SYNAGOGUE OF KLEVE
INTERACTIVE EXPERIENCE IN THE RECONSTRUCTED SYNAGOGUE OF KLEVE

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Digital Media - Master Thesis

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04.10.2019
ABSTRACT

This documentation within the context of my master thesis is about my virtual reality installation called “Synagogue of Kleve.” The installation deals with the reconstruction of tangible cultural heritage in virtual reality. The installation is conceptualized to be shown in the cultural heritage institutions, including museums and historical sites in which the visitors explore the synagogue of Kleve, Germany.

The result is an installation that shows the synagogue in old times, and that strives to get people interested in the history of the synagogue with the help of virtual reality that features an interactive storytelling experience.
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1 INTRODUCTION

Synagogues are used for the prayer, study, reading and for gathering. It is not mandatory for worship. A synagogue means ‘house of assembly’ or ‘house of prayer’. In this paper I have focused on reconstructing the synagogue of Kleve which was destroyed in 1938. The synagogue is the Jewish cultural heritage.

1.1 AIM

The installation aims to experiment with storytelling ideas and design in virtual reality and to arouse the audience’s interest in the historical building of the synagogue by alluring their attention with an immersive and interactive non-linear storytelling experience. The virtual reality installation is not a linear story experience with the three-act structure, but the collection of historical events which took place at different times. The usage of stories in cultural heritage sites is a well-established method to help the audience process, comprehend, and remember the information. It accommodates the attendee to participate in the given environment, learns from its contents, and form an emotional connection with it.

1.2 MEDIUM OF CHOICE

The installation can be used in cultural heritage sites, such as museums. The medium of choice is heavily influenced by the stakeholders as that is their requirement.
1.3 LIMITATIONS AND CHALLENGES

The virtual reality installation does not want to replace thorough research on the topic. The goal is to reconstruct the synagogue and provide an interactive and immersive story experience. The installation is purely fictional but inspired by historical events. It doesn’t seek to explain the shown events, but to generate interest about the topic. The challenge is to reconstruct the cultural heritage where no or less data on it is available.
2 RESEARCH

2.1 THE HISTORY OF KLEVE SYNAGOGUE

To reconstruct and create an interactive experience, it is essential to know the history of the synagogue. I visited Ron Manheim, a board member of Haus Mifgash Kleve, where he took me to the onsite location of Kleve synagogue. Visiting an onsite location is necessary to understand the architecture of the synagogue. The guided tour helped in knowing the geological location and essential buildings near the synagogue, such as Jewish school which was next to the synagogue and Castle Schwanenburg, which is in nearby distance from the synagogue. He also provided pictures of old postcards which later helps in reconstructing the synagogue in 3D. Although the number of images provided was more than enough, they lack in quality because of their low resolution; it is hard to figure out the details in them. Mostly images were too small or the structure of the synagogue is not visible. This is the first challenge as only three images had the clear outer structure of the synagogue, which is used to recreate the 3D model of the synagogue. There is only one image that I could find to help me understand the inner structure of the synagogue.
Fig. 3: Synagogue onsite location

Fig. 4: Castle Schwanenburg visible from synagogue

Fig. 5: Ron Manheim on synagogue location

Fig. 6: Panoramic photo of synagogue
Fig. 7: Old photo of synagogue provided by Ron Manheim

Fig. 8: Old photo of synagogue provided by Ron Manheim

Fig. 9: Old photo of synagogue provided by Ron Manheim

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Fig. 15: Postcard provided by Ron Manheim

Fig. 16: Postcard provided by Ron Manheim

Fig. 17: Postcard provided by Ron Manheim

Fig. 18: Postcard provided by Ron Manheim
Fig. 19: Old photo of synagogue provided by Ron Manheim

