FIGURE OUT

Degree Project For Bachelor Of Fine Arts In Design

Main Field Of Study Industrial Design

2021

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LUND
UNIVERSITY

Figure Out

by

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Degree Project For Bachelor Of Fine Arts In Design
Main Field Of Study Industrial Design

From Lund University School of Industrial design, Department of Design Sciences

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Assistant Supervisor: Lecturer Therese Eklund

2021

Sammanfattning

Detta projekt inleds med mina tankar kring den kreativitetsminskning som ofta inträffar hos barn vid skolstart. Jag vill förstärka vikten av den kreativa leken för utvecklingen av problemlösningsförmågor. Efter några användartester med min prototyp inser jag att utfallet av dessa inte samstämmer med min egen teori om spelets funktion. Projektet tar en ny vändning och jag väljer att designa ett brädspel för en äldre målgrupp. Grundtanken är att utmana den visuella kommunikationsförmågan genom ett fantasistimulerande brädspel och samtidigt umgås.

Abstract

In this project, I start by addressing the issue of the creativity decrease that happen within children when they start school. I wanted to emphasize the importance of creative play to develop problem-solving skills. After I ran some user tests, my project took a new turn and instead I started designing a board game for an older target group. The aim of the game is to improve the visual communication skills and embrace the social value of gathering and playing a fantasy-stimulating board game.

CONTENTS

INTRODUCTION

Aim

The aim initially was to focus on the development of problem-solving abilities and creative thinking of children. To create a product that children could interact with to benefit their cognitive skills and stimulate their imagination. The type of skills that would help them throughout their entire life. The environment and circumstances that we grow up with define a lot of our abilities. How we play and what kind of products we interact with as children have a significant impact on developing our physical, mental and social skills.

Motivation

My childhood is a robust and rich phase of my life that projects a lot of who I am and what I do today. The playfulness that I grew up with can be seen clearly through my projects during my first two years In my education. In my first year, I designed a storage unit for plushes, and in my second year, I created a rocking whale. It was convenient for me at the beginning of this project that I'm also going to design a children product.
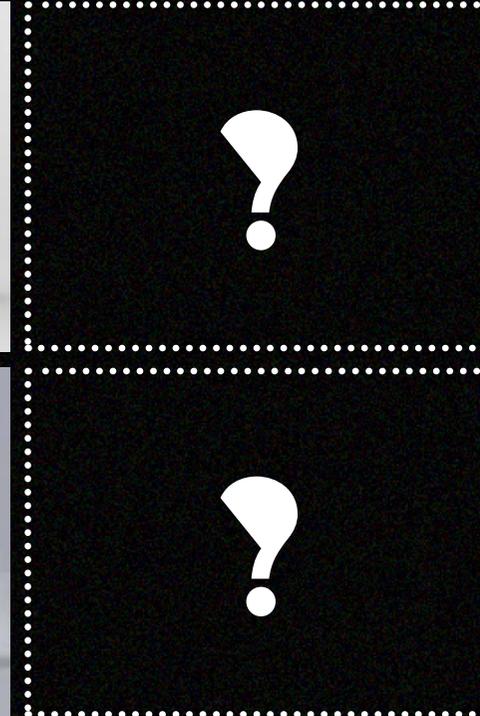
Industrial Design Project A
2019

Design Methodology
2020

Bachelor Project
2021

Method

Taking the first steps in this design process by reading books and articles that touch on the subject helped me to get a better understanding of creativity and its elements. Taking a look at the historical iconic toys and looking at today's market gave me a good view of the wide range of these kinds of products and helped me with my concept selection. After making some prototypes, I did a home visit to do some user tests. The results of the user tests made me reconsider my project and shifted the whole direction of the progress. I went back and chose one of my earlier concepts and focused on one of its qualities to move forward. An update of the targeted group was necessary, and the new aim became focusing on visual communication skills. The outcome became a board game that I had to create several prototypes for and run a few user tests to develop.

Circumstances

This project happened in the spring of 2021, during the Covid-19 pandemic. This situation led to many challenges during the design process. As all education had to be conducted on distance, I did not have the opportunity to use workshops to build proper prototypes. Most importantly, due to social distancing, I could not perform many user tests, which would have been essential in the design process.

Project timeline

Introduction

analyses

research

synthesis
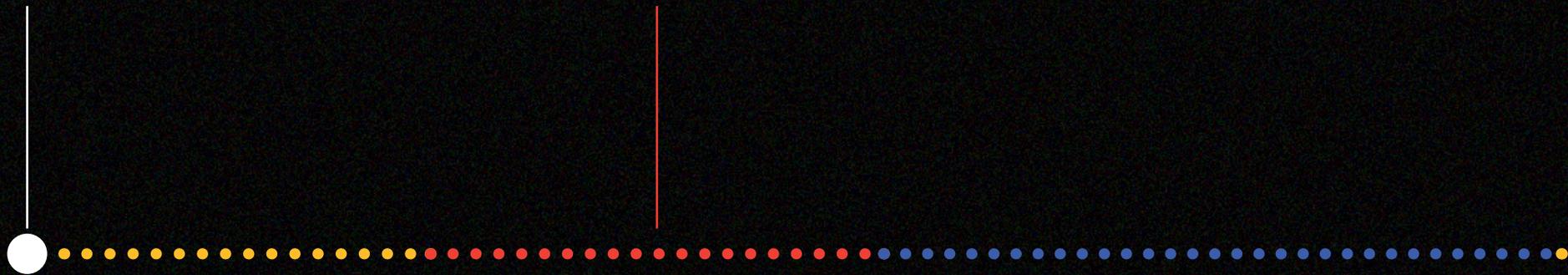
realisation

synthesis

KICK OFF

Final Presentation

RESEARCH

My goal in this phase was to get a general understanding of creative thinking and problem-solving skills. It was vital for me to answer questions like "What is creativity?" "When and how do we develop problem-solving skills?" to start my journey.

