

# Life on Mars Script

## Opening Scenes

Mars; the next step in space exploration. When we colonize Mars, what would life be like for those first few colonists? What jobs would they have? What problems would they encounter? Science fiction has a variety of views on the subject, but what would the reality be? (17)

## Process Overview

We started our process by visiting a museum in the attempt to gain insight into what makes a good museum experience. We combined these insights with those gathered from our disability experience prototyping to design our exhibit. We then brainstormed to get many different ideas. With the help of our professor and ai's, we whittled these down until we arrived at our Mars concept. We then used bodystorming to further explore the problem space. We selected our favorite ideas and delved into them deeper to see if we could find a way to prototype their experience. Once we had these prototypes built, we ran through multiple iterations of user tests. After each test, we gathered user feedback to redesign our prototypes for the next iteration. (37)

## Disability Prototypes

For our disability experience prototypes, we decided to use one handicap from each of three areas : perceptual, physical, and cognitive. For our perceptual disability, we decided to prototype cataracts. For our physical handicap, we prototyped arthritis. For our cognitive disability, we used Attention Deficit Hyperactivity Disorder. (19)

## Cataracts

For our perceptual disability, we decided to prototype cataracts. Cataracts is a clouding that develops in the crystalline lens of the eye or in its envelope. We synthesized this by wrapping glasses in cellophane.

(use audio from Josh)

(text only)Some of the insights from this study include contrast makes perception easier, concentration and time is sometimes required for recognition, choice can be limited at times, and the rapid decrease of sight in the dark. (end text only)

## Arthritis

Arthritis is and inflammation of the joints, usually accompanied by pain, swelling and stiffness. To simulate this affliction, we taped the finger joints and knees of our simulated sufferer, Chitmeng.

Though he had difficulty going up stairs, it was coming back down that caused the most concern. We discovered that using ramps greatly alleviated both of these issues, but going down the ramp was still more difficult than up. (27.4)

Some of the insights from this study include slowed typing, the bodies compensation for this disability, that detailed maneuvers are what is most affected, and ramps are much easier to use than stairs.

## **ADHD**

Attention Deficit Hyperactivity Disorder, or ADHD, is a learning disorder whose main symptom is a difficulty in concentration. We prototyped this disorder by having our simulated sufferer have a distracting video playing at the outside of his vision and on headphones during a group meeting. For the most part, John Wayne had little problem participating in the discussion. There were times, however, that the distraction drew his attention to various degrees. (29)

The insights from this study include a noticeable social stigma, increased reading time and communication time, more planning required, and standing seems to alleviate these concentration issues.

## **Insights Summary**

(text only, 10 seconds)

## **Life On Mars Overview**

As this topic is very broad within itself, we further decided that our exhibit would focus on some of the first settlers on Mars. We outlined four major parts to design. However, after an initial body storming session, we decided to focus deeply on one to two experiences within the exhibit while having a third extraneous piece to round out the exhibit experience as a whole.

## **Martian Town Lab**

The Martian Town lab was created to be a collaborative experience in which visitors would coordinate and build out a Martian town for the new settlers that would be arriving soon. Inside of the lab there is a large window looking out onto the new settlement area of Mars, using an Imax display to show the Martian landscape. One set of visitors would act as the building coordinator radioing out plans to the building crew. A live top-down view of the settlement area would be shown on the lab interface, which is mostly a touch screen system. As dust storms are prevalent on mars, we included this into our experience. Every once in a while a dust storm would appear on the Imax screen with accompanying sound. Inside the lab, a notice would display on the interface explaining that there is a dust storm coming and the visitor should get everyone inside to safety. This allowed for a completely immersive environment while at the same time allowing time for museum curators to reset or reshape the outside building experience.

## Mars Rover

The Mars Rover experience was designed to give visitors an understanding of what it might be like to drive a rover around the Martian surface to explore territory that might be too dangerous for manned missions. The experience was designed using a remote controlled vehicle, which we used as the base for the Mars Rover. While exploring the environment visitors might happen across sources of water, unidentified rocks, or other materials that might be scientifically valuable. The remote controlled car was also fitted with scientific instruments that would allow visitors to conduct experiments and collect samples.

