visitors seemed to be distanced to the technology. For example, some people were waiting for the film to start. For others the appearance of the virtual reconstructions seemed sufficient to immediately leave the room.

The fact that the technology of a VR is perceived by visitors as alienating or difficult is also apparent from other visitor surveys regarding the use of virtual reconstructions in museums and/or on memorial places.[[17]](#footnote-17) After consultation with the National Monument Camp Vught, RUIM decided to add an introduction film to the VR of Sobibor ‘to overcome lack of context, explanation and personal story with the VR experience.’[[18]](#footnote-18) In addition, the staff of the National Memorial advised that it would be wise if there was an ICT competent employee/volunteer permanently present during the set-up to assist visitors and to solve the large number of technical problems.[[19]](#footnote-19)

The British Museum had already decided in advance that it would be wise to assist people. They chose 1-on-1 guidance. An employee explained to the visitor the use of the HMD and also told how the visitor had to navigate through the world of the Bronze Age. From the evaluation of the museum weekend, the British Museum subsequently concluded that the employee concerned also had to be sufficiently educated to solve technical problems. Like in Vught, these appeared to have been regular at the British Museum.[[20]](#footnote-20) This also applied to the opening of the virtual reconstructions of camp Westerbork and Bergen-Belsen in the Memorial Centre.

The observation that the degree of experience with virtual reconstructions or similar technology influences the degree and form in which a VR can serve as a learning tool, should come with a side note. In the coming years an increasing number of people will gain experience with virtual reconstructions. Whereas the first devices in which virtual worlds could be discovered from home in the eighties and nineties still failed to become popular, under the influence of the game industry in recent years high-quality and affordable devices such as Google Cardboard, Samsung Gear and Daydream VR have come on the market.[[21]](#footnote-21) Furthermore, because of their children and grandchildren elderly also come into contact with these forms of virtual representation.[[22]](#footnote-22) In addition, in more and more museums virtual reconstructions are used to offer visitors an experience. ‘Whereas the twentieth century was mainly the period of “interpreting museums”, after the turn of the century, “experience” seems to be the magic word in museum practice and there is increasing talk of the “performing museums”’, according to dr. Erik Somers in his dissertation *De oorlog in the museum. Herinnering en verbeelding* (2014), in which he analysed the history of the musealisation of the Second World War in the Netherlands.[[23]](#footnote-23)

**Learning in the Museum**

An interesting question is how visitors learn in a museum and/or on a memorial place. Does this fully correspond with the way in which, for example, the virtual reconstructions of the camps Westerbork and Bergen-Belsen were arranged or not? The renowned Smithsonian Institution in Washington has been conducting research into visitor behaviour in exhibitions for years. Based on this research, they distinguish four types of “learning visitors” in museums:

1. ***The idea-oriented visitor***

This type of visitor is focused on information, perspective, meaning, statistics and chronology. The purpose of their visit is to obtain facts, but also to understand the bigger picture. When such visitors talk about an exhibition, they often start with the sentence: ‘Did you know that… .’

1. ***The people-oriented visitor***

This type of visitor looks for photos, video and audio, stories and biographies. They are very interested in personal stories. Such persons also like to attend readings and lectures and would rather sooner take a guided tour. When they talk about an exhibition, these visitors often start with the sentence: ‘Did you hear …?’

1. ***The object-oriented visitor***

This type of visitor comes to the museum for objects. They are very interested in the backgrounds, the form and how objects were used in the past (or now). When such visitors talk about an exhibition, they often start with the sentence: ‘Have you seen…?’

1. ***The active visitor***

This type of visitor is mainly interested in interaction. They want to be able to actively get involved in an exhibition by means of for example games and they are very interested in visual imagery. When such visitors talk about an exhibition, they often start with sentence: ‘Did you try…?’[[24]](#footnote-24)

When we now test the four types of visitors against the virtual reconstructions of camp Westerbork and Bergen-Belsen, it turns out that the object-oriented visitor (logically) comes off worst. Although in the ALDES approach objects are placed in a VR, the object-oriented visitor comes for the authentic objects, not for their representations. Idea-oriented visitors, people-oriented visitors and active visitors, on the other hand, should be enthusiastic: in both reconstructions facts, chronology and information about the larger picture, as well as personal stories, photographs and biographical texts could be found. In addition, the virtual reconstructions were non-linear in nature: the visitor was able to determine (actively) how he or she went through the camp.

The visitor survey at the Memorial Centre provided interesting information in this context. Many employees and participants from the groups initially indicated that they were enthusiastic about the sources that were placed, and then made a comment. The more idea-oriented visitors indicated that ‘more practical information about the barracks’ had to be incorporated in the reconstructions, while the people-oriented visitors wanted to see more personal stories. However, almost everyone agreed that there should not be a larger amount of sources: thus, the idea-oriented visitors wanted less personal and more concrete information, while the people-oriented visitors wanted less factual and more personal stories.