The creativity decline study

Genius Level %

100 — 98%

32%

30 —

10%

Age

5   10   15
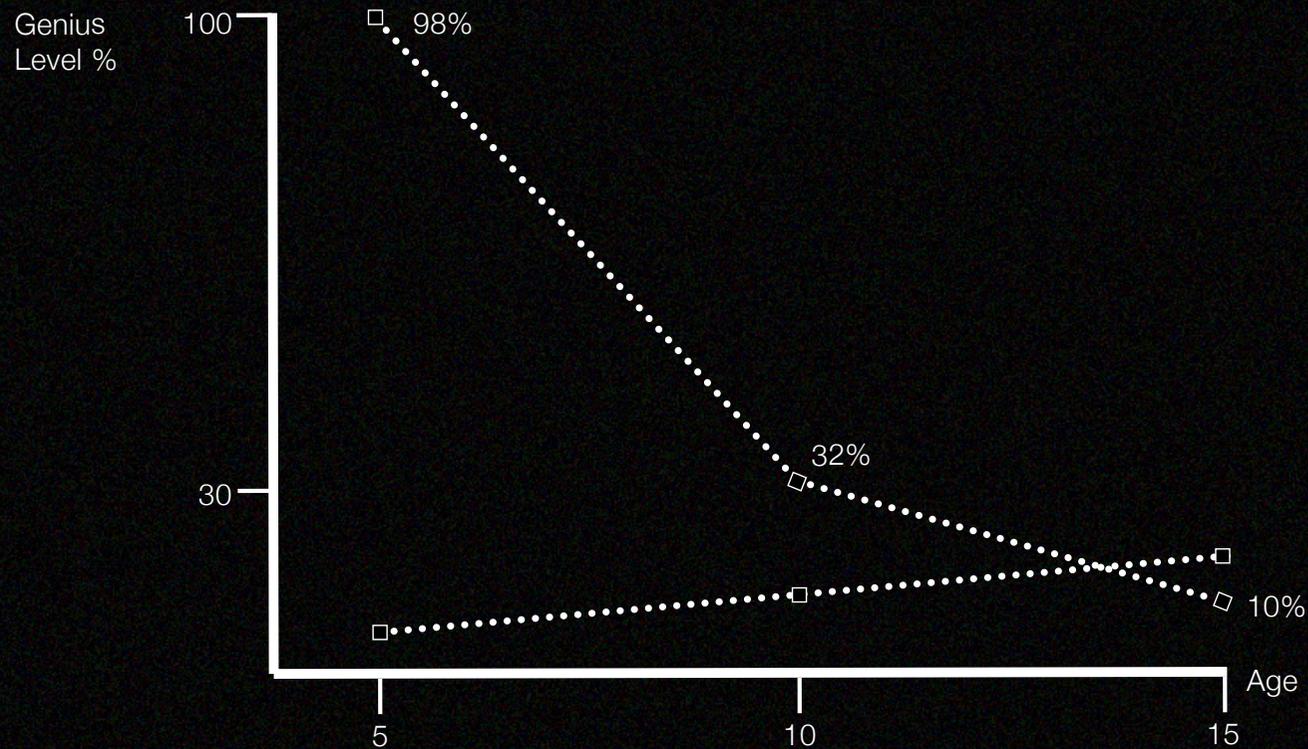
One longitudinal study by George Land and Beth Jarman found a decline in creativity as children became older. When the tests were first given to 1,600 three to five-year-olds, Land found 98% of them to score at a level called creative genius. But five years later, when the same group of children took the tests, only 32% scored at this level, and after another five years, the percentage of geniuses declined to 10%. The figure above illustrates the sharp decline in one measure of creativity as children get older. By 1992, more than 200,000 adults had taken the same tests, and only 2% scored at the genius level.

Looking at the models of classrooms and the way that these rooms are designed, we can see the similarity to the factory environments. The models of factories are developed to make factory workers, Which is not the most optimal for Young learners to stimulate their curiosity and creativity.

Why are we creative?
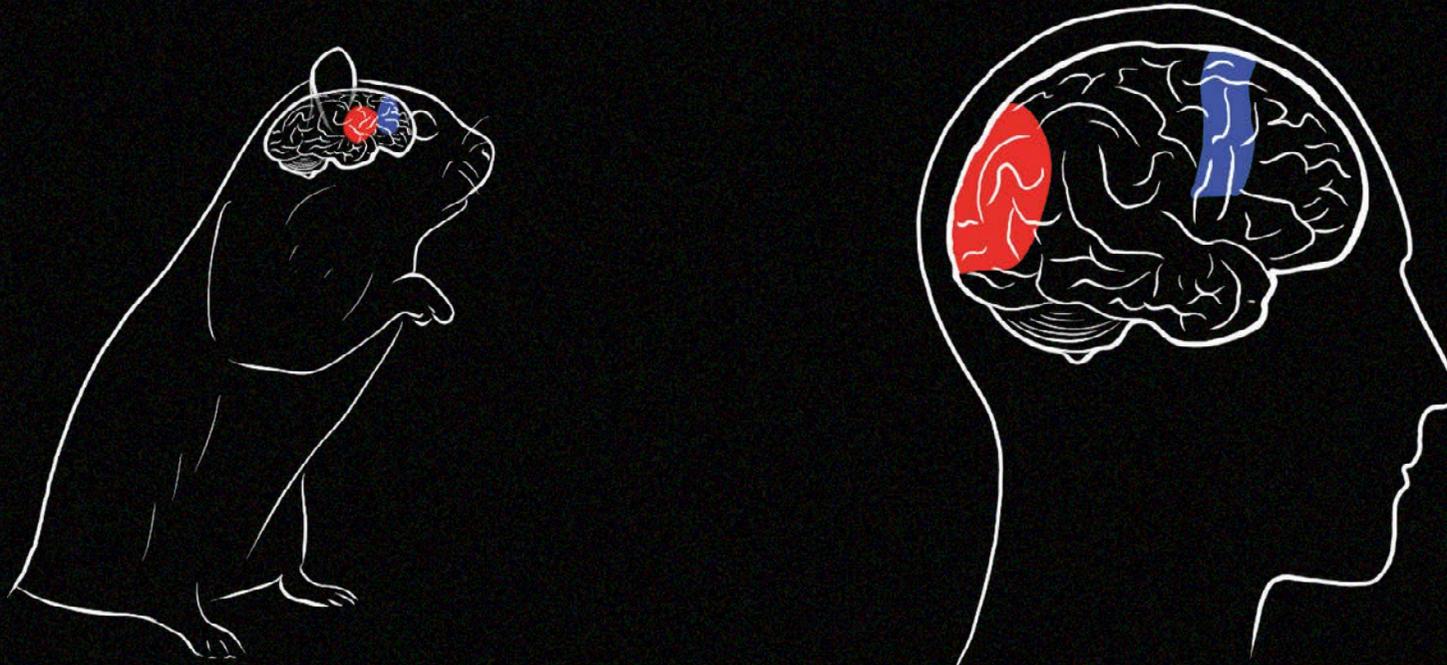
The American neuroscientist David Eagleman answers, "It's because of our unique wiring. In other animals, the input and output are right next to each other's direct path between the two. If animals see food which is the input, the direct action is to eat food which is the output. As humans, we disengage our instincts. During our evolution, there was an expansion of the brain regions between the input and output. Inputs can mix and collide with what's already there. Our brains can forge new pathways, make new connections. We process information in almost limitless ways. The numerous pathways in our brains are the foundation of our creativity."

