

Ways of Perceiving (ADAD4019)

Sivan Alon Schechner

Student Number: 2004529

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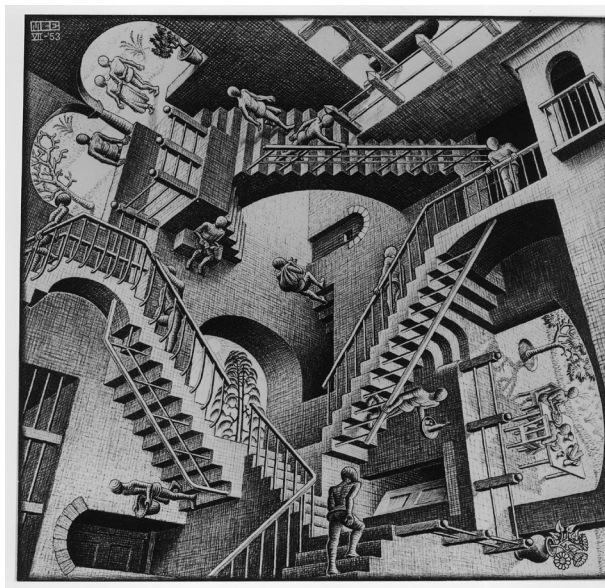
Dr Julia Lockheart

Perceiving a Virtual Museum

Through my previous education background in games design and development, I have imagined a virtual reality space. This space's purpose is to bring museum artifacts to everybody's home. Utilizing the use of virtual reality headsets and cloud based or local rendering of artifacts scanned using photogrammetry. The goal is to create a deeper emersion with the viewer than museums provide with their rarer assets. Through this essay, I will look at ways to create a space that will place the user in a comfortable setting, this space will compliment artifacts and enrich user experience.

Here I will look at works from industrial designer Jony Ive, a designer who worked on apples most iconic designs from 1998 to 2015. He encompassed apples design ethos and allowed the user to understand the technology without user manuals. Lee Ha-Jun, a set designer who worked on the film parasite, conveying emotions and personality through scenes. Finally, Sir Terence Conran, an innovative designer who helped modernise England, creating clean, simplistic and economic home interiors. He is also the founder and helped design the Design Museum, London (DesignMuseum, 2014). Alongside these artists I have looked at lighting for presenting, and good practices for virtual reality scene design.

Minimalism would be the best theme to focus on for my space. The reasoning for this is to have hyperrealism in the artifacts, this creates high polygon counts, high resolution textures and raytracing, which all take a significant amount of computer processing to view in real time. The fewer assets I can show in this imagined space at one time allows for a more realistic space, obtainable by todays mid-range home desktop standards.

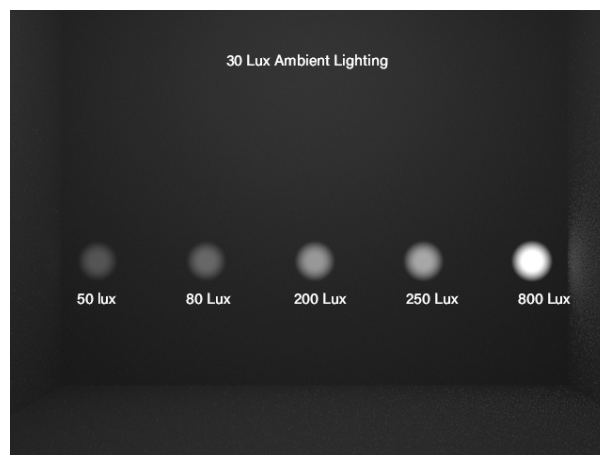


M.C Escher's "Relativity" – 1953 (Escher, 1953)

While a virtual reality space is not bound by gravity unlike physical exhibits, allowing virtual space to be as abstract as a M.C. Escher artwork inspired room. However, there have been studies documenting 'virtual reality sickness'. Because of this issue with the media that I have chosen to convey my space; I have investigated Sensory Conflict Theory. This is where an organism's movements (in this case

humans), does not relate to the movement of scenery around them, this misalignment can make the person feel nauseous (Colman, 2015). VR technology is already being used by many architect firms across the world, allowing them to visualise the space in 3D and to showcase the experience to their clients. The use of props is also used to give the clients something to interact with in the physical world while visualising the space in the virtual world (TMD, 2017).