The active element of the virtual reconstructions also caused discussion. Partly on the basis of visits to other virtual reconstructions, several employees indicated that they preferred a linear variant, one or more pre-programmed tours through the camp with start and end points. The pupils of the Penta College and the Technasium, on the other hand, were very pleased with the self-navigation. They felt that this had to be developed even further, the virtual reconstructions would have to feel like a game even more. From conversations on the Sobibor VR with the educational department of the Scheepvaert Museum and the internal evaluations of the Camp Vught National Memorial, such a dichotomy appears to occur more frequently.[[25]](#footnote-25)

**Learning in the Museum?**

According to the researchers at the Smithsonian Institution, the degree to which visitors in museums learn is limited. They argue that people mainly come to the museum to see their own convictions or memories confirmed. The stronger the conviction or memory, the smaller the chance that a visitor will be convinced by a different vision.[[26]](#footnote-26) According to Erik Somers, in the case of Memorial Centres such as Westerbork it is mainly the second and third post-war generation to whom this applies to a large extent. He refers, among others, to Marianne Hirsch, professor of literature and gender studies at Columbia University, who speaks about a ‘generation of post-memory’.[[27]](#footnote-27)

*‘Most adult visitors are from after 1945. That is to say: the second generation, born at the end of the war and the third generation born after around 1975. For both generations, the memory of the war is an important identity-forming element. The consequences of the war and occupation are or were usually present directly in their personal environment: they were handed over the war experiences first hand. At school the war was taught, commemorations were a continual ritual, in all kinds of cultural expressions the ‘40s-‘45 were central. Political and social affairs and revelations related to the war were widely reported in the media. For visitors from these generations, the museum visit is a meeting with their own, formed memories of the years of war and occupation.’*[[28]](#footnote-28)

For the “first generation”, the people who experienced the war themselves, too, a visit to the Memorial Centre can work as a “memory tool”. It is partly with this aim that the four Holocaust survivors have been taken to look at the virtual reconstructions of Camp Westerbork and Bergen-Belsen. On the basis of the discussions that followed, the cautious conclusion can be drawn that a virtual reconstruction can indeed serve as a memory tool, but that such a reconstruction can also be alienating. Three of the four survivors said they did not fully recognise themselves in the virtual reconstructions. For example, in their memory camp Westerbork had been either smaller or larger.

Part of the discrepancy between these memories and the representation in the virtual reconstructions that are based on historical sources can be explained by the operation of the memory. Historian Dienke Hondius watched dozens of guest lectures by guest speakers from the *Landelijk Steunpunt Gastsprekers WOII-Heden*, which includes the four survivors, and concluded that guest speakers partly intertwined their own experiences with other speeches and therefore sometimes find a mare’s nest.[[29]](#footnote-29) ‘Memory is an unreliable asset’, according to sociologist Jolande Withuis. She states that memories are connected to interpretations. If these change during a lifetime, memories change with it.[[30]](#footnote-30)

**Ethics**

A second remark from the survivors related to the design of both virtual reconstructions. Three of the four survivors found the reconstructions ‘too clinical’ and ‘not realistic enough’. Such comments came back during the discussions with the employees. The reconstructions could have been ‘more cinematic’, according to one employee. A colleague indicated that the virtual reconstructions did not look particularly interesting when compared to the nature apps on her grandson’s “VR glasses”. During the observations, some of the (mostly) young visitors also did not seem to be impressed by the virtual reconstructions. Perhaps these visitors were of the same opinion as a young journalist from RTV-Drenthe. ‘What is special about these reconstructions?’ he asked after a short preview. ‘Game builders in Assen where I was recently can make this visually a hundred times nicer.’

The statement of the journalist of RTV-Drenthe symbolises an important ethical dilemma surrounding (virtual) reconstructions of former concentration camps. It is true that the virtual reconstructions could have been visually more spectacular, but the question is whether this would have been ethically justified. How far can you go in the (virtual) reconstruction of loaded places like Camp Westerbork and Bergen-Belsen? It is a discussion that has been going on on many fronts for decades. In the early nineties, the Memorial Centre Camp Westerbork came to the conclusion that the layout of the former camp site was no longer sufficient to transfer the story of the site. It was decided to redesign the terrain. A ‘process of running gauntlets’, director Dirk Mulder stated later, because of the divergent opinions that existed about the reconstruction.[[31]](#footnote-31) The biggest critic was perhaps Mau Kopuit, editor-in-chief of the *Nieuw Israëlitisch Weekblad* (NIW) and survivor of hiding. He wrote in connection with the unveiling of the plans in 1990 that the Memorial Centre was ridiculous. A ‘*Zaanse Schans* of the extermination’ would be created. ‘The price is getting too high, the taste too bitter and the result too fake if barracks are rebuilt. [...] With their plans they [Memorial Centre Camp Westerbork] went many steps too far’.[[32]](#footnote-32) Kopuit’s opinion stood in stark contrast with that of three survivors - Louis de Wijze (1922), Irvin van Gelder (1925) and Werner Löwenhardt (1919) - who were involved in the redesign as advisers. They felt that the plans did not go far enough and wanted to add more elements of imagination.[[33]](#footnote-33)