After analyzing the aspects of creativity and going through different problem-solving operations, I started to create a connection. By choosing which kind of activities simulate these abilities, I was able to define what product I'm designing. Giving the children the ability to construct their toy and then pretend-play with it was the initial characters I wanted to integrate into my product.

Initial brief

Designing an item that children from three to five years old can interact with to stimulate their creativity and improve their problem-solving abilities.

What kind of playing?

Constructing and pretend playing were some of the qualities that I was focusing on. The reason why is that these kinds of qualities activate both imagination and spatial skills. Imagination and spatial skills are the types of tools that we usually use to solve problems creatively.

Keeping in mind the type of playing I'm focusing on, I decided to look at some of the iconic toys of the last century and analyze those different solutions.

History research
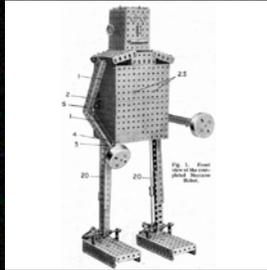
Meccano
1898

Geometric Solids
1910
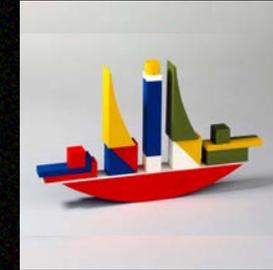
Bauhaus Bauspiel
1923

Wright Blocks
1949

Mr. Potato Head
1952

Animali Puzzle
1957

Lego
1958

Cuboro
1986

Cubebot
2010
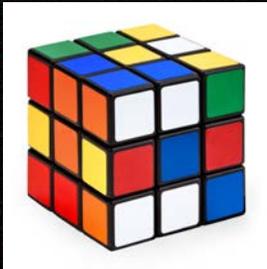
Rubik´s Cube
1980

Rainbow
1996

Rigamajig
2016

Market research

Assemblable

2D

Rigamajig

Price	3600 kr
Age	5+ years

Tegu

Price	910 kr
Age	1+ years

My Product
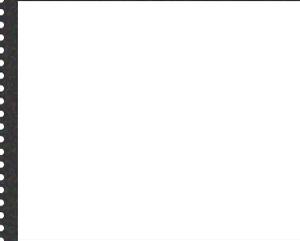
Price	????
Age	3+ years

3D

Golo

Price	130 kr
Age	3+ years

ShapeMaker

Price	1050 kr
Age	2+ years

Bauhaus Bauspiel

Price	1350 kr
Age	6+ years

Felissimo Kuum

Price	3700 kr
Age	3+ months

Unassemblable

Function	Class	Comment
Simulate imagination	HF	
Enjoyable	N	
Encourage curiosity	N	
safe for all ages	N	Even younger than the target group
Adaptable Complexity	D	The product can grow with the user
Sustainable	N	
Aesthetic value	N	It has its worth as a one piece

HF = Head function
N = Necessary
D = Desirable

The next step

After doing the different resources and analysis, I feel comfortable to start generating concepts and translating the theoretical knowledge to some practical solutions.

IDEATION

GRAPHIC GEOMETRY
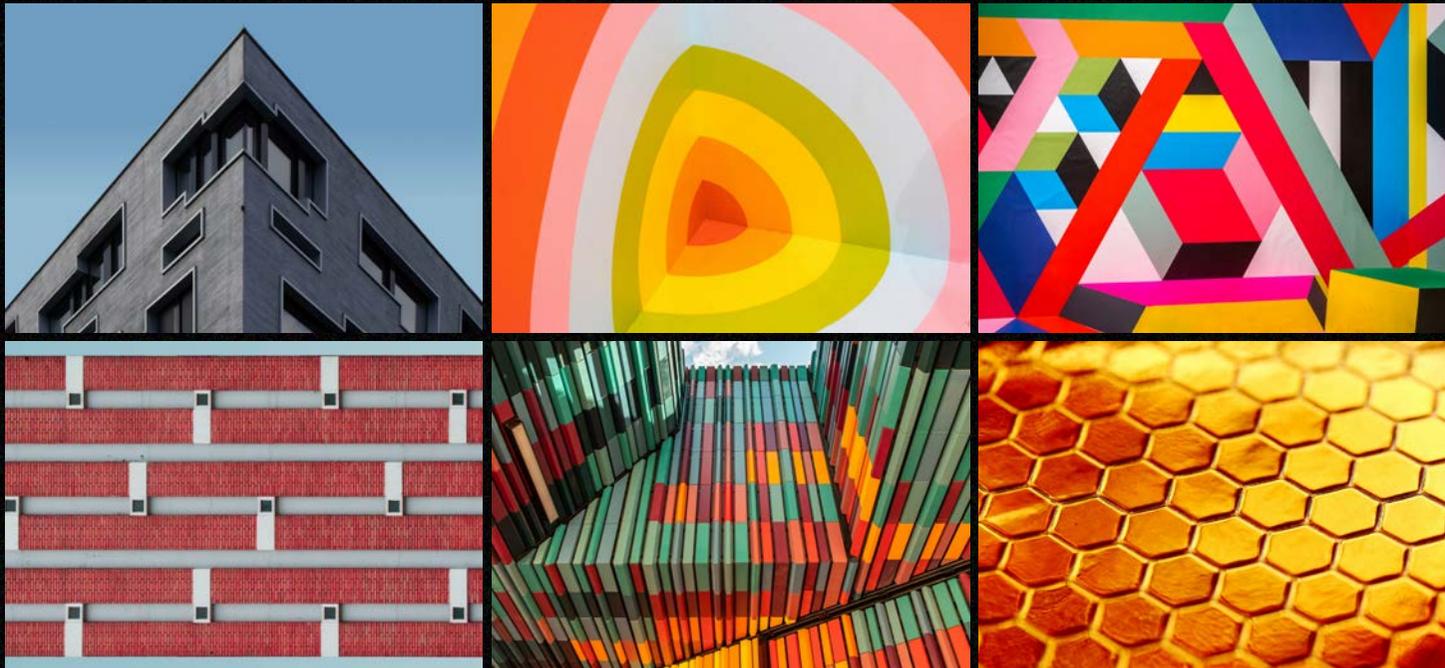
In this concept, I wanted to capture a set of cohesive geometric forms that have solid visual graphics that are working both in 2-D and 3-D

