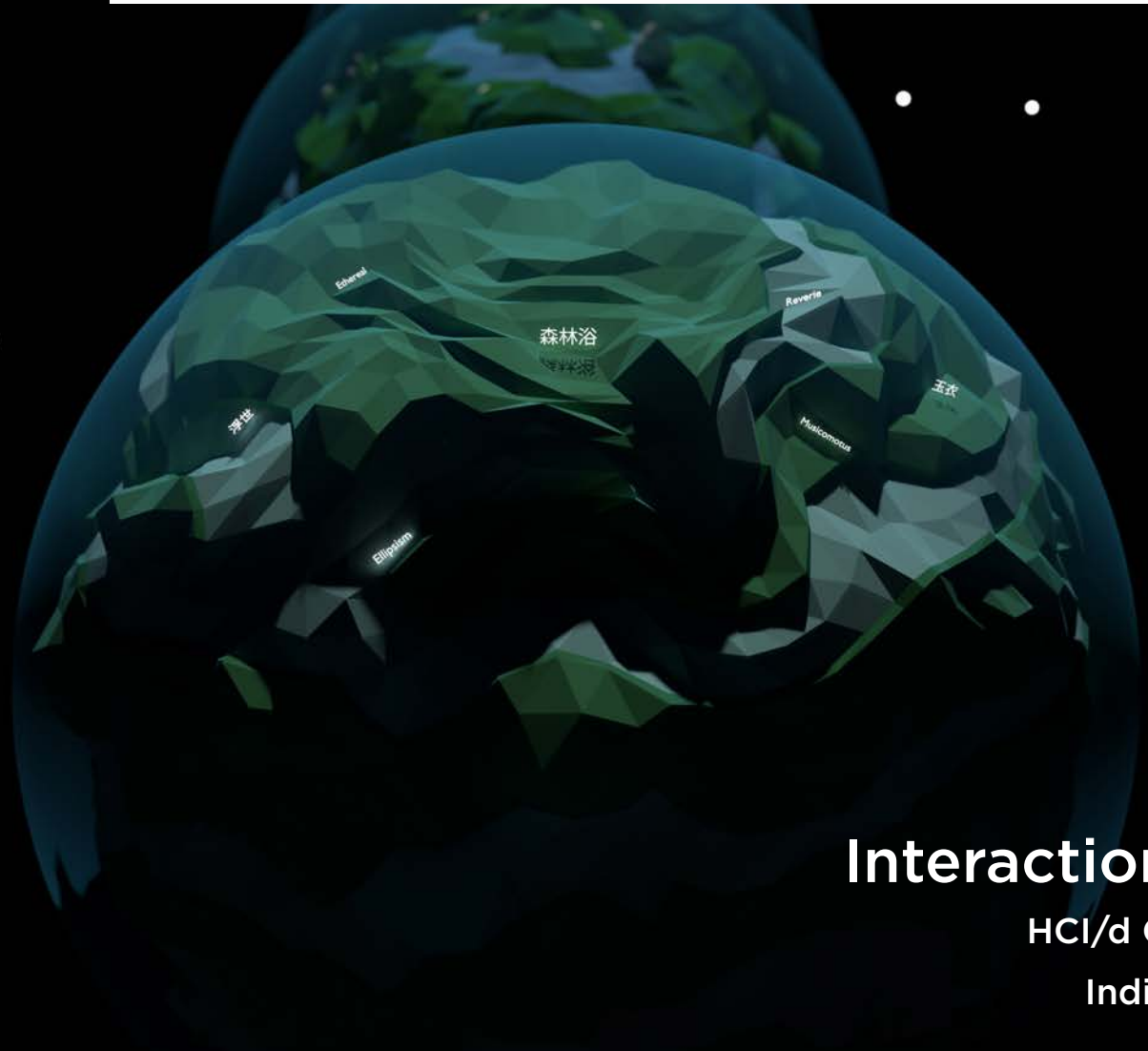
Areal Lingo:
Dimensional Dictionaries of Evocative Textual Interactions

Sean Smith



Interaction Design

HCI/d Capstone 2018

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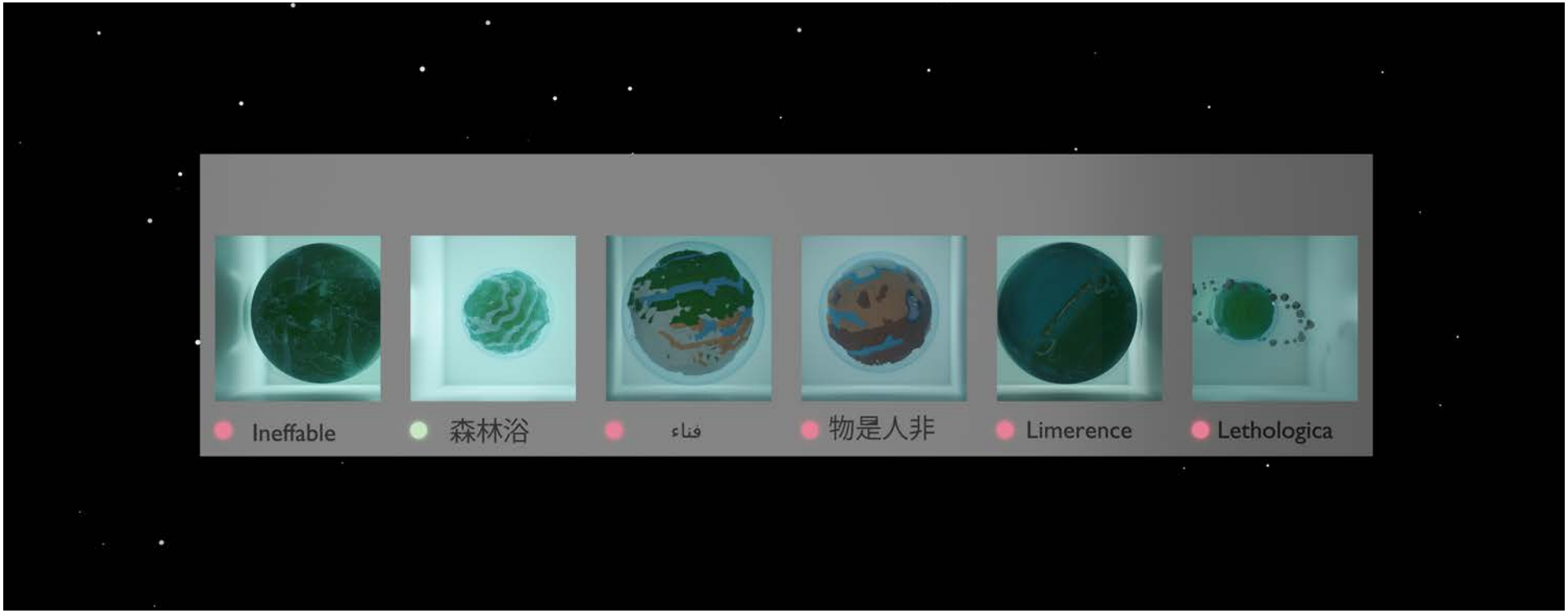
Areal : the adjective version of the noun “area”, which is an expanse of space or a region of land.

Lingo : *strange or incomprehensible* language or speech: such as a foreign language or a special vocabulary of a particular field of interest.

Dimensional : relating to a property of space; extension in time or direction.