Lighting, arguably the most important aspect of any museum or gallery. With poor positioning of lights may cast unwanted shadows, losing detail on artwork or artifacts. In contrast, too powerful lights will be unpleasant for the viewer, ruin the mood of the painting or cause damage to the object being presented. The latter is not an issue when in a virtual world, but lighting to set the scene is extremely important. The most common and advisable lighting to showcase work is three times brighter than ambient room lighting (parkwestgallery, 2017). Through further research into lighting complications arose to the statements Park West Gallery made. Design consultancy ARUP, who have worked with Malaga Picasso Museum, Victoria and Albert's Medieval and Renaissance Galleries and the Museum Brandhorst determined lighting to range from 50 to 80 lux for works on paper, 200 to 250 for works on oil paintings, 80 to 250 lux on painted sculptures and up to 800 lux for sculptures with natural finishes (Lam, 2011). This article yielded similar results to another journal I had read, mostly falling within 20% of the range suggested by the ARUP group. This article determined lighting to vary greatly in kelvin (colour) for artworks, to help depict mood to the viewer and how National Gallery, London try to harness daylight for some of their displays, where others try to mimic the lighting of the scenery, location and time of day for the objects on display. Such lighting as artwork done at the golden hour, by candlelight or artifacts from the ocean or mines (Anya Hurlbert, 2020).



A render I created in Autodesk 3DS Max following ARUP's lighting guide.

Now I began looking into minimalism an art movement that sprung to live in the 1950s and gained popularity in the 70's. Minimalism was about simplicity and harmony (Tate, 2021). I found this movement to be most important for a learning space such as museums, and to quote Frank Stella "What you see is what you see". Its clean aesthetic allows focus on the objects being displayed. Jony Ive, Apples previous Chief Design Officer aesthetics and design commend that of the minimalist movement, with

use of a monochrome chassis and simple elegant lines. Through the products exterior, clean and simple functions alongside its software create a product that is easily operated. Looking at a book 'Designed by Apple in California' you can see the variety of timeless designs created by apple from 1998 (Jony Ive, 2016).

I have also taken some inspiration from the Korean film Parasite (Parasite, 2019). The films main scenes are set in a minimalist Korean businessman's home, designed by set designer Lee Ha-Jun (Jun, 2020). Most of this home is filmed from the living room, an open plan minimalist design. There is only a sofa, staircase and kitchen visible, all necessary for the storyline of the film. This clean set allowed the viewers mind to be focused on the actors while his design complimented the emotions portrayed in the scene.



A photo of the set from Parasite, (Parasite, 2019)

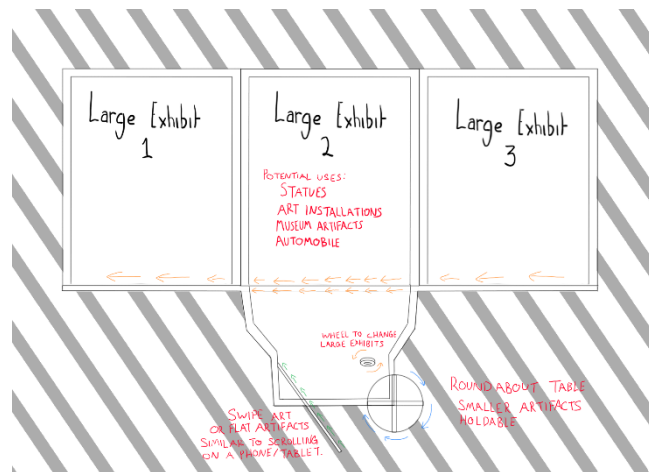
I also looked at the work from Sir Terence Conran and read his book 'Plain Simple Useful'. I found his practises transferable to the design of my virtual Exhibition. While his book is focused on home design, it follows minimalist values where he talks highly of simple to use items, uncluttered space and practical equipment. He mentions the importance of 'welcoming lighting' as well as 'objects and focal points for the eye to linger on'. He then goes on to show images of living room interiors, all with matte white walls (Conran, 2014). He mentions the use of natural lighting being important too, while it is hard to have real natural lights in a virtual world, I can simulate the light the sun gives off which is 5000 – 6500 kelvin during a midday sun.