Sketching

The first concept was two sets of building blocks that offer a variant of geometric forms that help the child to visualize and create broad combinations of three-dimensional shapes and pictures from imagination
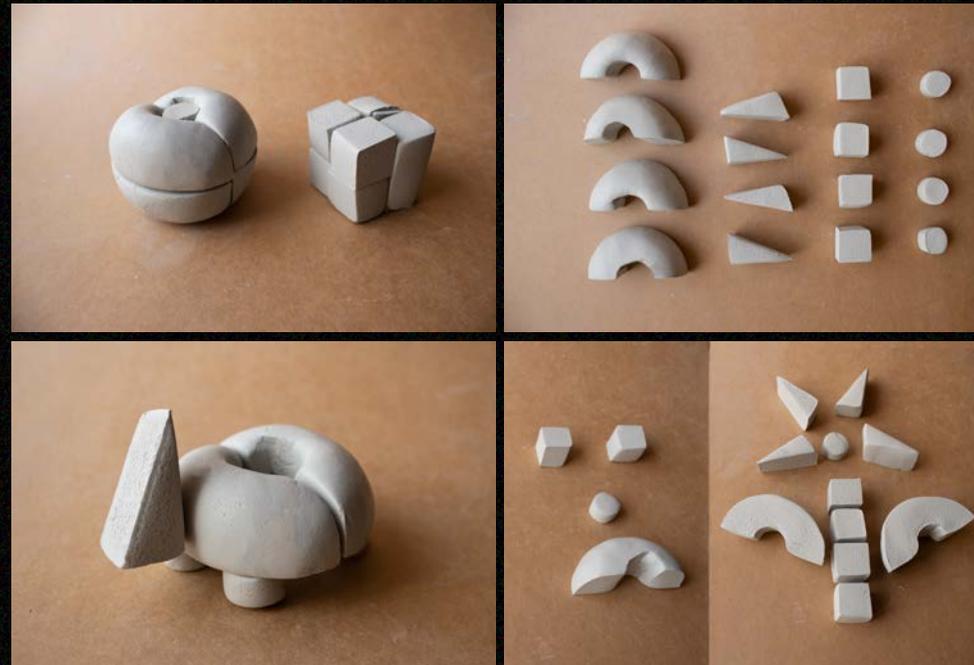
Creating clay models helped me get a sense of the volume and see how the parts work together.

STORYTELLING DEVICE

Seeing how the light travels through different colored layers of material to create new colors inspired me to develop this concept.
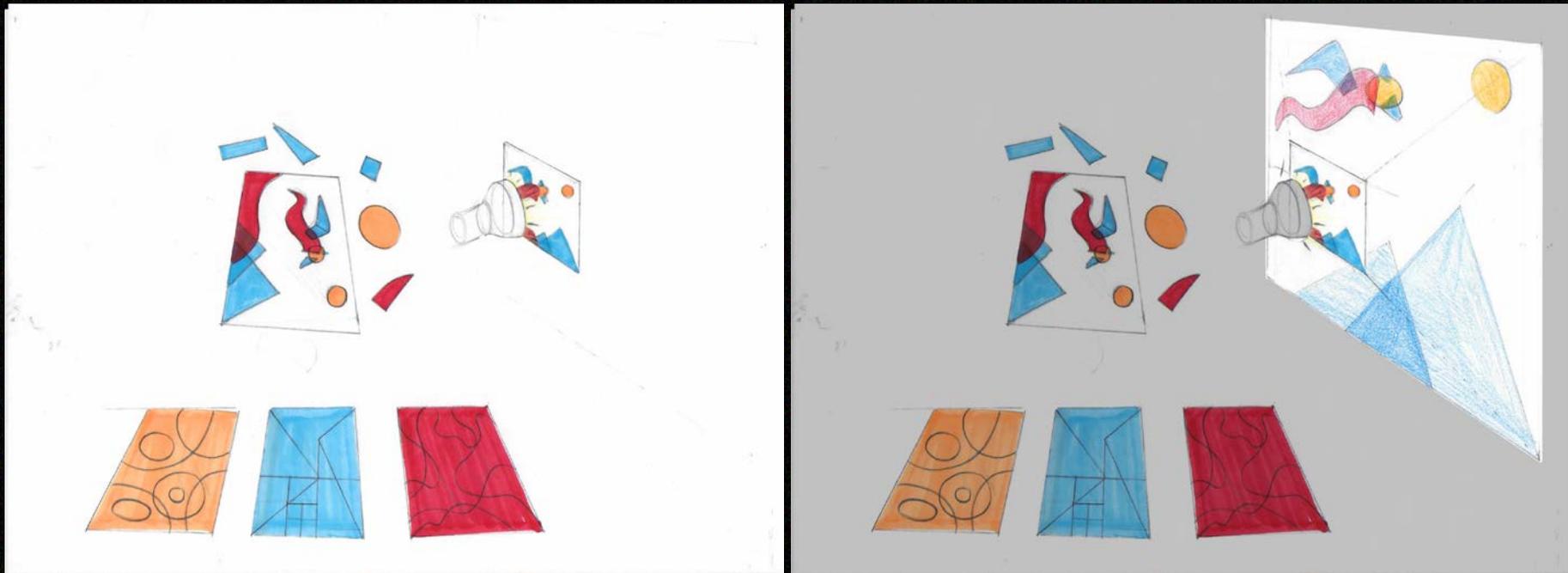
The thought behind the second concept was to create a storytelling device for children. The value of this concept was to let the children be involved in creating the story visually and in giving them the possibility to project it on a bigger scale.