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Design Domain

Affective Computing

Immersive Storytelling

XR Communication

XR Education

XR Visualization



*XR - Augmented Reality / Virtual Reality

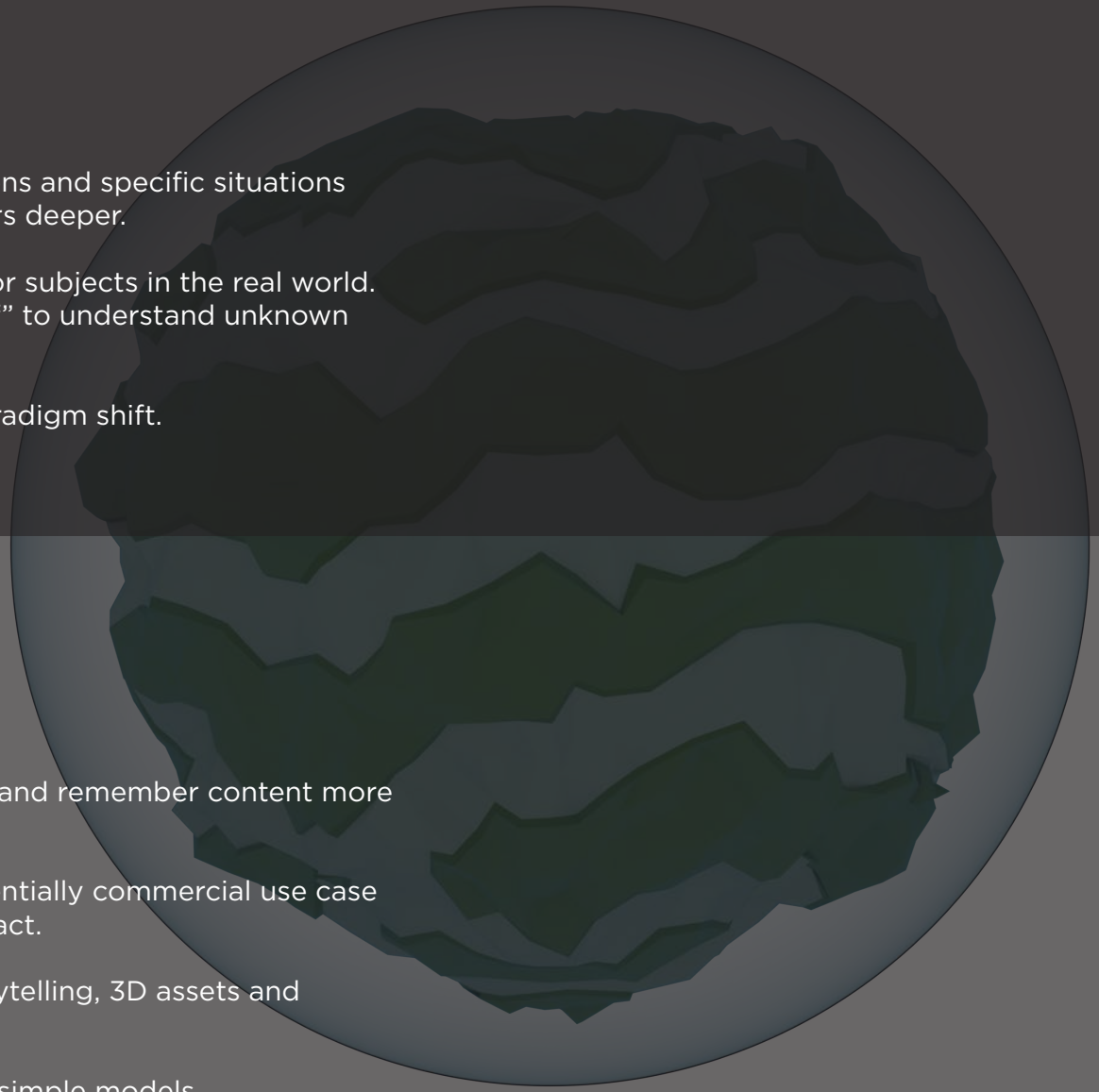
Macro Goals

Create “Affective Virtual Reality”

To dig deeper and expose genuine emotions and specific situations which helps one see themselves and others deeper.

To influence new behavior and empathy for subjects in the real world. A potential of “getting away from yourself” to understand unknown concepts more effectively.

To help pave the way for a new design paradigm shift.



Micro Goals

Put experiences to words to comprehend and remember content more effectively.

Produce an interactive, practical, and potentially commercial use case for virtual reality that makes a lasting impact.

Create an immersive dictionary using storytelling, 3D assets and evocative descriptions.

Communicate concepts through abstract/simple models.

Purpose

How do we typically learn?

When there is a word we don't know what do we do?
We look to Google for help, we ask a friend.

What about concepts?
We read a book, go to school, study.

What about understanding other's emotions?
There isn't a typical way of doing this one. From what we know, the best way to understand others is by going through the same experiences and gaining the ability to conceptualize what it's like be in another person's shoes.

Is there a way to effectively learn words, concepts, and other's emotions under a single medium?

That is the main purpose of this project. I would like to see if immersion through the composition of storytelling, evocative words and virtual experiences is a proper method of teaching and inducing empathy. **Tying immersive experiences with evocative meaning.**



Problem Framing and Predispositions

At the beginning of this project I asked two questions:

1. Can a simple definition make one feel immersed in a memory, thought, emotion?

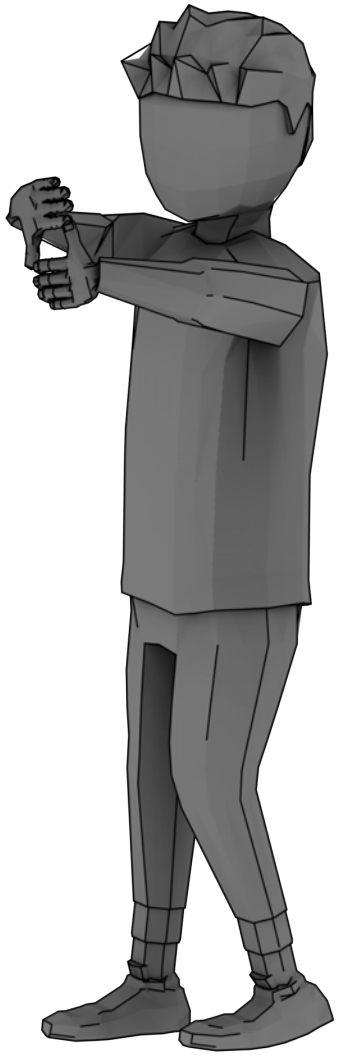
2. Can a composition of abstract and simple elements effectively communicate complicated concepts and stories?

From experience, I do believe the feeling of being immersed can be triggered from things in our lives that we don't explicitly think of as immersive. Sometimes a melody or lyric in a song can trigger physical and emotional feelings while also taking you back to specific moments and memories. Moments like that can hit people like a dreams.

To my other point, I believe storytelling can happen from the less obvious mediums. Aside from narrative and film, examples like a simple facial expression or a motion of a geometric shape, like one that mimics a dancer, can tell a complete story like a picture says a 1000 words.







Immersive

adj.

relating to an experience that actively engages one's senses and may create an altered state of mind that makes one feel absorbed in a world other than the place one currently is in.

The feeling of immersion, **the opportunity to feel dipped and plunged into one's own imagination or someone else's creation is powerful.** In storytelling, fully achieving this feeling is challenging, especially with today's difficulty to maintain attention.

Immersion is Psychological

It’s more than jabbing a screen into your eyes.

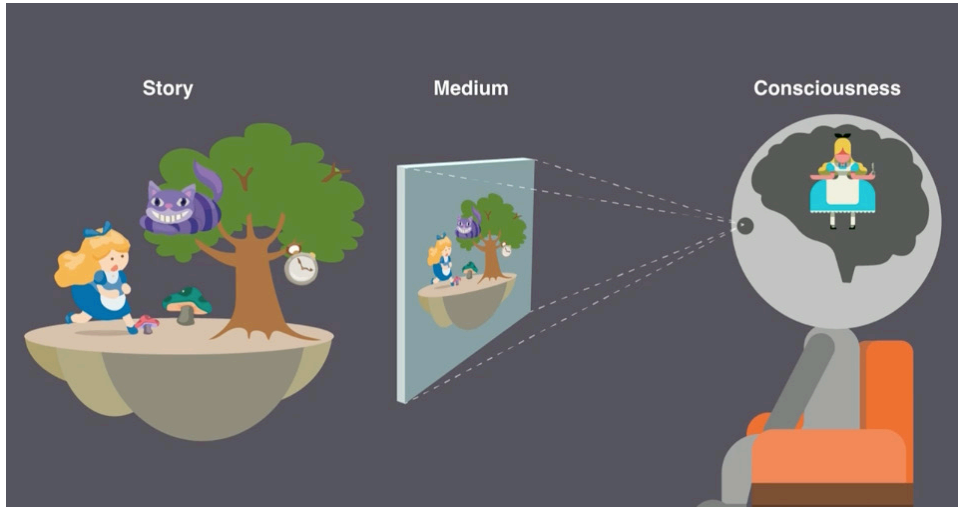
Our brains our plastic.
Meaning it can be altered.

Suspension of disbelief is preventing yourself from not believing in what you are currently percieving.

It is a method of allowing your mind to wander.

An **illusion of presence** can be produced to the mind by using specific methods.

These methods include: Stimulating senses by temperature changes and smell, strong visuals, and evocative descriptions.