Fig. 20: Old photo of synagogue provided by Ron Manheim

Fig. 21: Old photo of synagogue provided by Ron Manheim

Fig. 22: Postcard of synagogue provided by Ron Manheim
Fig. 23: Inauguration of the new synagogue and school in 1821 (after a watercolor by FM peoples)

Fig. 24: Interior of synagogue

Fig. 25: Outer structure of synagogue
After completing the research on the architecture of the synagogue, stakeholders advised meeting with the Klever freelance historian Helga Ullrich-Scheyda. She is a profound connoisseur of the city’s history. At the meeting, I gather information about the Jewish community in Kleve, such as important dates, names, and events that occurred in history. The information is also available on the Haus Mifgash Kleve website which is again written by her. Due to the length of the information, it is advised to visit the website. The impact of the information gathered will be discussed in the result chapter.

2.2 STORYTELLING IN CULTURAL HERITAGE

Storytelling precedes writing. In many ancient cultures, storytelling usually forms from oral with the combination of gestures and expressions. Storytelling is a substantial and magical craft. It is capable of taking the audience on an exhilarating journey into a fictional world; it can also disclose the secrets of human behavior or influence humans activity. Storytelling is also used to train or teach youngsters or to transfer critical knowledge. In ancient times, stories were recorded in pictures with the usage of carved trunks, sands and leaves. With the emergence of writing, stories were carved, painted, or printed onto bones,
2.3 DESIGN

Designwise I am using the collaborative design process. Casey Schmidt defines collaborative design in her article, “Collaborative design is a process that brings together different ideas, roles, and team members. Collaborative design is a multi-staged UX (user experience) process that involves planning and strategy developed by user feedback. The design phase of the UX process is iterative. (Schmidt, 2019)

In this design process, it is critical to identify the stakeholders. David Benyon defines “stakeholder” in his book “Designing Interactive Systems,” “Stakeholder’ is a term that refers to all the people who will be affected by any system that results from the process of interactive systems design. This includes the people who will finish up using the new system (sometimes called the ‘users’), but it also includes many other people. (Benyon, 2010, page 51)

An interdisciplinary focused group is created, including stakeholders from Lions Club and Haus Mifgash Kleve, to wove the interactive experience for the synagogue.

The following pages are an extract from the story and storyboards that I created when I envisioned the synagogue installation.

**Story Structure and Goals**

**Characters**
- Hans (main character) and other NPCs for acts.

**External Goals**
- To inform about the history of Kleve Synagogue (included Jewish community facts).

**Internal Goals**
- To have a strong emotional experience

**Conflict**
- Anti-Semitism

**Resolution**
- To get out of anti-Semitism phase and have a peaceful ending.

**User**
- Who is my audience?
- Everyone
- What is the one thing I want them to walk away with?
- To inform about the history and have a emotional connection to the Synagogue.

**Three-Act Structure**

**Act 1**
- User will put on the VR headset. Hans (main character) will greet the user.
- “Welcome to the Kleve Synagogue Project. I am your tour guide. I advise you to follow me so that I can walk you through the history of the Synagogue.”
- Hans will go towards the current state of the Synagogue. User will follow. As the user reaches to Hans, Hans will provide the information about the synagogue and then will tell user that now he is going to take user to 24th August 1821 to show the inauguration of the Synagogue. Time jumps will occur and both (user and Hans) will see the fully erected Synagogue. Hans will provide information about Synagogue and history about Jewish community. The group of people will walk in with the scrolls and user will see the inauguration.

**Act 2**
- Hans will suggest that lets go bit further in time and suddenly Hans will mention that we are experiencing unexpected glitch. Due to that both will travel to 1959. Both will be inside the synagogue and will hear anti-Semitism chants coming from outside the building. Hans will suggest to have a look outside to discover the reason of the noises. Both will go out and see people are chanting and creating nuisance. Hans will inform user about those times and advise to move forward in time to avoid any problems.