Prototyping

I started prototyping with three sets of plastic folders to create a variety of shapes and colors.

I used a light board as an underlay platform to boost up the transparency.

MOBILE THEATRE

After getting inspired by the Chinese puppet shadow art and shadow manipulation with forms, I created this third concept.
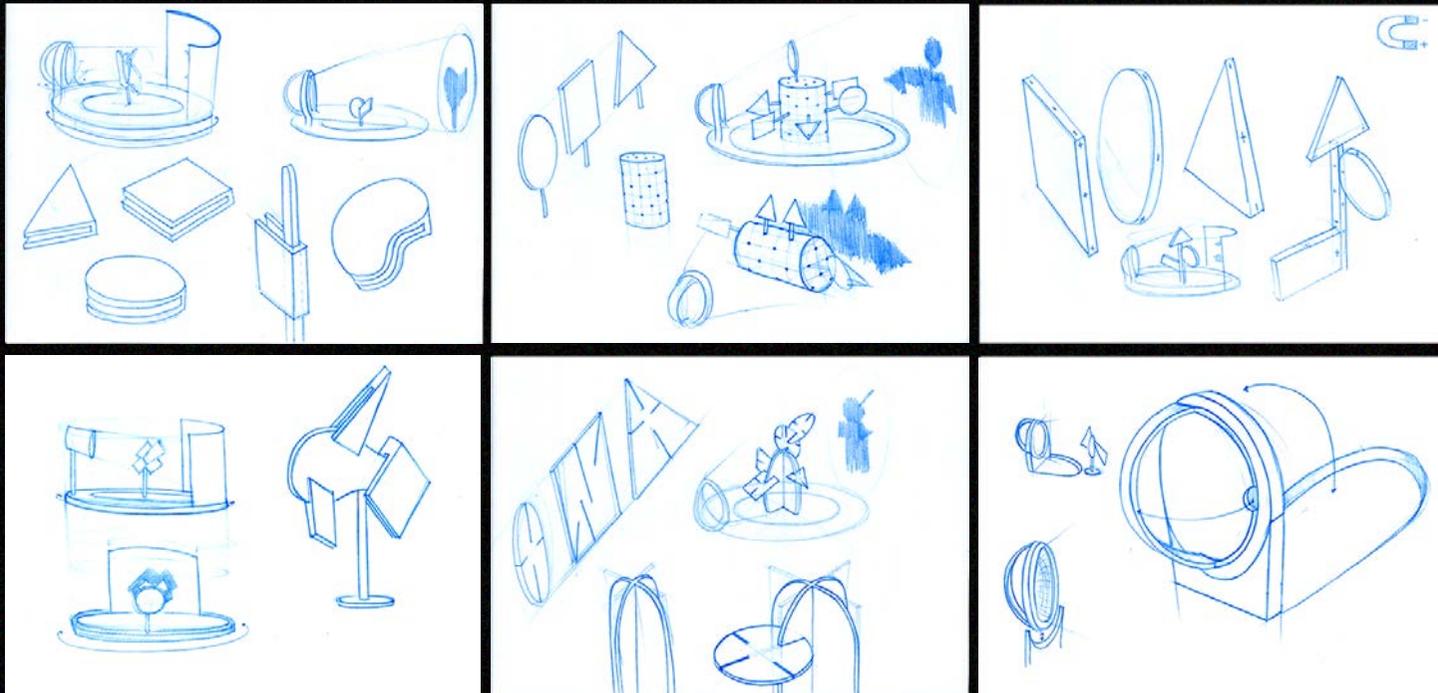
I wanted to give the child the possibility to create constructions with the help of 2d geometric forms and mount it on a platform. The platform is constructed to have a light source and projection panel for the shadow. My Initial thought was to have the building construction rotational, so the child would see different shadow silhouette by rotating the form in different angels.