Such divergent visions returned more than twenty-five years later on a smaller scale around the opening of the virtual reconstructions of Camp Westerbork and Bergen-Belsen. Whereas said survivors and employees supposedly wanted a more ‘realistic’ visualization and the MuseumMonitor of the past two years shows that a certain group of visitors expects ‘sensational elements’ or ‘experience’ in camp Westerbork, negative reactions were also detected.[[34]](#footnote-34) A visitor asked on Facebook, in response to the announcement that the commander's house would also be virtually rebuilt in the future, for which purpose this was going to happen. ‘Is it satisfying the curiosity of visitors or does it have an educational purpose?’[[35]](#footnote-35) More explicit was the visitor who sent an email to the Memorial Centre as a result of the same announcement. ‘What is the next step? A virtual ride with a train, in the cattle car? Or a stay in a barrack? You turn an immense tragedy into an experience, a spectacle. As if an ordinary sober monument with much information about the past is no longer sufficient to commemorate. What a tasteless marketing stunt to attract people. You are on the wrong track.’ [[36]](#footnote-36)

During the group visits it became clear that there is no clear answer with regards to ​​ethics. Whereas the students of the Hanze University of Applied Sciences, as well as the survivors, found that the reconstructions were not realistic enough, the tour guides from Auschwitz agreed that ethical boundaries had to be handled with care. Prisoners, for example, should not be “relocated” in the reconstructions.

In his dissertation, Erik Somers succinctly presents the ethical dilemma faced by makers of virtual reconstruction. Thereto, he refers to the refurbishment of camp Westerbork in 1992 and the new basic exhibition of the Memorial Centre in 1999. ‘The real horrors of the persecution in its full intention are impossible to imagine in its “reality”. Considered so, even the sober presentation in Westerbork is too “clean” and constructed. However, to reject any attempt at evocation would be unrealistic, since the “ignorant” audience does not get an impression of reality in an empty space.’[[37]](#footnote-37)

There are three more complicating factors for the makers of virtual reconstructions named in this document. First, “the spirit of age”. The idea of ​​what can or can be done in Memorial Centres such as Westerbork or Bergen-Belsen is, as stated earlier, subject to time. ‘We are doing exactly what we said 20 years ago that we would never do; the re-placing of a barrack, cattle wagons and the marking of the railway line’, curator Guido Abuys of the Memorial Centre says about the new redesign of the historic site of Westerbork.[[38]](#footnote-38) This also goes for the extent to which virtual reconstructions approach the historical reality. Or as it is called in technical terms: degree of ‘immersion’.[[39]](#footnote-39) What used to be regarded as “not done” is now seen as normal in the museum world, in which experience becomes more and more commonplace.[[40]](#footnote-40)

Therein one can find a difference in the geographical and cultural setting, the second complicating factor. For example, the public opinion about the extent to which memorial centres (may) offer their exhibitions as an experience differs when the public opinion of the United States and Israel is compared with the opinion in the more conservative Europe.[[41]](#footnote-41) An American or Israeli visitor might be disappointed in the virtual reconstructions of Bergen-Belsen and Westerbork as they could be seen in the Memorial Centre: these reconstructions do not go as far as some initiatives in their own country that help the visitor imagine what it was like in the past.[[42]](#footnote-42)

A final complicating factor concerns the budget that can be allocated to make a virtual reconstruction. That the virtual reconstruction of camp Westerbork did not have the “wow factor” of other virtual reconstructions designed specifically for this purpose, had already been taken into account in advance: Between 2013-2015 the reconstruction was compiled at the Memorial Centre without any significant budget, and then within a (in proportion) short time span integrated by the SPECS Research Group into the ALDES approach as a test method. Should the Memorial Centre, apart from ethical considerations, choose to have a new VR with a high degree of immersion, then there will be a completely different price tag attached to it. And not only that: such virtual reconstructions are when presented today, out of date by tomorrow. Every few years the VR will have to be updated in order to be able to continue to comply with its chosen means (or objective?); the immersion.