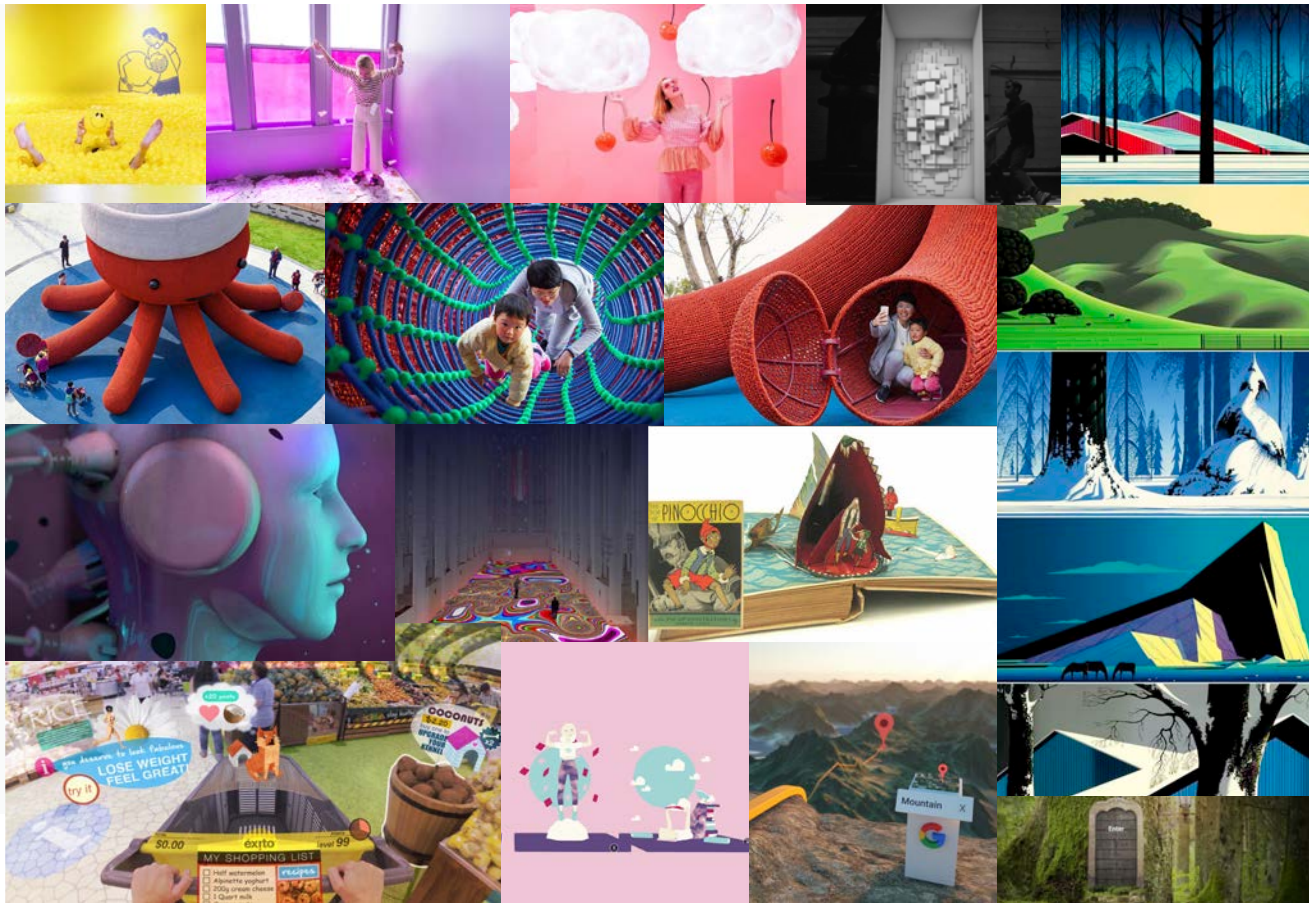


Using suspension of disbelief and taking advantage of neuroplasticity we can create embodied and immersive storytelling. These methods could even make us believe “a magic world in a rabbit hole”.

Immersion Exemplars

Immersion Areas Explored:

Non-digital Experiences
Critical Design
Interactive 3D models
Mixed Reality Art / Design
VR Branding
Evocative Words
Books / Pop Up Books
AR Books
General Use Cases of VR
General Uses Cases of AR
Immersive Maps



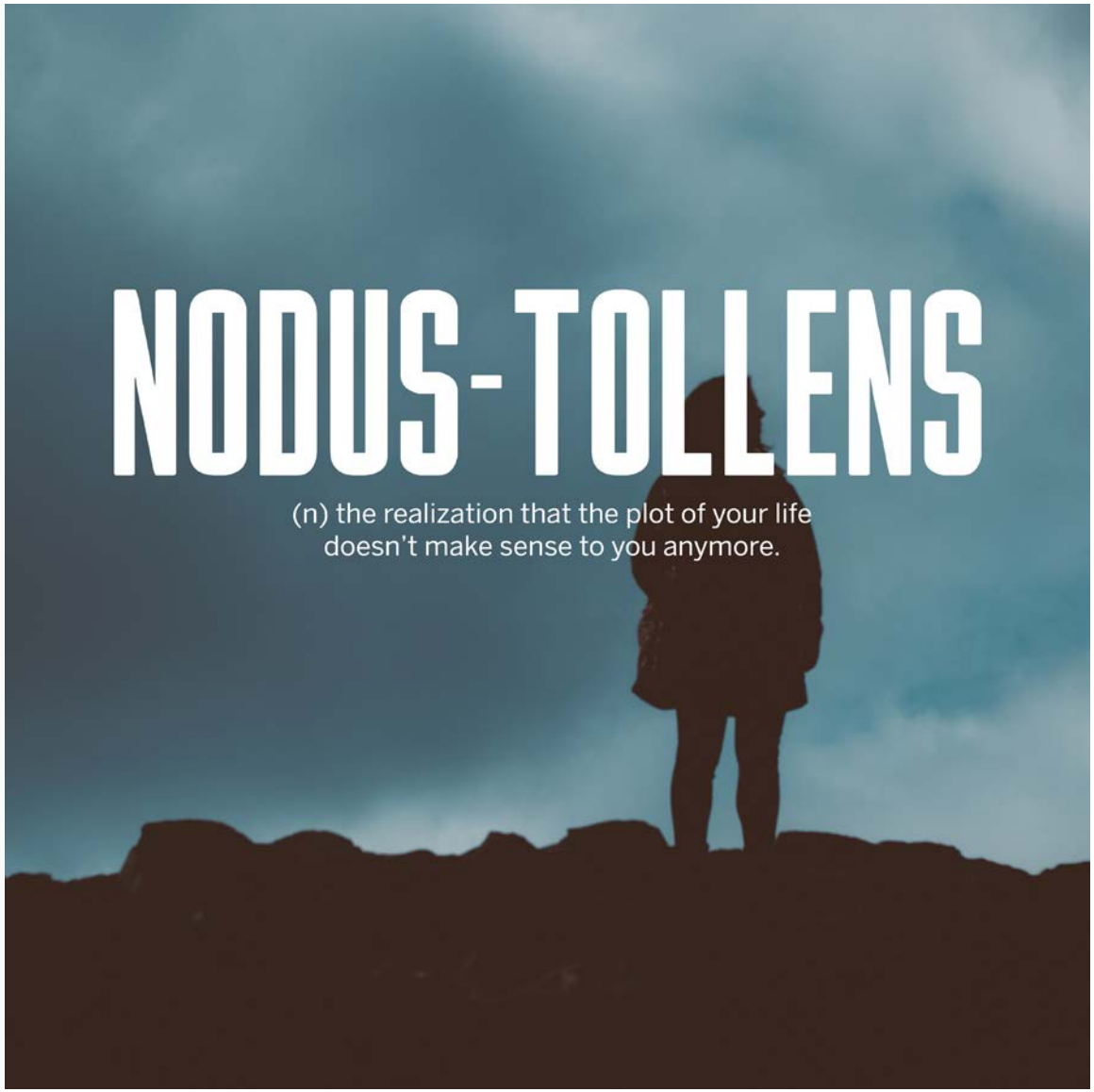
My **goal** in the curated images above was to find examples of cases utilizing the feeling of being immersed through visuals and storytelling among these domains.

Dictionary?

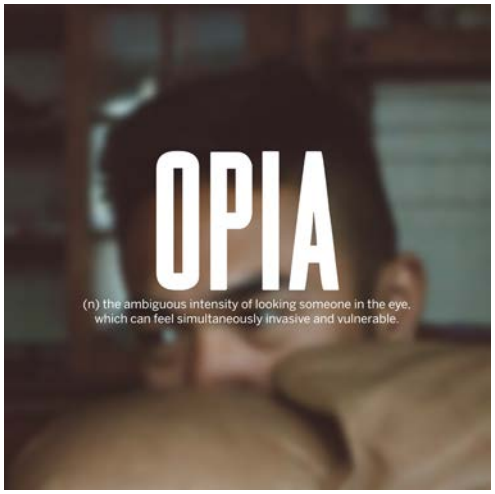
I handpicked a collection of specific words to look closer and exploit every day elusive moments that are usually taken for granted and passed through our subconscious. They are to help fill the language of emotion and create emotional empathy. To make people feel less alone knowing other people feel these emotions too. We often use short labels to describe our emotions (i.e. “good”, “stressed, tired etc.”), but there’s a mile between “tired” and “exhausted from being in the wrong career.” When labeling emotions accurately, we are more able to discern the precise cause of our feelings. Investigating emotions more honestly will help us for example discern if feeling angry at a news report has deeper meaning to some internal anger.

And it is a compilation of words from different languages. Many of the words are not found in the English dictionary.

Why so many Japanese words?
Japanese and Chinese words have many words that have deep meanings and define elusive moments in life that English does not.



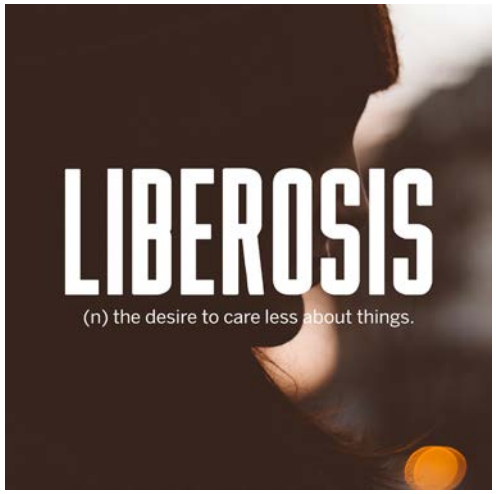












“Ability to realize emotions and be more honest about them will help us be more productive as people and create “emotional diversity”. Being emotionally truthful can promote creativity.”