**Act 3**
- Both will jump into the time travel and reach in 2019. The Synagogue will be intact as from previous times. Hans will walk inside the synagogue and provide user the current harmony between the communities after war. Hans will end his dialogue on good note and tell user to experience the prayer which will start as they both will reach near the scrolls. After the prayer act, Hans will say goodbye and the synagogue will be empty for user to roam freely or to exit out of VR.

Fig. 26: First story draft
Upon finishing the first story draft and storyboard, I presented it to the focused group where I received the feedback. The feedbacks welcome new experimental ideas such as introducing the family dynasty to connect four different stories altogether, incorporating a fictional Jewish family to fuse historical events provided by Helga Ullrich-Scheyda and Thomas Ruffmann, and to bring emotions through creating drama in the story; which will be discussed in the result chapter.

Fig. 31: First storyboard
3 RESULT

With the usage of the collaborative design process and experimental approach towards the implementation of ideas given by the focused group, this installation can be an exciting solution to mix the historical events with fictional and dramatic storytelling for cultural heritage.

3.1 RECONSTRUCTING THE SYNAGOGUE

The reconstruction of the synagogue is kept to match the accuracy within the research material. As discussed in the research chapter, the quality of reference images was not optimal to achieve the complete accuracy in the architecture. There were only four images on which the 3D model of the synagogue is created. There is the possibility of inaccuracy in the outer structure of the synagogue as there are only references for the front and side view.

For the inner structure, there is only one reference image which also does not provide precise details of elements. I took the liberty of adding architectural elements based on the modern interiors of the synagogues. This turned out to be a big mistake when the 3D model was showcased before the focused group. The focused group does help in identifying the mistakes which were made for the interiors, and the solutions were provided based on their knowledge of old synagogues style. The solutions are still not accurate as no one knows the interior of Kleve synagogue.

On the contrary, the limitation provides a chance to reconstruct a cultural heritage site by taking the ideas which are associated with the culture. It could be a possible solution to reconstruct and preserve a cultural heritage architecture when there is no or fewer data available.
Fig. 32: Synagogue front view
Fig. 33: Synagogue back view
Fig. 34: Synagogue left view
Fig. 35: Synagogue right view
Fig. 37: Synagogue top view
Fig. 38: Synagogue entrance
Fig. 40: Synagogue interior
Fig. 41: Synagogue interior
Fig. 42: Synagogue interior
Fig. 43: Synagogue interior
Fig. 44: Synagogue interior
Fig. 45: Synagogue interior
Fig. 46: Synagogue interior
Fig. 47: Synagogue interior
Fig. 48: Synagogue interior
3.2 CHARACTERS

As an experimental approach towards the character style, I deliberately chose the character without any facial features such as eyes and mouth. This choice of style is to keep the performance of virtual reality high in frames per second and to observe that without any facial expressions do the characters help in building up the emotions to the audience. To save the time spent on modeling and rigging the characters from scratch, I used the characters from the unity asset store. I have used two sets of characters which as follows:


This set of characters is used as a crowd to fill up the virtual reality environments.

02 - Hans | Lowpoly Character by Akishaqs (https://assetstore.unity.com/packages/3d/characters/humanoids/hans-lowpoly-character-103712)

This character is used as a mascot that interacts with the audience and provides information through dialogues.
Fig. 51: Low Poly Business People

Fig. 52: Low Poly Business People

Fig. 53: Hans Lowpoly Character

Fig. 54: Hans Lowpoly Character
The characters do lack in representing the right clothing style from the 18th and 19th centuries. I did not change the character’s clothing style with these two sets due to limited time constraints.