Prototyping
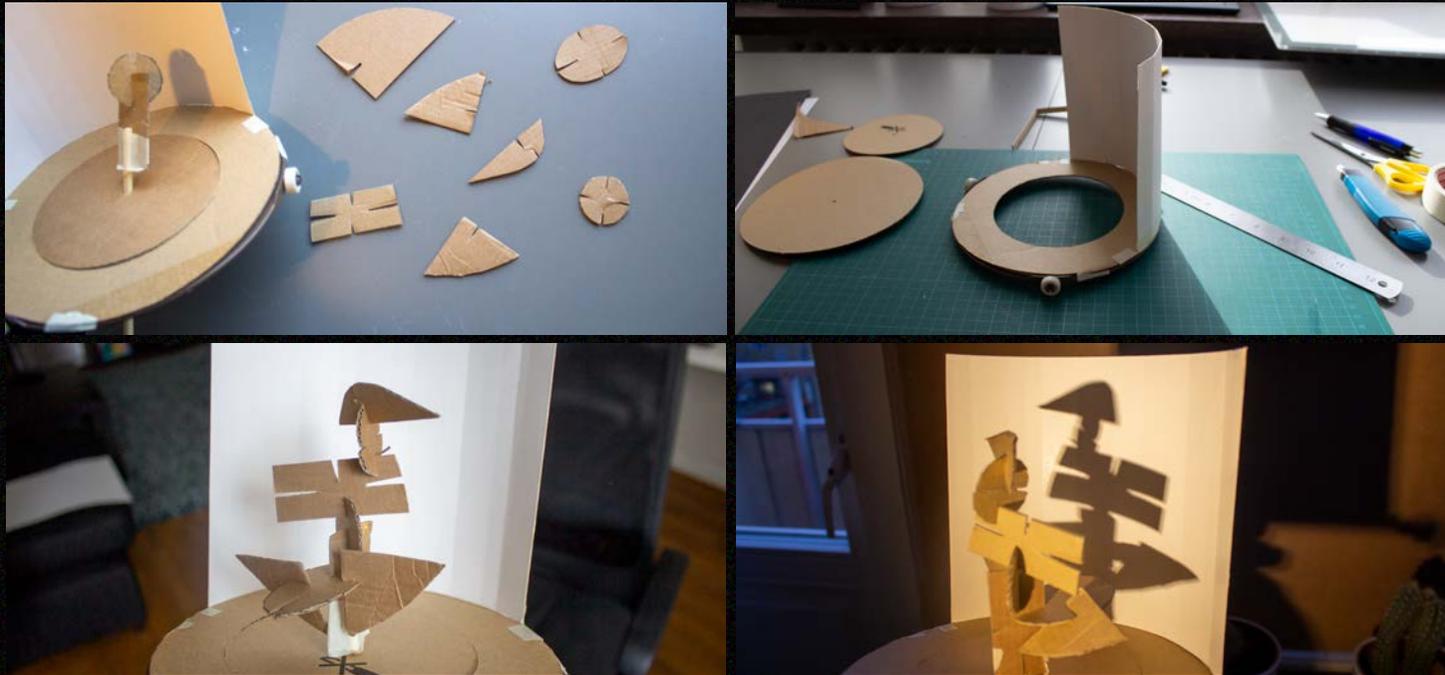
I created simple cardboard mock-ups to try out the concept. As an adult, I could find an entertaining value, but I needed to prove that this works with my target group.

The lack of originality in concept one and the complexity of concept two made me decide to not take these concepts further to the user test. After creating prototypes for the third concept, I decided to go further and do user tests. The reasons behind my decision were:

1. My faith in the uniqueness of the concept.

2. The Mobil Theatre concept combined the first two concepts by having the constructing and shadow projection elements.

Pivotal moment

I tried my prototype with my 5 years old niece Layan. She enjoyed the constructing pretty much but not as much the light projecting and the shadow playing.

While I was creating additional forms to construct with, hoping for more stimulation. I noticed that Layan enjoyed playing with the headlamp and creating shadows with her hands with no external stimulus.

The user test taught me a precious lesson. It was frustrating and disappointing seeing my prototype failing in getting Layan's creativity totally stimulated. I thought there was a lack of variety in the shapes, or maybe the prototype was too rough to be seen as a toy. But seeing Layan getting engaged with the headlamp and only her hands proved the opposite to me. The psychology of a child of what they find fun or interesting not always what we think. I noticed that a simple tweak in the environment or/and the right circumstances could be the ultimate creativity stimulator for a child. I realized that maybe designing the most sophisticated detailed toy to avoid simplicity and boredom not always the way to go. This conclusion 2/3 into the timeline was not the brightest point of the project.
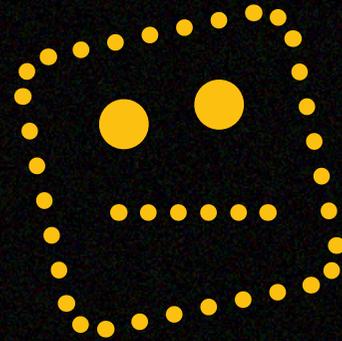
Re-direction

At this point, I decided to drop the children's products path and instead go back to one of my earlier concepts to dig up a value that I could find more suitable for another target group.

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STORYTELLING DEVICE
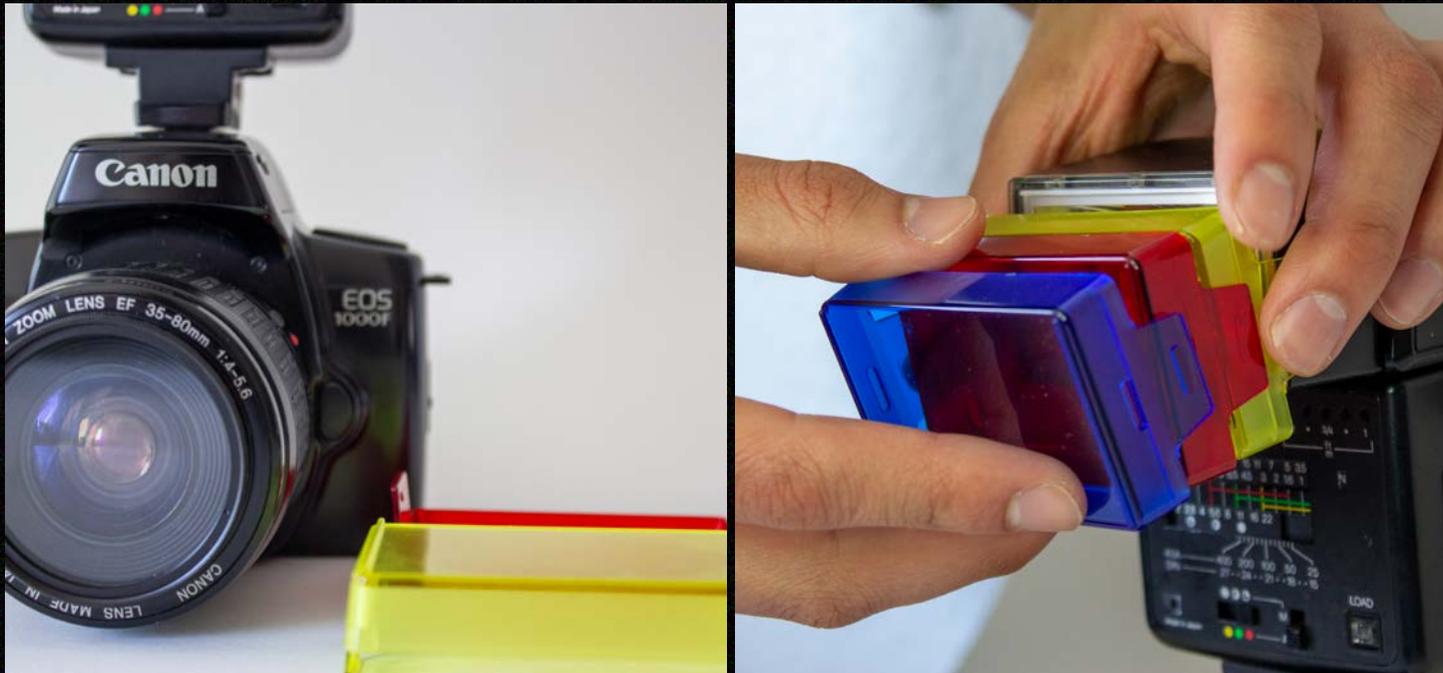
I went back to my second concept, where I enjoyed prototyping with it the most. The origins of this concept came from the flash filters of an analog Canon camera where my friend and I have been experimenting with different transparencies and different colors.