-Susan David


OCCHIOLISM
(n) the awareness of the smallness of your perspective.


HIRAETH
(n) a homesickness for a home you
can't return to, or that never was.


UKIYO
(n) literally "the floating world" - living in the moment,
detached from the bothers of life.


KOMOREBI
(n) sunlight filtering through the trees.

Why Virtual Reality?

Words can only say so much.

Because of its immersive nature, VR has more of an emotional impact and creates more empathy than most ways of communication and storytelling.
XR has a high potential to get people to care about something that they wouldn't otherwise. It is an "antidote for apathy".

It adds life and engagement to definitions through visceral sensations and real-life scale.

It gives perspective and imagery to emotions and moments people experience all the time.

It shifts cognitive load by making the visuals do the work for you. According to Miller's Law, our working memory is 7 items or less. The animation and visuals chunk the items together. Moreover, it does the thinking for you so you can be more in tune with the experience.



Paradigm Shift

Virtual Reality and User Experience

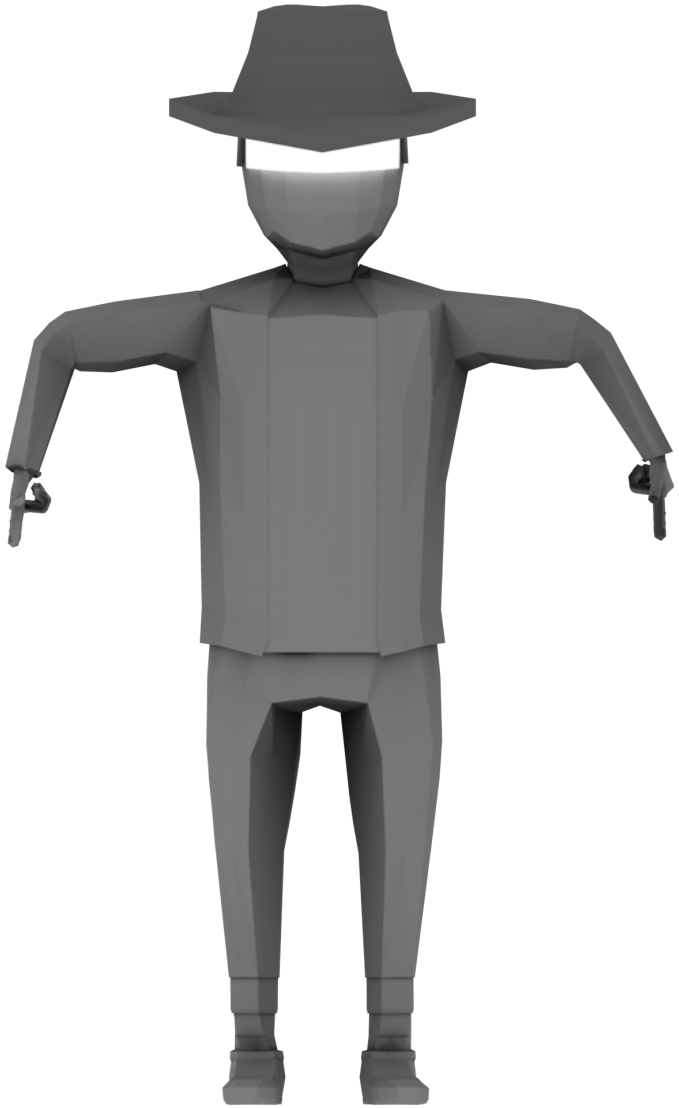
It's the wild west for VR.

From an HCI user experience perspective, I had to think of creating new ways to experience and interact in VR that is human centered. Moreover, how to introduce the user into the new reality without it being unsettling. To do that, creating an **onboard experience** is necessary. A lobby space in the beginning helps make up for the overwhelming immersion that VR has on first time users.

VR typography: I also had to think in terms of user interface and spatial design (i.e. how big the text is, how close users are to objects). Also, it is important to keep in mind about the UI/text being big and in the center of field of view rather than reading from left to right in mobile design.

Design with purpose: Known principles carry over as well, such as making the UI as simple as possible to not bombard the user with virtual elements and retain a good frame rate. But you also need to keep enough to maintain immersion.

Motion sickness: Prevented by creating focus points and limiting fluid movement.



“Affective VR”

Affective computing is computing that relates to, arises from, or deliberately influences emotion or other affective phenomena (Picard, MIT Press 1997). How does virtual reality influence our emotions? How can we use VR to encourage us to think differently and understand others in actual reality? Can virtual experiences help us understand every day to obscure real life situations?



Research

Main goal of research activities was to gain insights form a variety of people's opinions from different backgrounds. To avoid being biased of my own experiences it was important to get input from others. Everyone has their own set of biases and backgrounds. I needed various responses so I could create general content that can engage and reach more people. Part of my goal is to show how people with different life experiences can share similar emotions.

I tried to formulate activities that got people comfortable to express themselves in order to receive honest feedback. I was trying to get people to talk about memories and deep emotions so my interactions only involved face to face conversation.

Data Collection Methods

Emotion probe sessions
Presenting exemplars of evocative words and descriptions of specific situations and emotions. The purpose was to help facilitate conversation and elicit reactions about every day to sensitive topics.

Unity Demo
To further gauge conversation of a virtual dictionary, I created a rough demo for people to interact with as a first person controller in Unity.



Emotion probe sessions



Unity Demo Scene

Evaluation Insights

Words and descriptions act as a great experience sharing probe.
After my "emotion probe sessions", I found that most did relate to the emotions and situations in some way and they immediately felt the need to share their experience of the presented emotion, situation, or word
Also, I saw the benefit of using this concept as a conversation and storytelling probe. And if not a conversation probe, a reflection probe. I saw my evaluators reflecting hard on their own experiences and how they relate to it in their own way. **Big insight:** Immersive storytelling probes others to become storytellers and reflect on their own story!

Design / Prototype

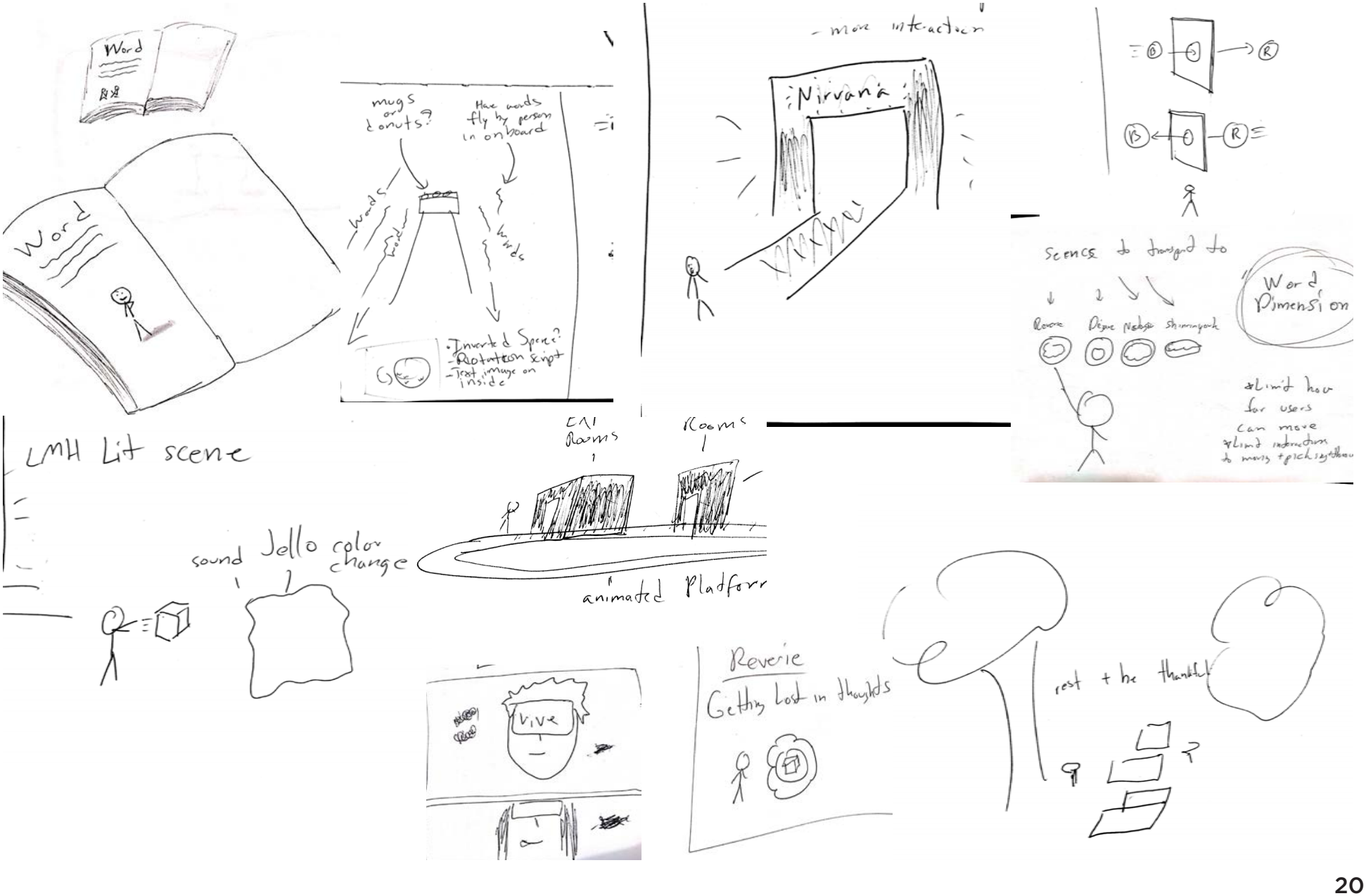


Immersion Method

To achieve my prototype's goals of immersion and empathy, I utilize the juxtaposition of the two different tools: **written descriptions and virtual reality**. The pair is meant to promote each other. The visuals and interactions foster the story of the literal word, emotion, or description.