03 - Toon Soldiers WW2 demo by Polygon Blacksmith (https://assetstore.unity.com/packages/3d/characters/humanoids/toon-soldiers-ww2-demo-85702)

This character set is used to display Jewish-German soldiers. However, the characters had a US army uniform which I changed to German army uniform to maintain the historical accuracy mentioned by the focus group.
Fig. 58: Toon Soldiers WW2 Demo

Fig. 59: German Army WW1 Uniform

Fig. 60: Toon Soldiers character with German Army WW1 Uniform
3.3 THE STORY FOR SYNAGOGUE

The following crucial historical events were selected from the Jewish history of Kleve to develop the story, which follows:

01 - 24th August 1821, Inauguration of the Kleve synagogue.
02 - 1869, Emancipation of Jews in Prussia.
03 - 1916, Jewish Census.
04 - 9th November 1938, The destruction of the Kleve synagogue.

These are the actual historical events but to connect them into a dramatic storytelling experience fictional characters and their story is created. So the story audience will experience in the installation is a fictional story but inspired by historical events.

As mentioned in the research chapter, the first draft of the story inticed the focus group to welcome out of the box ideas. The first idea was to implement the fictional Jewish family dynasty, which provides a better continuation arc to historical events.

From those ideas, I formulate a new story which is shown in fig - 61 and 62. This was the third revision of the story because, in the previous two versions, there was a historical inaccuracy, which Thomas Ruffmann corrected.

The storyboard is shown in fig – 63 to 68.
Narrative
The User is visiting his/her grandfather. The grandfather is not visible to the User but hears his voice while the User is in the living room. There are photo frames on the wall (glowing gold color around them) and photos of the main characters (glowing gold color around them) on the table. Upon interacting with the picture of the character, User will get to know about them. The glowing gold color is the indication for User to interact.

Put the Headset on
There will be an Introduction screen with text on how to use the controllers. User is inside of a living room.

Living Room
There is an old man voice in the background to greet the User and say, "Dear wait in the living room and I will prepare some tea for you. Yesterday, I got a bit emotional while looking at the photos. You can look at them too while I am making a tea. They are over the table." User can explore the living room. On one of the walls, few photo frames are hanging. Photo frames will have a glowing gold material which indicates User to interact with it. The photo frames are arranged in chronological order so that User can experience linear storytelling. However, as User has the freedom to select any of them, which will also instigate non-linear storytelling.

1st Photo Frame
24 August 1821
Inauguration of the Synagogue

There is a photo of a few people standing in front of the synagogue. On the right top of the picture, the date is 24 August 1821. The User interacts with that photo frame and transport into that era. He will be standing outside the synagogue with the crowd. The person next to User will say, "Ay! You are finally here. I thought you would miss the inauguration of the synagogue."
The User will see people going inside the synagogue with the scrolls. User is free to follow the people inside. Once people holding the scrolls reach the center, then the story will be over. Once the story is over, there is a glowing golden light on the door of the synagogue. User transports back to the living room as User reaches to the glowing light.

2nd Photo Frame
1869

There is a photo of people sitting inside the synagogue. The User interacts with this photo and transport into that era. The User is inside the synagogue. The synagogue is crowded. The person in the center is talking about the emancipation of the Jews in Prussia. The person will say, "Three days ago, we became legally emancipated in Prussia." Everyone will applaud. A person next to the User will say, "Jakob, I wish your father Ay! could see this moment. I am sure he would be happy." The story will end. The User transports back to the living room.

3rd Photo Frame
1917

There is a photo of a war hero. The User will interact with the photo frame and transport to the war scene. The User and one person are in the trench. Sound of bullets and bombs are in the background. Both are tired. The person says, "Emil, I am so tired of this war. I remember your father Jakob motivated me saying that we need to do our best for Germany. Germany is our Fatherland." Then the story ends. Once the story is over, there is a glowing golden light on the other side of the trench. User transports back to the living room as the User reaches to the glowing light.

4th Photo Frame
9 November 1938

There is the synagogue in the photo. The User interacts with it and transport outside of the synagogue. The synagogue is on fire. The anti-Semitism song is in the background. The group is saying anti-Semitism dialogs. A person next to the User will say, "Emil, run, save yourself." The story will end, and the User transports to the living room.