Potential of a board game

While prototyping with this concept, I created a great variety of illustrations with the help of a combination between geometric and organic forms. At that point, I felt this concept has a tremendous visual communication value and the potential for a board game.

Design a board game that enhances visual communication abilities and provide the perfect amount of difficulty and joy.
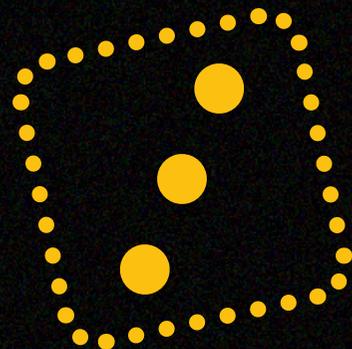
Concept development
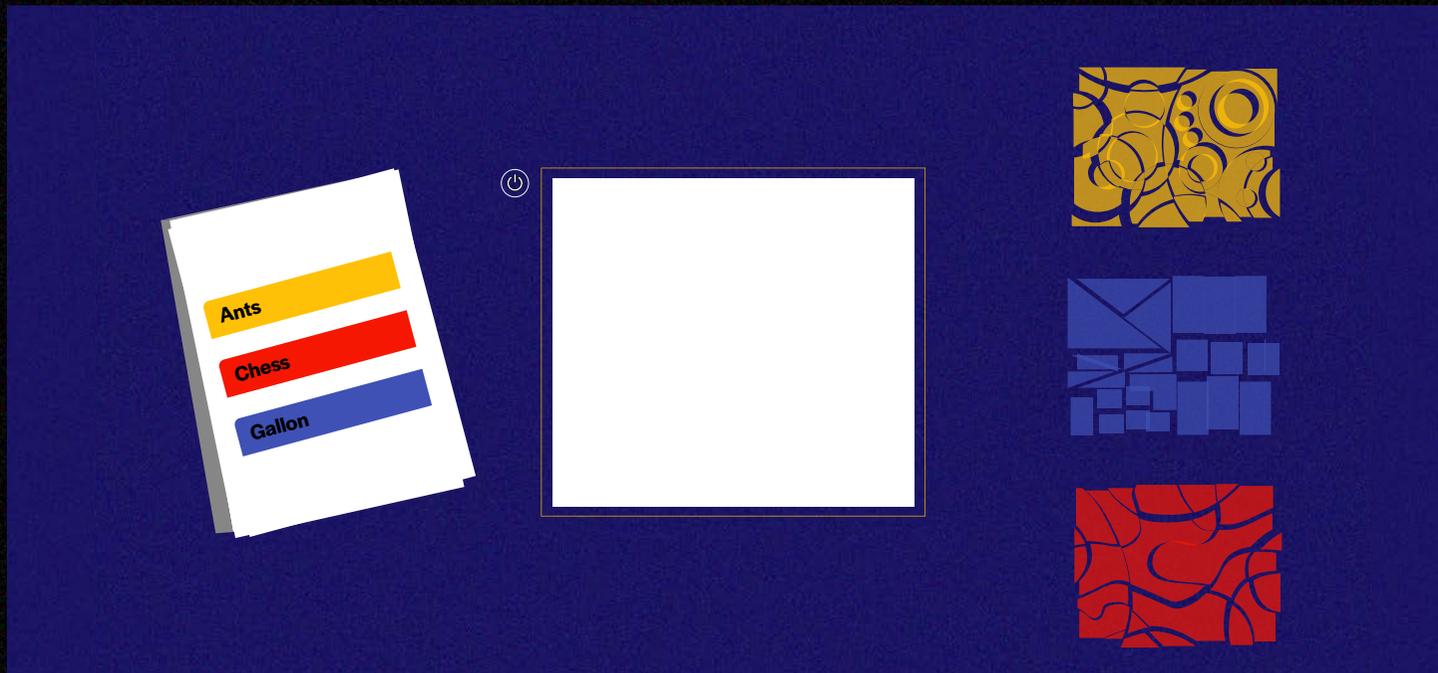
Getting inspired by the board game Pictionary, I developed a new concept. The concept was to illustrate a word with the help of transparent forms that have different colors on a light board under a given time. The player should illustrate the word and get their team to guess it before the time runs out.