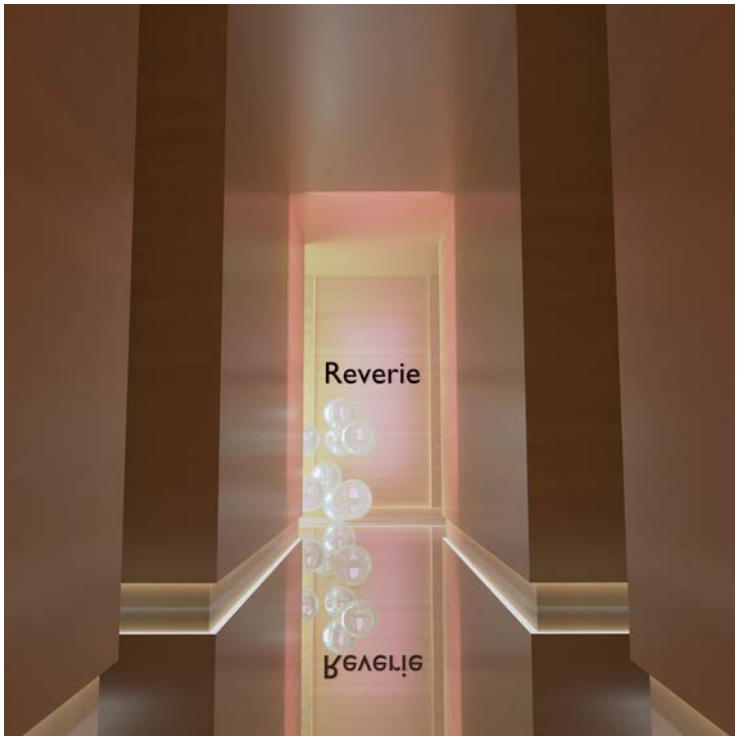
Initial Concept Sketches



Initial Onboard Concepts

The two renders of onboarding experiences we're created with the idea of offering the person "choice". This is a major component of immersion. It gives the person an active role in the experience. Also, I wanted to leave the onboarding experience simple, focused, and clear so the user knows exactly what to do in VR and leave the evocative/ extravagant experience for later.





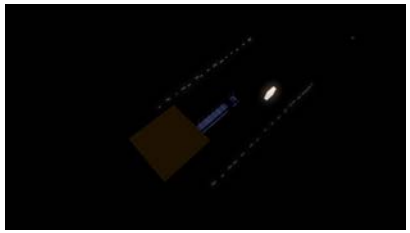




Space Lobby: Onboard Experience

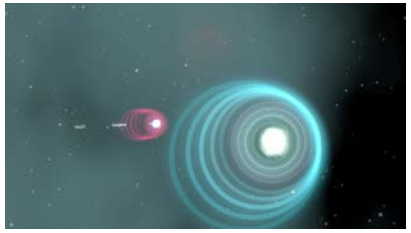
The starting world that leads you to the dimensional dictionaries.

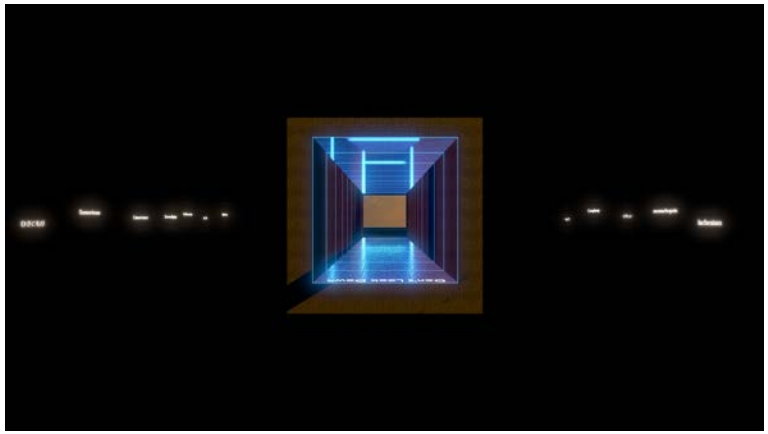


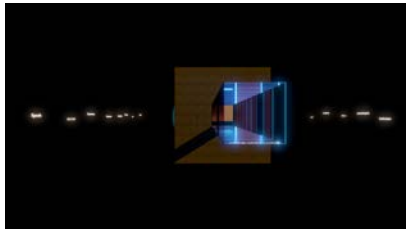


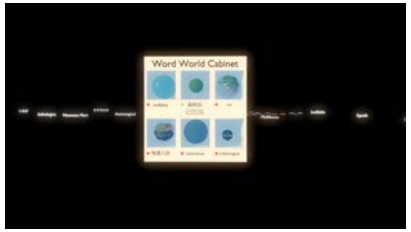












Onboard User Test

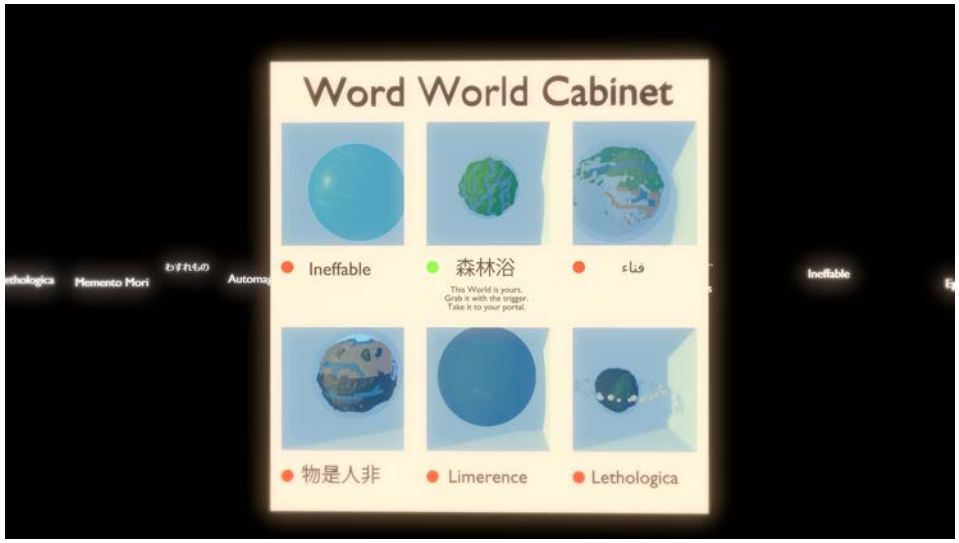
User interacting with space lobby onboard

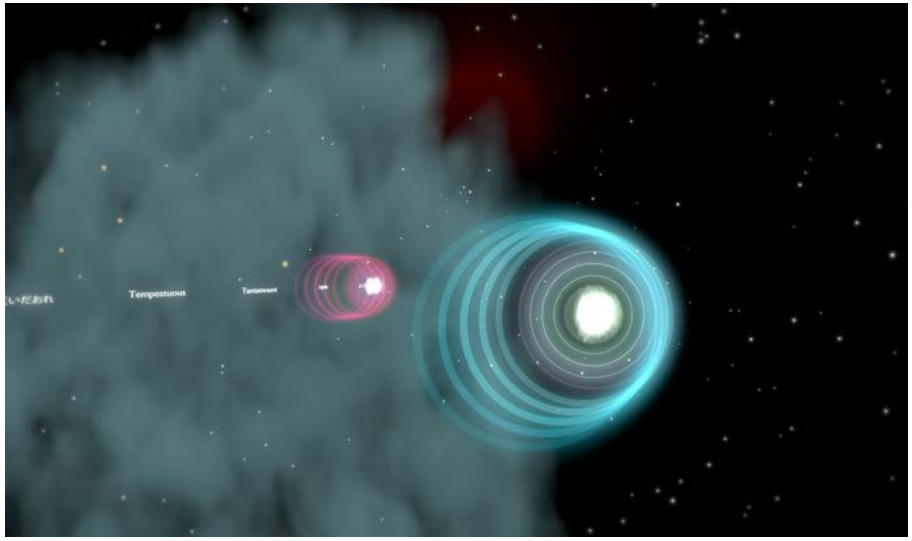














Word World Cabinet

The worlds are dictionaries.
Each world has a collection of words. As portrayed below, in the experience you will find six of the dimensional dictionaries.