The books focus is to only keep necessary equipment throughout the home. On page 119 marks the beginning of a chapter 'visual delight', this has helped me take notes on for my design. This chapter suggests the use of placing items in space to create visual complexity for the eye. As my space is created to display museum artifacts, these will be the key focal points. Terence also talks about how to group objects, and how displays are more powerful with themes, another aspect I will look at when creating my space (Conran, 2014).

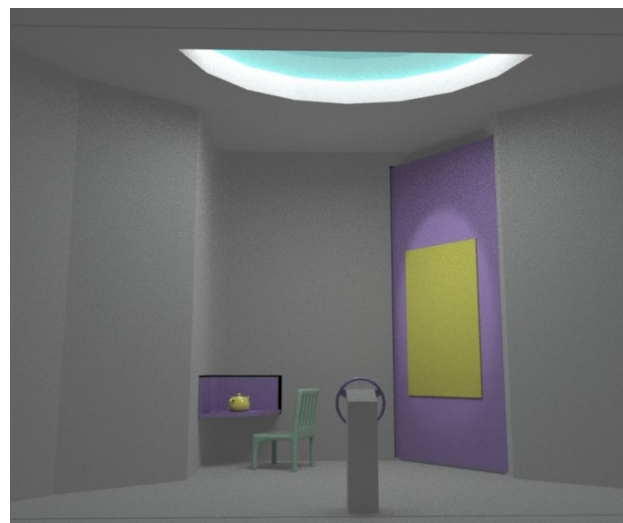
After researching and understanding the theories explaining motion sickness in a virtual world, I have tried to create a room that is completely interactive. To move and cycle through artifacts or artworks, I want to create physical sliding, lifting and rotating movements where the scene changes at the same

speed as the users' movements – like scrolling on a smartphone, movements most western civilised countries would be familiar with. I then began to sketch until I found a layout that used all these aspects in a harmonious, clean and easy to understand way drawing inspiration from Apple.

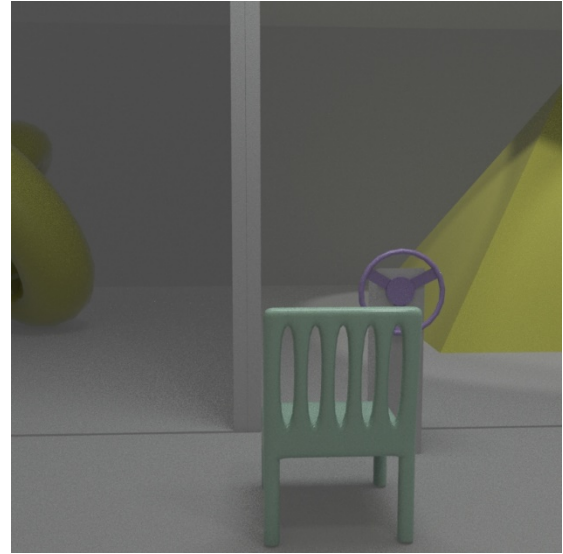
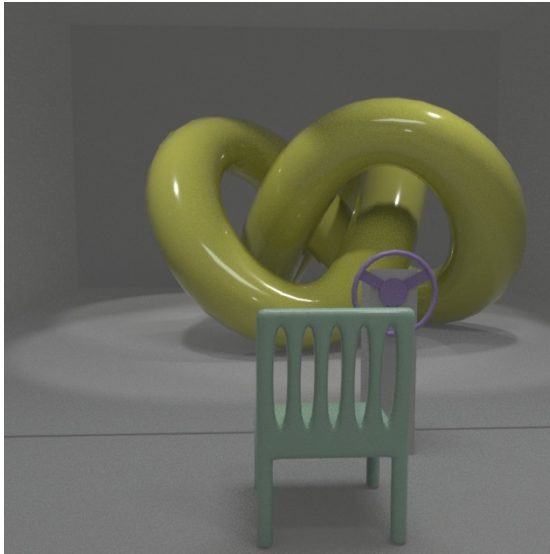
To help me understand the space, I chose to use an exhibition I had seen in Italy. This was on Pompeii, the life people lived before the eruption and the result of the eruption. The problem I faced while in this exhibit was a sensory overload. People talking and walking around, multiple artifacts scattered in my peripheral each with their own designated lighting all fighting for attention. I wanted to make a space that placed the user in solitude. Where they heard only the ambient sound my imagined space presented them with and was only able to view one section of the room at a time.