Fig. 61: Story V3

Fig. 62: Story V3
**Fig. 63: Storyboard V2**

**SCENE 1**
User is inside the old room

**SCENE 2**
User will select the first photo frame

**SCENE 3**
User is watching the inauguration ceremony

**SCENE 4**
The person next to user will say, "Adam! You are finally here!" dialogue.
User can follow the people

Text will appear on the screen telling that the story is over and user can stay or go back to the old room

Fig. 64: Storyboard V2
SCENE 7
User is inside the old room and select the second photo.

SCENE 8
The person is showing the paper of the legal emancipation of the Jews in Germany.

SCENE 9
The person next to use will say, “Emil, I wish your father Adam could see this moment” dialogue.

SCENE 10
Text will appear on the screen telling that the story is over and user can stay or go back to the old room.

Fig. 65: Storyboard V2
User will select the third photo

User is with a person in the room

Fig. 66: Storyboard V2
Fig. 67: Storyboard V2

SCENE 13
The person will say, “Zelig, your father Emil speech motivates me a lot” dialogue.

SCENE 14
Text will appear on the screen telling that the story is over and user can stay or go back to the old room.

SCENE 15
User will select the fourth photo.

SCENE 16
The prayer is going on in the synagogue.
SCENE 17

Noises will be heard from outside and everyone will go out.

SCENE 18

The crowd outside is throwing fire at the synagogue.

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SCENE 19

A person next to user will say, “Zelig, run, save yourself!”

dialogue.

SCENE 20

User will be transported to the old room automatically.

Fig. 68: Storyboard V2
3.4 SOUND

Sound is essential to provide an immersive experience in virtual reality installation. Short dialogues were created from the story, which does not tell the whole story but strategically connects all four stories. It is done deliberately to check whether the audience follows the story and connects the dots provided through small hints, such as, whether the attendee can figure it out if the story is about a family dynasty. This is an experimental approach to make the audience as an active learner.

There are anti-semantic dialogues that were suggested by the stakeholders, as shown in fig - 69. It was challenging to get them recorded from Fiverr.com due to the offensive nature of the dialogues. In the end, I asked my batchmate Sean Madrid to record those dialogues, which he makes sure that the supervisors of the project are aware of such content.

There are ambient sounds of clappings, tanks movement, crowd cheering which I got from Freesound.org.

The stakeholders provided music that plays at the inauguration of the synagogue story and a German song that plays at the destruction of the synagogue story. I do not have any rights on these two sounds, which could be a copyright issue, but it is neglected due to time constraints.

You can never trust a Jew.

Jews are always greedy and liars, everybody knows that

It was the Jewish people who murdered Jesus.

The Jews are our misfortune.

Your Jewish race is a shame for humankind.

Why don’t you leave our country and go back to where you came from?

You are all buggers!

You buggers should go home!

Ha, why can’t you buggers do some honest work?

Why don’t the Rothschilds help you now?

Fig. 69: Anti-semantic dialogues
3.5 VR INSTALLATION

Due to the virtual reality headset, the images extraction produces a very low-quality result. I have shown an example in fig - 70. Therefore, it is advised to watch the results as the video. It is provided in the USB drive.

Fig. 70: Low quality
4 CONCLUSION

The first step would be to test the installation on user groups to identify how it could be extended into more better and immersive version. It would also be better to remove historical inaccuracies like clothing of characters that doesn’t match their respective era.

The inclusion of facial animation can add more depth in interactive storytelling experience. It could also be able to pull emotions from the attendee, just like films do. The animation on the characters can be made more organic and fill the characters with life.
5 APPENDIX

REFERENCE LIST


Slater Mel, Sanchez-Vives Maria V. (2016). Enhancing our lives with Immersive Virtual Reality. Available at: <https://www.frontiersin.org/articles/10.3389/frobt.2016.00074/full>
DECLARATION OF AUTHENTICITY

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