Kanji translation: “Shinrin-yoku”

Green light indicates that this dictionary is active.

Dimenional Dictionaries

In this prototype, I introduce one example of a dimensional dictionary: “Shinrin-yoku”. It is the idea of immersing yourself in a forest for self-reflection and appreciation for the world around.

Keeping separate dimensions instead of one with a pool of unrelated words keeps a holistic theme and focus for a person’s experience.

I wanted to create a world that promotes reflection rather than explicitly telling the person to reflect on their emotions. The idea of forest bathing in this experience is a metaphor for taking time to become aware of the self and one’s surroundings.





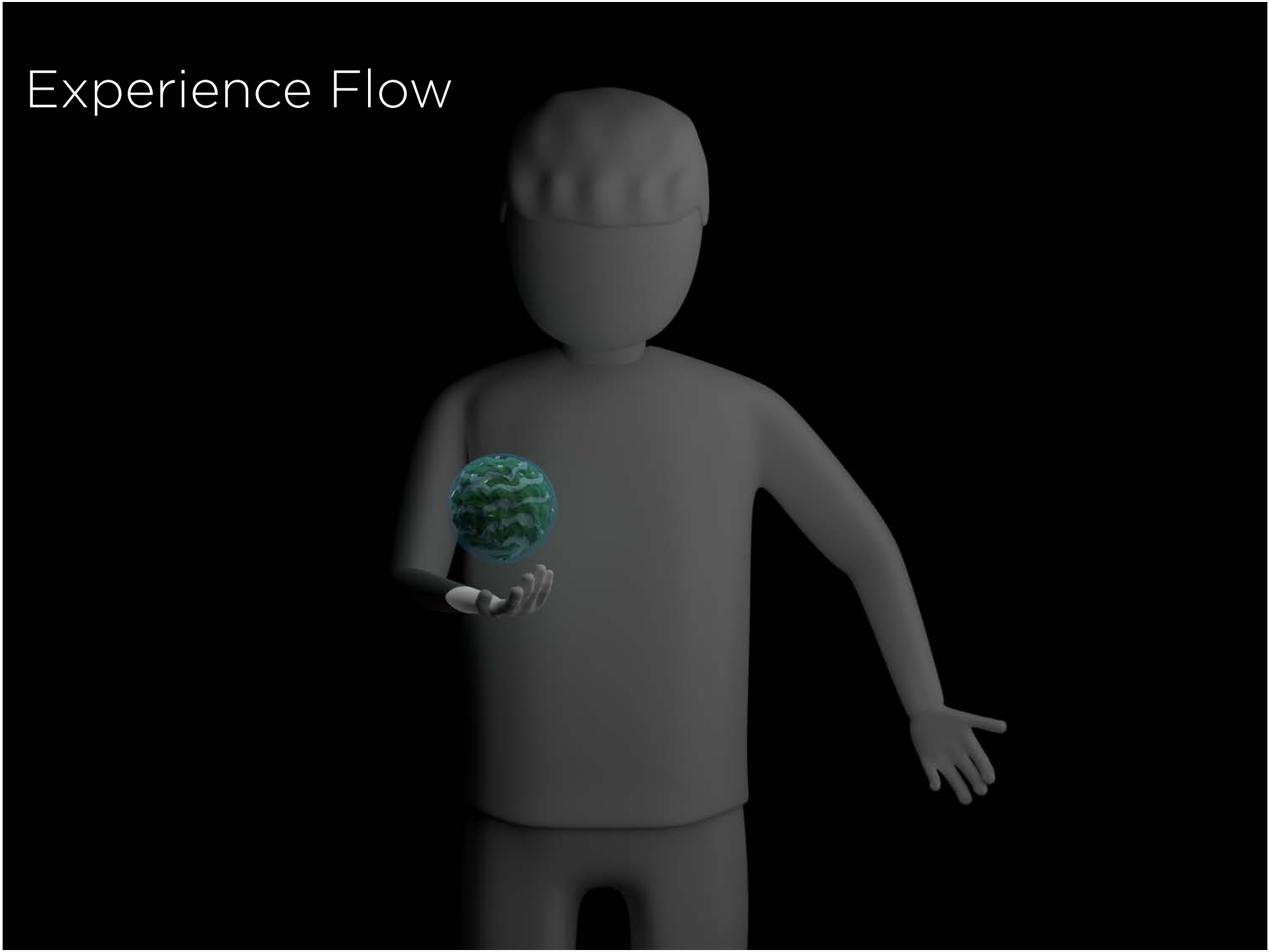
Shinrin-yoku

n.

Literally meaning “forest bathing” or “taking in the forest atmosphere”.
The immersion of yourself in the forest for relaxation and to improve one’s health.
A method of preventative healthcare and healing in Japanese medicine.
A gentle path to wellness accessible to almost everyone.

An experience that actively engages one’s senses and may create an altered state of mind that makes one feel absorbed in a world other than the place one currently is in.

Experience Flow



Experience

Onboard Space Lobby

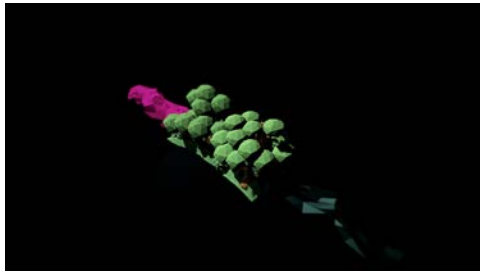
From the onboard, a person approaches the “Word World Cabinet”. They then can choose a dimensional dictionary and take a world to use it as a key to open a portal that leads to the selected dimensional dictionay.