**Virtual Reconstructions as Digital Scale Models**

The groups and employees also discussed a possible future use of the virtual reconstruction of camp Westerbork on the place itself. Should visitors in the future be able to walk through the camp, just like in Bergen-Belsen, using a tablet and view the contours of vanished buildings, among other things? Would this be a good tool for *every* visitor?

In 2015, forty volunteer tour guides from the Memorial Centre visited the Gedenkstätte Bergen-Belsen, together with staff from the educational service. They were, among other things, given the opportunity to walk through the camp with AR/VR tablets using the ALDES approach. Afterwards, opinions were divided. Where a number of tour guides were moderately positive, some of the tour guides thought that the tablet was actually alienating: they were only busy with the tablet and no longer with the loaded place where they were. Director Dirk Mulder of the Memorial Centre had the same opinion. ‘I think that goes too far. [...] That [use of tablets] means that people are only focused on the screen. That, then, is the only thing that brings them into contact with the past, while they are actually standing on such a historic place. And you have to experience that.’[[43]](#footnote-43)

During the discussions with the groups and the employees, opinions were also divided about the use of a virtual reconstruction on the historical site. The discussion that arose during the visit of the Boston students was exemplary in this light. One of the students indicated that the use of a tablet with a virtual reconstruction in a former concentration camp went much too far for her. This would lead to a form of ‘desecration’ of the place. A fellow student responded with the remark that for many visitors a camp was not (longer) ‘holy’. These visitors needed the information in the tablet to ‘create a holy place’. For the one thus a holy place, for the other, in the words of the initiator of the Bergen-Belsen VR, dr. Paul F.M.J. Verschure, a place that is more like a nature reserve.[[44]](#footnote-44) ‘What does that void tell us about our future? Nothing at all. That is why the reconstruction we have built makes part of the past accessible.’[[45]](#footnote-45)

Whereas opinions about a possible use of a VR on the place itself diverged, none of the discussion partners had problems with placing the virtual reconstructions in the Memorial Centre, about three kilometres away from the camp. On the contrary, the majority of reactions on this idea were positive. The virtual reconstruction of camp Westerbork made the image that one had more concrete and thus created a stronger connection between the camp and Memorial Centre. This also applied to the public who visited the virtual reconstructions in the period from October 2017 to January 2018: ‘So that is what the camp looked like’ or ‘Did the camp look like this!’ were frequently heard reactions during the monitoring. Some employees indicated that, as far as they were concerned, this “scale model function” of the virtual reconstructions could be further developed. They especially praised the bird’s-eye perspective which was incorporated in both reconstructions.

Furthermore, several employees indicated that it would be good if there could be an even stronger bond with the exhibitions in the Memorial Centre and the camp itself. Such ideas are in line with, for example, the results of the visitor survey of the British Museum, where during the virtual museum weekend “analogue” activities were organised.[[46]](#footnote-46) Erik Somers, too, sees a role for virtual representations in combination with more traditional forms of presentation.

*‘[...] As a result of the advancing virtual technical developments, the demand for ‘tangible’ experience of authenticity only seems to be increasing. The museum offers contact with authentic objects, sometimes on original locations. By convincing historical staging - with or without artificial interventions and creative imaginations - the museum can evoke (the suggestion of) authenticity. Ultimately, it is in this confrontation, this experience of authenticity, one can find the uniqueness of a museum.’[[47]](#footnote-47)*

**Visiting With a Group**

On one of the first days of the opening in the Memorial Centre, a mother with two young daughters visited the room with the virtual reconstructions. The youngest daughter, who had probably read Anne Frank’s diary at home, reacted with delight at seeing the VR of camp Westerbork. She enthusiastically began to tell her mother about the places where Anne Frank should have walked in the camp. Sytse Wieringa, employee of the SPECS Research Group who was present the first week to take the worst bugs out of the reconstructions, joined in the conversation. What followed was a special dynamic between parent, children and the content specialist (Sytse Wieringa) based on the VR of camp Westerbork. After the closing of the virtual reconstructions, it turned out that this conversation had not stood on its own. The educational staff, responsible for monitoring, indicated that such moments had occurred more often.

This “social aspect” of the virtual reconstructions was also given attention during the discussions with the staff of the Memorial Centre and the various groups. A number of employees indicated, partly on the basis of earlier experiences with “VR glasses”, that they preferred an open arrangement with large screens, as used in the Memorial Centre, over an HMD. Among these employees, a stronger degree of immersion with use of “VR glasses” did not weigh up against the possibility of directly sharing their experiences with other people.