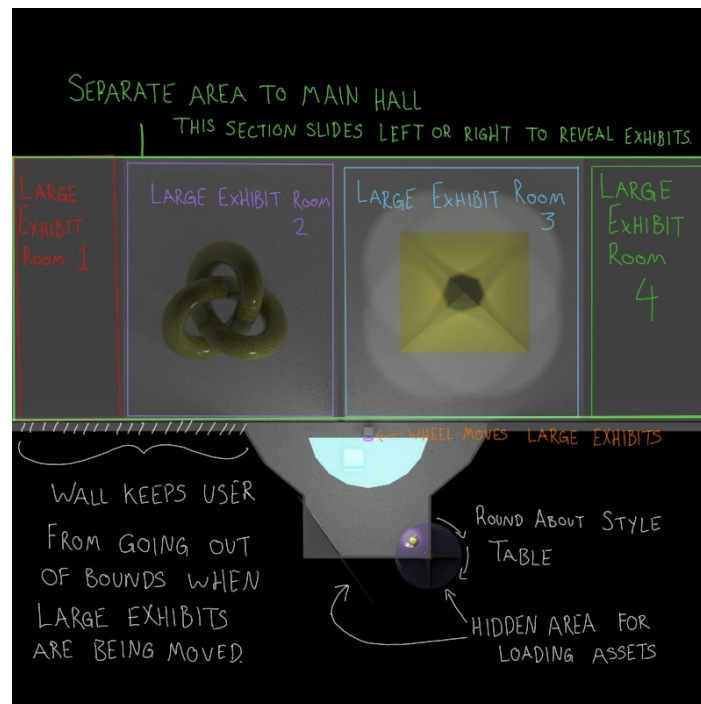
To begin understanding my minimalistic space, I have thought of common motions a human may use. The first that came to mind when trying to create a way to scroll through smaller assets was a horizontally rotating disk shape table (rotating on the Z axis for virtual rooms). This table would be like a roundabout seen in a playground. I would like to have enough of the table cut off and recessed into the wall to hide loading and deleting assets as the table is moved.



My first render of my space in Autodesk 3DS Max. In my renders, purple = user interactive and yellow = object on display.



These two photos illustrate the 'large exhibitions' being changed (moved) by using the purple wheel. The chair represents the user.



My final 3D Max model seen from above in orthographic view

My envisioned space seen above, soon places the user directly into the room, there is no entry way nor exit. Once the headset is put on the user sees a black screen with the title of the exhibition, this soon fades out to put the user in the room where they are free to look around. They are first stationed at the small round artifact table. Here they can interact with smaller objects which they are able to pick up and rotate in virtual space. I have tried to keep the room as simple and clean as possible; this should significantly benefit frames per second and make the device epilepsy safe. Also keeping a plain simple colour scheme throughout the walls, flooring and ceiling help to reduce eye stimulation, this has also been shown to reduce epileptic seizures (epilepsysociety.org, 2019).

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