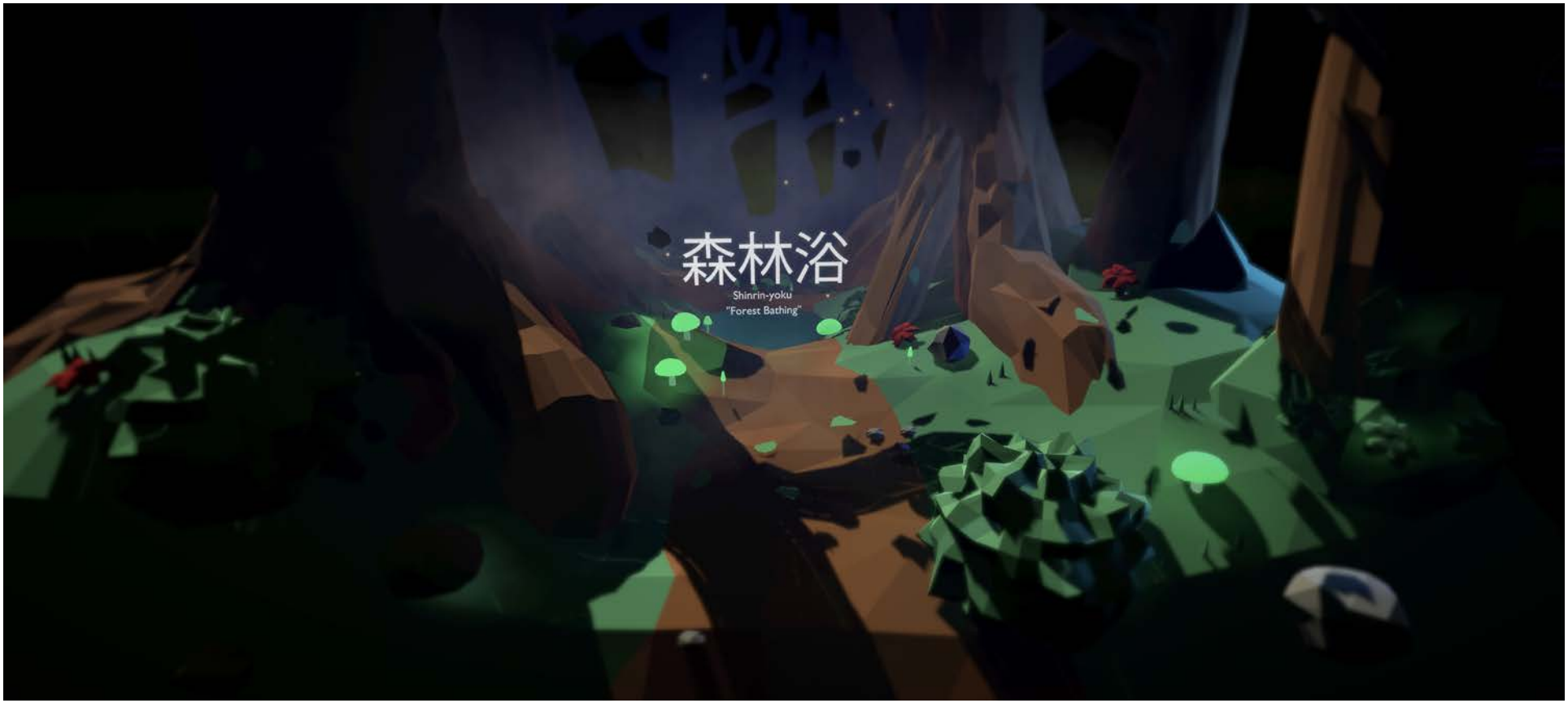
Experience

Entry Forest



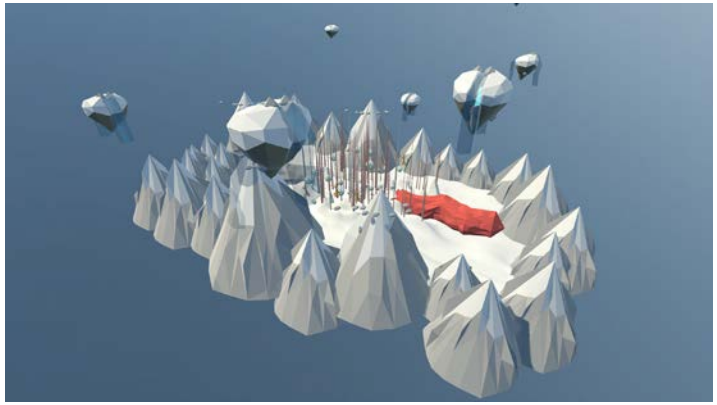


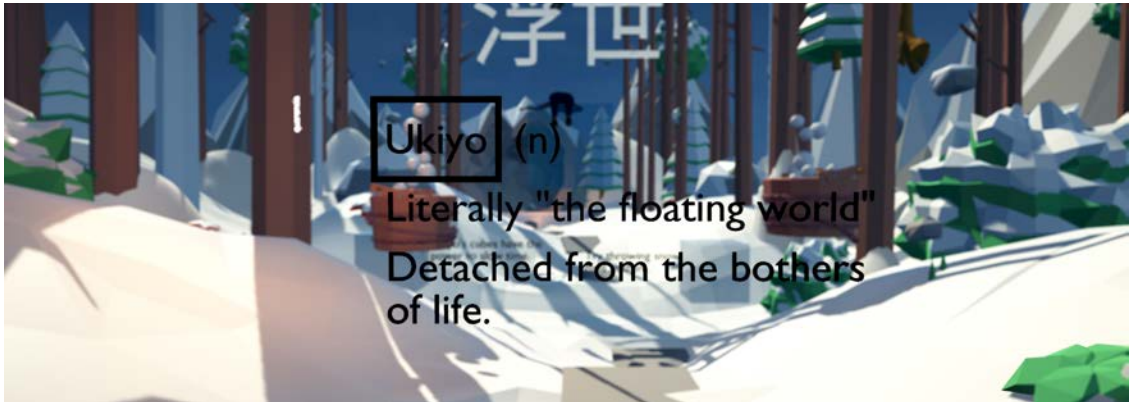




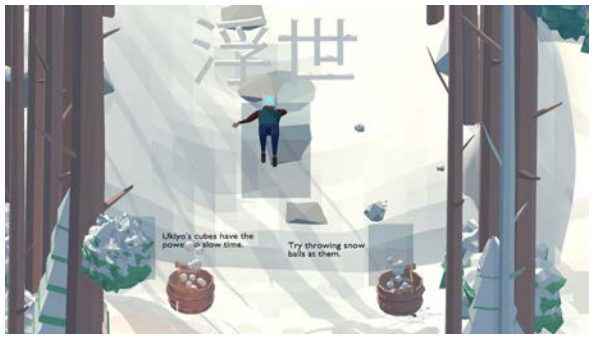
Experience

Ukiyo Forest





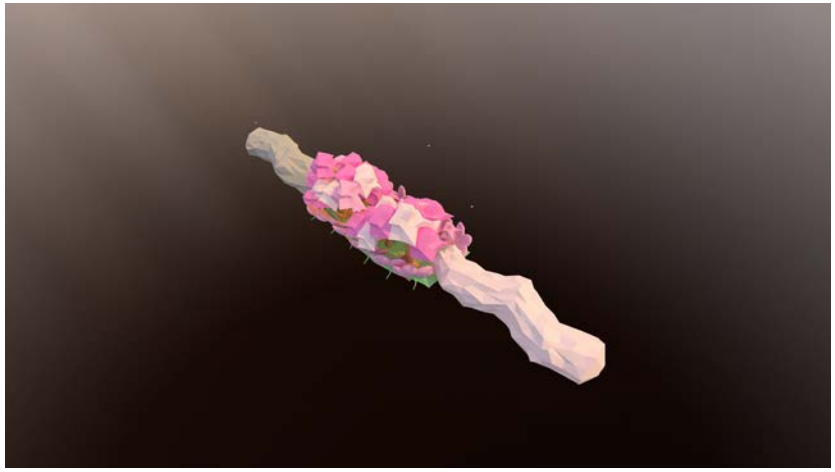


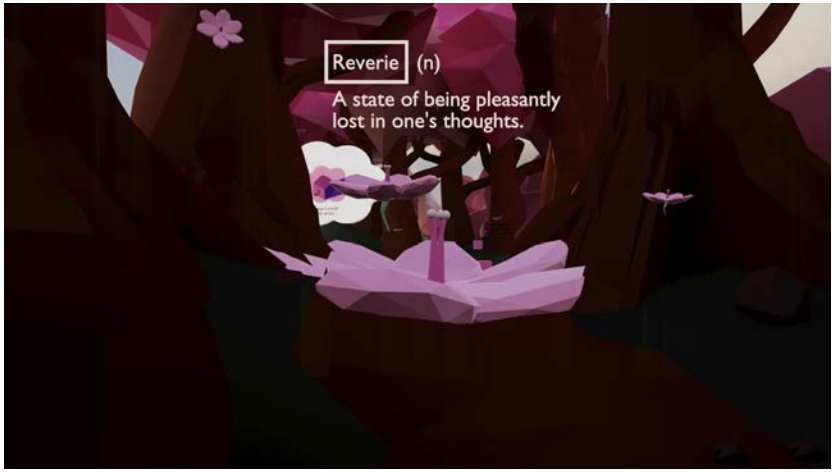


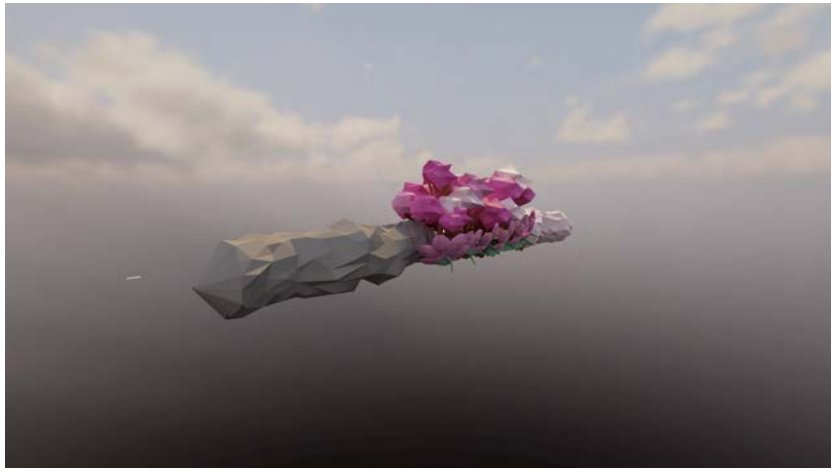


Experience

Reverie Forest



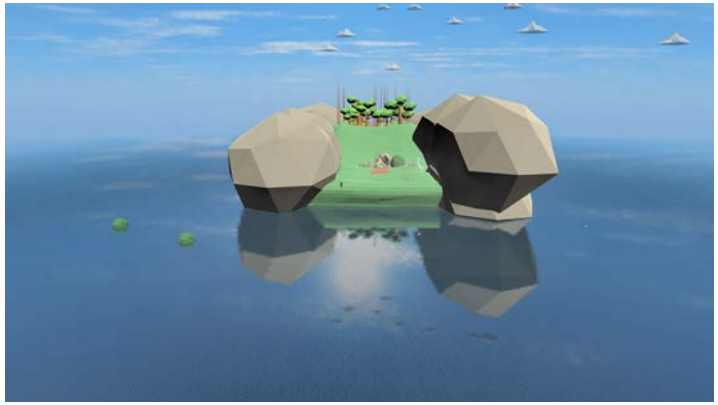




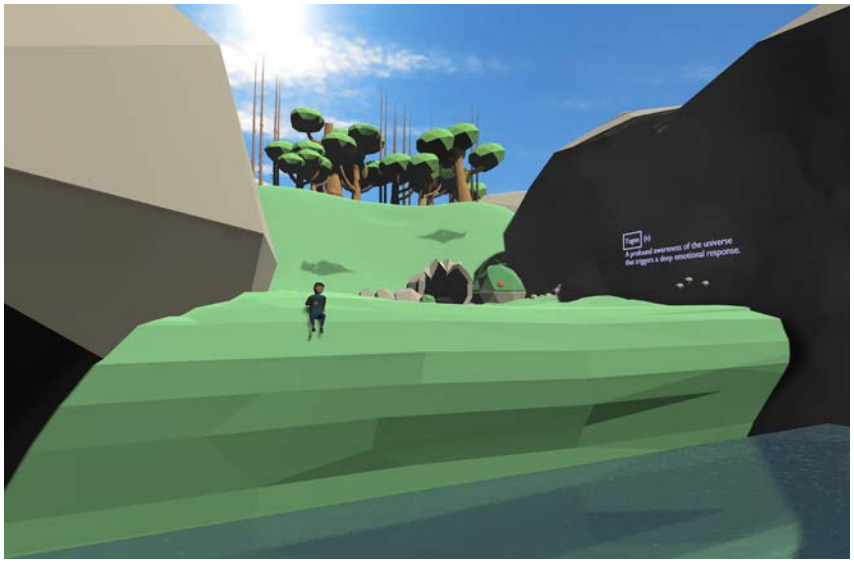


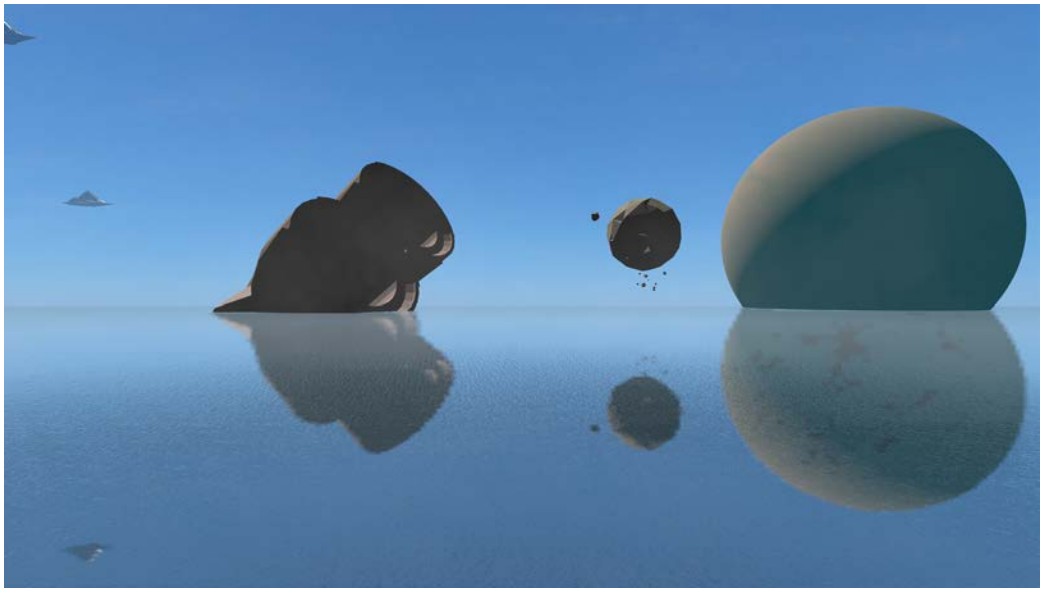
Experience

Ends World







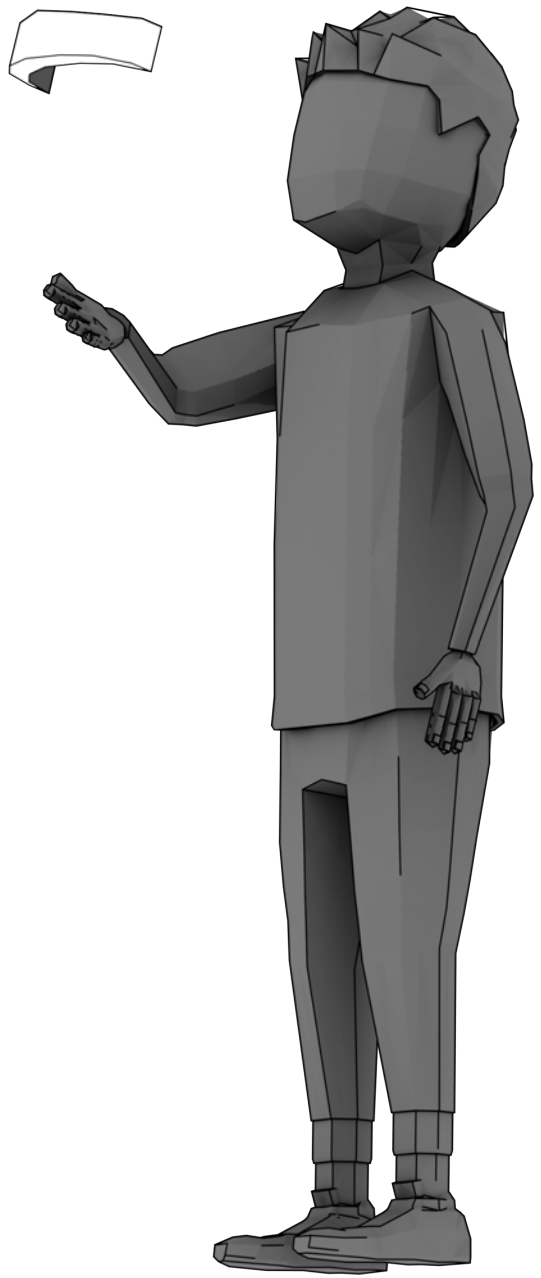


After-the-fact

Along with introducing new textual interactions, the main takeaway is **not what happens in the headset but what you have when you take it off.**

When the person steps away from the experience, how have they changed?

The overarching goal of this VR experience is seeing what you take with you back to “reality”. To have people digest the information and new stimuli from the virtual world and be able to ask how they can implement the experience in the real world.



Final Remarks

Pivots
My main struggles included trying to do too many things at once. I had an overflow of ideas and concepts but I was keeping them all in my head and on paper. But I did not start building the ideas until it was too late that I had to seriously constrain what I was going to build for the final.

Key decisions in the design process.
- Constraining to VR instead of the original idea of an augmented reality book.
- Deciding to make one coherent VR experience rather than multiple mini interaction rooms.



Future Considerations
"If I had more time.."

Due to time limitations I was forced to have hard constraints on my design. If given more time I would have liked to make the experience less literal. I would reduced the amount of words in the experience as much as possible. My original plan was to be able to tell stories, teach words, and emotions using exclusively visuals.

I would like to explore different content, such as replacing the words with music.

I would want to consider more ways of creating deeper immersion such as exploring the use of different body senses such as smell.

I would have liked to create higher fidelity interactions and more "dimensions" or worlds to enter.

I would create an AR version of this and make an augmented book.

Lastly, I would also explore different use cases for my design such as VR branding.