People with such a preference for social interaction are considered by the aforementioned researchers of the Smithsonian Institution as a separate category of museum visitors. The researchers state that some of the people who visit a museum do so to spend time with family and friends, in other words, to share their experiences regarding the museum in question with this family and friends.[[48]](#footnote-48) From the visitor surveys of, among others, the Camp Vught National Memorial concerning the Sobibor VR and the British Museum, it appears that an arrangement with “VR-glasses” indeed increases the feeling of being closed-off, more so than an open arrangement would do.[[49]](#footnote-49) At the British Museum visitors were so immersed in the Bronze Age world, that it was difficult for the accompanying employee to take them out again or, in some cases, even get contact with the visitor in question.[[50]](#footnote-50)

In this light, an open arrangement with large screens, for example, is also much more suitable for visits in groups. Also in practical terms: in groups of forty to fifty people - the average size of groups with guidance in the Memorial Centre - and a total of around 40,000 group visitors per year the purchase of sufficient “VR-glasses” would be an expensive business.

An integration of the virtual reconstructions (in the open configuration) in the group programs of the Memorial Centre could also help to solve a number of problems described in this article. For example, with a guided group visit, an employee is always present to explain the functioning of the virtual reconstructions, or to operate the reconstructions. Moreover, an employee can also place the virtual reconstructions for the people-oriented visitor (even more) in the context of a personal story, as Sytse Wieringa did with the girl with the fascination for Anne Frank, and/or the employee can give a historical framework for idea-oriented visitors. Or, for object-oriented visitors, the employee can for example display authentic objects to subsequently establish a relationship between these objects and the reconstructions.

It should be noted here that during the visitor survey it turned out that some of the visitors became nauseous or dizzy when moving the camera (too) quickly in the virtual reconstructions. Such ‘motion sickness’ also occurred in the research of Ribbens, Hieffe, Van Vliet, Wieringa and Verschure, albeit more so in the “VR glasses” of Sobibor than in the Bergen-Belsen VR on the tablets.[[51]](#footnote-51) On the other hand, during the visitor survey, there were also employees who felt that the camera was moving too slowly, they indicated that they had withdrawn earlier because of this. When using the virtual reconstructions in a group, this problem is even greater: the accompanying employee cannot adjust the speed for one group visitor, without the other visitor getting distracted by it. And vice versa.

**Conclusion**

What conclusions can be attached to the visitor survey into the virtual reconstructions of camp Westerbork and Bergen-Belsen in the Memorial Centre? Before this question can be answered, it must first be stated that the visitor survey only gives *a* picture of the reactions of the public to the virtual reconstructions and not *the* picture. The research shows the reactions of the public to the placement of two specific virtual reconstructions in a specific setup at a specific location: the Memorial Centre Camp Westerbork, three kilometres from the place of which one of the reconstructions showed a virtual representation. A museum where before or afterwards exhibitions could be viewed about the history of the two camps that were virtually reconstructed. This means that caution must be exercised when drawing universal conclusions: in a different place and/or in a different context they could differ from the conclusions drawn in this article.

Furthermore, it must be explicitly stated that the visitor survey was a snapshot. The visitor survey showed that the degree of experience with virtual reconstructions influences the extent to which a VR can serve as a learning tool: visitors who were familiar with a virtual reconstruction or who felt comfortable with the technology continued to be active for longer and quit less quickly. The number of people who have such an experience is likely to increase due to the many initiatives that are being developed in for instance museums in this field and the growing opportunities for working with similar visualisations at home.

If more visitors get (more) experience with virtual reconstructions, the expectations regarding the design of virtual reconstructions will also change, especially given the technological developments. The question, however, is whether the expectations of *all* visitors change in an equal speed and in the same direction. The visitor survey made clear that there are differences in opinion of visitors with regards to ethics. Whereas one visitor expected a high degree of immersion and was thereby (somewhat) disappointed, the sober arrangement of the virtual reconstructions could for the other visitor (already in advance) go several bridges too far.

The verification of the visitor survey with the Smithsonian Institution’s investigation also indicated that based on the content, the virtual reconstructions of camp Westerbork and Bergen-Belsen were not an effective learning tool for *every* visitor. The choice to place both personal stories and historical information in the reconstructions, turned out to be a choice “between two stools” for some visitors: the reconstructions were neither personal enough to become an independent part of the museum for the people-oriented visitor, nor informatively enough to be able to interest the idea-oriented visitor enough to be an independent component.