## Mars Photo Booth

As we learned from our research, take home items are very valuable to museum goers. We wanted to give visitors of our exhibit something that they could take home with them and share with others as they recount and relive their experience. **We decided that it would be great to be able to have a photograph of your experience on mars.** This photograph would be taken in front of a mars background and could be printed or emailed out to anyone as a postcard. Furthermore, recent photographs are displayed near the photo booth to show recent visitors of Mars, much like rides at amusement parks. This allows visitors to leave their 'mark' on Mars as well as take something home with them.

## User Studies

**To test the efficacy of our experience prototypes, we had users interact with them.** These interactions were observed and feedback was gathered. This information provided valuable insights we used to redesign our prototypes for the next iteration of user study.

### User Study 1

For our first round of testing, Emily stepped up as our test user.

"I liked the interaction between two people building"

**it's easy to get into an experience when it's hands on  
video of environment should be everywhere**

"I definitely got the sound"

**show what a sandstorm would look like from 'our' perspective - "this is more of one location" (talking about the building station)**

"I did want to duck, when I heard the noises. I was like ok Emily be an adult.  
... but I wanted to duck anyway"

## User Study 2

In our second round of testing, Ammar and Marisol agreed to be participants. This allowed us to test the collaborative nature of the town building experience.

"not only having Mars in the background, but something to put you in the set too"

**props can help make the experience more immersive**

"there could be some kind of screen. 'thank you for visiting the exhibit', to signify that you've gone through the thing"

**provide more interactive feedback**

"it wasn't clear to me whether I should follow the schematic or build my own" (participant still did both)

**open ended instructions allow for direction and exploration**

## User Study 3

We ran two tests in our third round. Yujia and Dave ran through it first, with Chad testing it afterwards.

"there is only one more piece we might as well [finish it]"

**concluding a task is an important part of the experience**

"I dug the weather and my interaction with the weather and how it changed what we were doing"

"I felt like I could tell where my rover was at"

"the perception that I'm touching something across a vast space is very important"

**different sensory feedback mechanisms enhance the experience**

"it feels extremely close to what it would actually feel like"

## Exhibit Conclusion

After iterating over our exhibit design several times, we came to the following final design. First, we have a revamped Martian Town building experience. We learned from our users that this was indeed a good collaboration experience and it was a lot of fun to build things. During our iterations of the Mars Rover we learned that viewing a video feed of the rover instead of viewing it directly lent some distance and a better experience for our visitors. Furthermore, we found that having sound of the rover traversing the Martian surface really helped to build authenticity and bridge the 'distance' gap. Lastly, while testing the Mars Photo Booth, we found that having a background for the photograph wasn't enough for our participants. Our participants wanted to have some props to help them feel more like they

were really taking a photograph on mars. The photo booth also lent a hand in closing out the exhibit, but we found that this should be further expanded upon. Throughout the entire exhibit we found that our design had meet many of our study participants expectations of what life might be like on Mars.

### Future Directions

In order to further improve our exhibit we would like to incorporate the following changes: add physical dividers to the Martian Town experience in order to fully simulate a real environment, add more feedback and props to the Martian Photo Booth, further expand the Martian Rover experience with better cameras for viewing the 'remote' rover, better frame the narrative of the exhibit to further align our visitors contract of expectations with our design.

### Special Thanks

We would like to specially thank the following people for their help and support during this project: Emily, Ammar, Marisol, Dave, Yuija, Chad, Lynn, Gopi, and Jeff Bardzell.

### Credits

Design: Chit Meng Cheong, John Wayne Hill, Joshua Rosen

User 1: Emily

User 2: Ammar

User 3: Marisol

User 4: Yuija

User 5: Dave

User 6: Chad

Mars Image: [http://www.stsci.edu/~inr/thisweek1/thisweek/Mars\\_atmosphere.jpg](http://www.stsci.edu/~inr/thisweek1/thisweek/Mars_atmosphere.jpg)

Futurist Mars: Don Dixon - [http://www.cosmographica.com/gallery/portfolio2007/content/405\\_MarsColony02\\_large.html](http://www.cosmographica.com/gallery/portfolio2007/content/405_MarsColony02_large.html)

Music: Holst, The Planets, Op 32.