Big thank you to Professor Chabin who lent me his HTC Vive, my Capstone mentor, Cyn Szuyuliu, and the rest of the Kapstone Kool Kids Klub.

Textual Resources:

Flow Experience and Educational Effectiveness of Teaching Informatics using AR
Giasiranis, S., & Sofos, L. (2017). Flow Experience and Educational Effectiveness of Teaching Informatics using AR. Journal of Educational Technology & Society, 20(4), 78-88. Retrieved from http://www.jstor.org/stable/26229207

Digital Visual Effects in Cinema: The Seduction of Reality
PRINCE, S. (2012). Digital Visual Effects in Cinema: The Seduction of Reality. NEW BRUNSWICK, NEW JERSEY; LONDON: Rutgers University Press. Retrieved from http://www.jstor.org/stable/j.ctt5hj5pv

A New Approach Toward Digital Storytelling: An Activity Focused on Writing Self-efficacy in a Virtual Learning Environment
Yan Xu, Hyungsung Park, & Youngkyun Baek. (2011). A New Approach Toward Digital Storytelling: An Activity Focused on Writing Self-efficacy in a Virtual Learning Environment. Journal of Educational Technology & Society, 14(4), 181-191. Retrieved from http://www.jstor.org/stable/jeductechsoci.14.4.181

Augmented Reality Applications in Education
Antonioli, M., Blake, C., & Sparks, K. (2014). Augmented Reality Applications in Education. The Journal of Technology Studies,40(1/2), 96-107. Retrieved from http://www.jstor.org/stable/43604312

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Pausch, Randy, Snoddy, Jon , Taylor, Robert , Watson, Scott , Haseltine, Eric, University of Virginia, Walt Disney Imagineering. (1996). Ivizlab.Sfu.Ca. Accessed January 30 2018. http://ivizlab.sfu.ca/arya/Papers/ACM/SIGGRAPH-96/Storytelling%20in%20VR.pdf.

Char Davie's Immersive Virtual Art and the Essence of Spatiality
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Mixed realism: Videogames and the Violence of Fiction
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Images:

Suspension of Disbelief Image: "Embodied Storytelling". Credit to Yedan Qian at the IXD18 Conference. Lyon, France.

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Everything was modeled, textured, and composed using the free modeling software, Blender, and the game engine Unity.

Some textures were adapted using free images online including planet textures from "duael" image textures http://freebitmaps.blogspot.ca/

Code for interactions and animations was adapted from the Unity community.