The differences in opinion about the active (non-linear) or passive (linear) design of the virtual reconstructions and, for example, the speed of movement of the camera that emerged during the audience research, completed the picture that it is extremely difficult, if not impossible, to build a virtual reconstruction that can be attractive to everyone. The strength of a VR, in view of the positive response to the “scale model function” and the effect of the reconstructions in a group context, lies to a large extent in the environment and the context in which a VR is placed or used, as well as in the degree to which the reconstruction can be adapted to these circumstances. The virtual reconstructions of camp Westerbork and Bergen-Belsen can in this light be considered as just as “special” or “average” as all other means of the Memorial Centre Camp Westerbork: independently too limited, but as a part of a larger whole unmistakably important in conveying the story of camp Westerbork to current and future generations.

1. Paul Verschure, *The Future Memory of Westerbork Memorial* (Barcelona 2018). Original: ‘Op die manier kan geleerd worden over de organisatie en de omvang van de misdaden die de nazi’s hebben uitgevoerd, alsmede persoonlijke ervaringen die hieraan verbonden zijn.’ [↑](#footnote-ref-1)
2. The virtual reconstruction of camp Westerbork is situated in the summer of 1944. The reconstruction of Bergen-Belsen is situated in 1944/1945. Moreover, with the Bergen-Belsen reconstruction one can walk in Augmented Reality (AR) through the camp: in the present surroundings the contours of historical buildings and other sources are placed. [↑](#footnote-ref-2)
3. Sandra van Lunen et al., *Herinneringscentrum Kamp Westerbork Bezoekcijfers. Jaarreportage 2017* (Hooghalen 2018). [↑](#footnote-ref-3)
4. Kees Ribbens, Carolien Rieffe, Harry van Vliet, Sytse Wieringa, Paul Verschure, *Virtueel Omzien naar de Holocaust. Evaluatie van het gebruik van Virtuele Realiteit in het onderricht van de geschiedenis van Sobibór en Bergen-Belsen* (2016), 10. Original: ‘in hoeverre jongeren door het gebruik van presentaties die gebruik maken van VR een groter historisch besef inzake de Holocaust ontwikkelen.’ [↑](#footnote-ref-4)
5. Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 10. [↑](#footnote-ref-5)
6. Ibidem. [↑](#footnote-ref-6)
7. Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 30. [↑](#footnote-ref-7)
8. Ibidem. Original: ‘Onze resultaten laten zien dat het aanbieden van contextuele informatie binnen de VR omgeving, zoals in de presentatie van Bergen Belsen het geval was, wel een sterk effect op de uitkomsten liet zien. Dit suggereert dat ‘digitaal leren’ bij veel jongeren de voorkeur heeft boven de traditionele vorm van boeken en papier, zoals ook uit recent onderzoek over digitaal leren ten aanzien van andere onderwerpen blijkt (Singer & Alexander, 2017). Het leer effect treedt vooral op als de informatie dan ook nog interactief wordt aangeboden (Clark, Tanner-Smith & Killingsworth, 2016).’ [↑](#footnote-ref-8)
9. Ibidem. [↑](#footnote-ref-9)
10. NBTC Nipo Research, *MuseumMonitor Herinneringscentrum Kamp Westerbork 2016*; and NBTC Nipo Research *MuseumMonitor Herinneringscentrum Kamp Westerbork*, *eerste helft 2017.* [↑](#footnote-ref-10)
11. Ibidem. [↑](#footnote-ref-11)
12. Cecile Post, *Korte Evaluatie VR Sobibor Nationaal Monument Kamp Vught* (Vught 2017); and Jack Ashby, *Museums and Virtual Reality: VR in the Grant Museum* (2017); accessed on: <https://blogs.ucl.ac.uk/museums/2017/02/15/museums-and-virtual-reality-vr-in-the-grant-museum/>; and Daniël Heeringa and Karel Ornstein, *Nieuwsuur.* *Virtuele reconstructie van concentratiekamp Bergen-Belsen* (2015); accessed on: <https://nos.nl/nieuwsuur/artikel/2029688-virtuele-reconstructie-van-concentratiekamp-bergen-belsen.html>. [↑](#footnote-ref-12)
13. Lizzie Edwards and Juno Rae, *Museum: What is the value of virtual reality environments for learning by children and young people, schools and families?* (2016); accessed on: <https://mw2016.museumsandtheweb.com/paper/virtual-reality-at-the-british-museum-what-is-the-value-of-virtual-reality-environments-for-learning-by-children-and-young-people-schools-and-families/> [↑](#footnote-ref-13)
14. Iris van Ooijen, *Kampen als betwiste plekken. De hedendaagse omgang met de voormalige kampen Westerbork, Vught en Amersfoort als herdenkingsplek, herinneringsplaats en erfgoedsite* (2017) 44. Original: ‘Vanwege de grotere afstand tot het oorlogsverleden hebben jongeren een andere emotionele band met het oorlogs- en kampverleden dan hun (over)grootouders. Jongere bezoekers hebben doorgaans een grotere behoefte aan een concrete verbeelding van het verleden en verondersteld wordt dat de experience-achtige beleving jongeren meer aanspreekt.’ [↑](#footnote-ref-14)
15. Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 29. Original: ‘alternatieve interpretatie, alhoewel niet waarschijnlijk, dat de proefpersonen zich moreel gedwongen voelen te beweren dat ze geleerd hebben.’ [↑](#footnote-ref-15)
16. During the research of Ribbens, Rieffe, Van Vliet, Wieringa and Verschure participants spent 3 to 20 minutes at the Sobibor VR. At the Bergen-Belsen VR the standard time was set at 15 minutes. [↑](#footnote-ref-16)
17. See also Kelly Mostert, ‘Erfgoed en virtual reality. Een gedroomde combinatie’, in: *Faro. Tijdschrift over cultureel erfgoed, 9* (2016) 22. [↑](#footnote-ref-17)
18. Post, *Korte Evaluatie VR Sobibor*. Original: ‘om gebrek aan context, uitleg en persoonlijk verhaal bij het VR meubel te ondervangen.’ [↑](#footnote-ref-18)
19. Post, *Korte Evaluatie VR Sobibor*. [↑](#footnote-ref-19)
20. Edwards and Rae, *Museum: What is the value of virtual reality environments*. [↑](#footnote-ref-20)
21. Mostert, ‘Erfgoed en virtual reality’, 22; and Edwards and Rae, *Museum: What is the value of virtual reality environments*. [↑](#footnote-ref-21)
22. Ashby, *Museums and Virtual Reality: VR in the Grant Museum*. [↑](#footnote-ref-22)
23. Erik Somers, *De Oorlog in het museum. Herinnering en verbeelding* (Amsterdam 2014) 273-274. Original: ‘Whereas the twentieth century was mainly the period of “interpreting museums”, after the turn of the century, “experience” seems to be the magic word in museum practice and there is increasing talk of the “performing museums.”’ [↑](#footnote-ref-23)
24. James B. Schreiber, Andrew Pekarik, Nadine Hanemann, Zahava Doering, Ah-Jin Lee, *Understanding Visitor Engagement and Behaviors* (Washington 2013), 3-5. See also: Zahava Doering, *Strangers, Guests or Clients? Visitor Experiences in Museums* (Washington 1999). [↑](#footnote-ref-24)
25. Post, *Korte Evaluatie VR Sobibor*. [↑](#footnote-ref-25)
26. Schreiber, Pekarik, Hanemann, Doering, Lee, *Understanding Visitor Engagement*, 4-7; and Doering, *Strangers, Guests or Clients?*, 5, 7, 10. [↑](#footnote-ref-26)
27. Somers, *De Oorlog in het museum,* 313. [↑](#footnote-ref-27)
28. Ibidem. Original: De meeste volwassen bezoekers zijn van na 1945. Dat wil zeggen: de tweede generatie, geboren aan het eind van de oorlog en de derde generatie die vanaf om en nabij 1975 is geboren. Voor beide generaties is de herinnering aan de oorlog een belangrijke identiteitsvormend element. De gevolgen van de oorlog en bezetting zijn of waren in hun persoonlijke omgeving veelal direct aanwezig: zij kregen de oorlogservaringen uit de eerste hand overgedragen. Op school werd de oorlog onderwezen, herdenkingen waren een vast ritueel, in allerlei culturele uitingen stonden de jaren ’40-’45 centraal. Politieke en maatschappelijke affaires en onthullingen die verband hielden met de oorlog werden in de media breed uitgemeten. Voor de bezoekers uit deze generaties is het museumbezoek een ontmoeting met hun eigen, gevormde herinneringen aan de jaren van oorlog en bezetting. [↑](#footnote-ref-28)
29. Dienke Hondius, *Oorlogslessen. Onderwijs over de oorlog sinds 1945 (*2010), 233-235. [↑](#footnote-ref-29)
30. Somers, *De Oorlog in het museum,* 313. [↑](#footnote-ref-30)
31. Idem, 260. [↑](#footnote-ref-31)
32. ‘TE VER’. ‘Nieuw Israëlitisch weekblad’. Amsterdam, 30-11-1990. Accessed on Delpher on 05-03-2018, <https://resolver.kb.nl/resolve?urn=ddd:010859676:mpeg21:a0007> Original: ‘De prijs wordt te hoog, de smaak te bitter en het resultaat te onecht als barakken worden herbouwd. […] Met hun plannen zijn zij [Herinneringscentrum Kamp Westerbork] bruggen te ver gegaan’. [↑](#footnote-ref-32)
33. Huub Wijfjes, *Kamp Westerbork. Inrichtingsplan* (Hooghalen/Groningen 1991) 40-41. [↑](#footnote-ref-33)
34. NBTC Nipo Research, *MuseumMonitor Herinneringscentrum Kamp Westerbork 2016*; and NBTC Nipo Research *MuseumMonitor Herinneringscentrum Kamp Westerbork*, *eerste helft 2017*. [↑](#footnote-ref-34)
35. <https://www.facebook.com/kampwesterbork>. Original: ‘Is het bevrediging van de nieuwsgierigheid van bezoekers of heeft het een educatief doel?’ [↑](#footnote-ref-35)
36. Email Hendrik Bruin to Memorial Centre Camp Westerbork, 12 October 2017. Original: ‘Wat is de volgende stap? Een virtueel ritje met een trein, in de veewagon? Of een verblijf in een barak? U maakt van een immense tragedie een belevenis, een spektakel. Alsof een gewoon sober monument met veel informatie over toen niet meer voldoende is om te herdenken. Wat een smakeloze marketingstunt om maar mensen te trekken. U bent op de verkeerde weg.’ [↑](#footnote-ref-36)
37. Somers, *De Oorlog in het museum,* 273. See also: Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 8. Original: ‘De werkelijke verschrikkingen van de vervolging in zijn volle intentie zijn onmogelijk naar de “werkelijkheid” te verbeelden. Zo beschouwd is zelfs de sobere presentatie in Westerbork al snel te ‘clean’ en te geconstrueerd. Om evenwel elke poging tot evocatie af te wijzen zou weinig realistisch zijn, aangezien het “onwetende” publiek op een lege vlakte geen indruk krijgt van de realiteit.’ [↑](#footnote-ref-37)
38. Van Ooijen, *Kampen als betwiste plekken,* 290. Original: ‘Wij doen nu precies waarvan we twintig jaar geleden zeiden dat we dat nooit zouden doen; het terugplaatsen van een barak, veewagons en de markering van het spoortracé.’ [↑](#footnote-ref-38)
39. Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 6. [↑](#footnote-ref-39)
40. See also: Ibidem; and Van Ooijen, *Kampen als betwiste plekken,* 442; and Somers, *De Oorlog in het museum,* 273-274. [↑](#footnote-ref-40)
41. Van Ooijen, *Kampen als betwiste plekken,* 42. [↑](#footnote-ref-41)
42. Van Ooijen, *Kampen als betwiste plekken*, 48-49. [↑](#footnote-ref-42)
43. Heeringa and Ornstein, *Nieuwsuur.* *Virtuele reconstructie.* Original: ‘Ik vind dat dat te ver gaat. […] Dat [gebruik van tablets] leidt ertoe dat mensen alleen gericht zijn op het beeldscherm. Dat is dan het enige dat hen in aanraking brengt met het verleden, terwijl ze eigenlijk op zo’n historische plek staan. En dat moet je ervaren.’ [↑](#footnote-ref-43)
44. Ibidem,; and Verschure, *The Future Memory of Westerbork Memorial*. [↑](#footnote-ref-44)
45. Heeringa and Ornstein, *Nieuwsuur.* *Virtuele reconstructie.* Original: ‘Wat vertelt die leegte over onze toekomst? Helemaal niks. Vandaar dat de reconstructie die we hebben gebouwd, een deel van het verleden toegankelijk maakt.’ [↑](#footnote-ref-45)
46. Edwards and Rae, *Museum: What is the value of virtual reality environments*. [↑](#footnote-ref-46)
47. Somers, *De Oorlog in het museum,* 319. Original: ‘[…] Als gevolg van de voortschrijdende virtuele technische ontwikkelingen lijkt de vraag naar “tastbare” beleving van authenticiteit alleen maar toe te nemen. Het museum biedt contact met authentieke objecten, soms op oorspronkelijke locaties. Door overtuigende historische ensceneringen – al dan niet met kunstmatige ingrepen en creatieve verbeeldingen – kan het museum (de suggestie) van authenticiteit oproepen. Uiteindelijk ligt in deze confrontatie, deze beleving van authenticiteit, het unieke van een museum.’ [↑](#footnote-ref-47)
48. Doering, *Strangers, Guests or Clients?*, 10-11. [↑](#footnote-ref-48)
49. Post, *Korte Evaluatie VR Sobibor*; and Edwards and Rae, *Museum: What is the value of virtual reality environments*. [↑](#footnote-ref-49)
50. Edwards and Rae, *Museum: What is the value of virtual reality environments*. [↑](#footnote-ref-50)
51. Ribbens, Rieffe, Van Vliet, Wieringa, Verschure, *Virtueel Omzien*, 16. [↑](#footnote-ref-51)