The affect of the circumstances
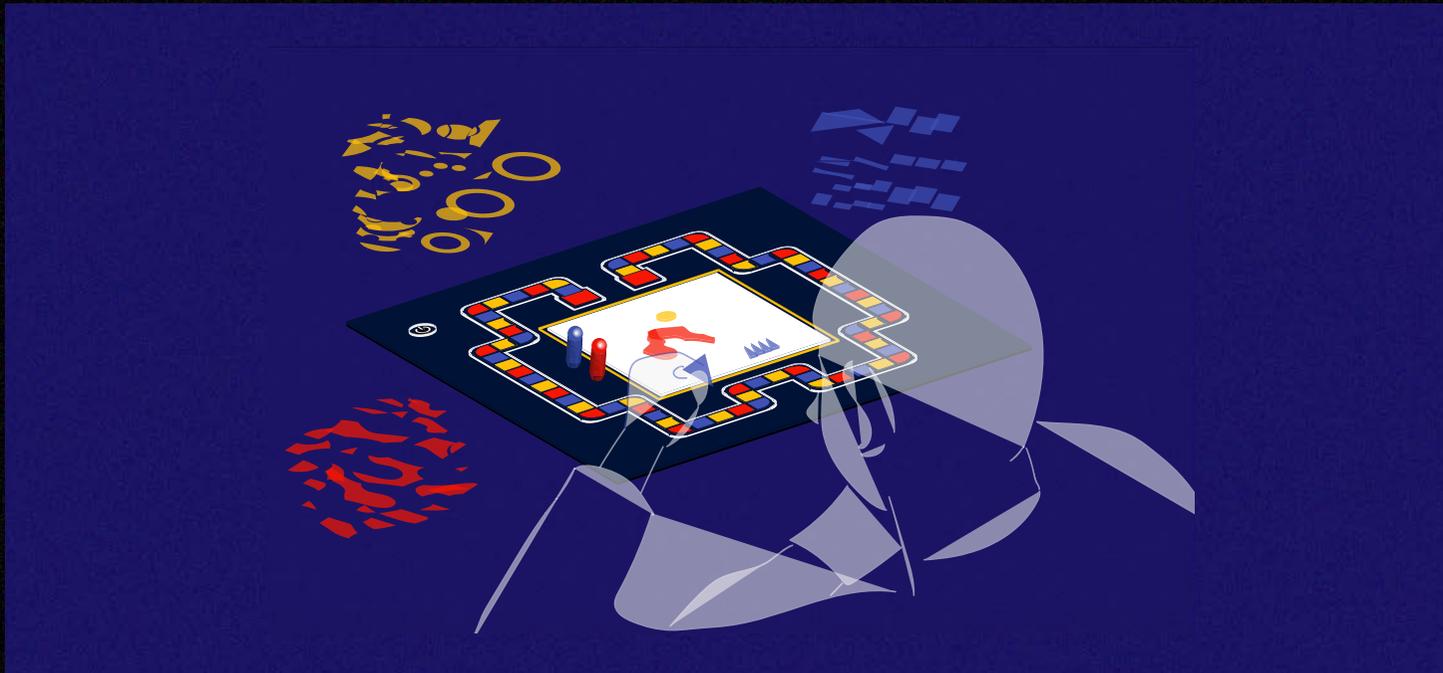
Creating this project under the pandemic with the restrictions of social distancing highlighted the social value of a board game while spending time with a small group of people.

FIGURE OUT

At this point, the strategy for the board game was not totally clear. I decided to have people trying the concept as a starting point. I was able to see the range of my target group, taking into consideration age, creating time, and earlier visual communication skills.
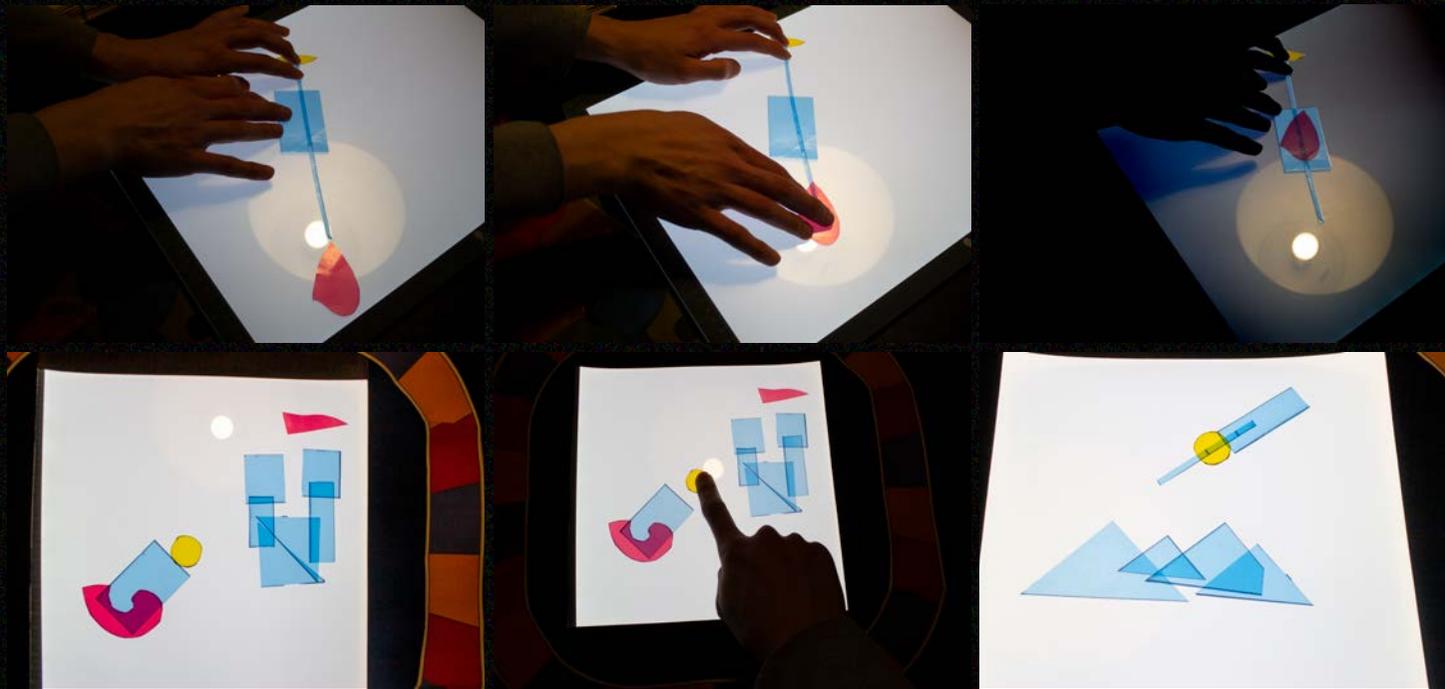
Another quality that I noticed in my concept was that users moved the pieces and used them to create simple animations that hint at the context. "You say it's going upwards... But I see it's going downwards!" is one of the discussions that two of the players had while doing the user tests. That made me realize that the game has more aspects than choosing suitable shapes.

To design the game strategy, I made a cardboard prototype to run some user tests. After doing the user tests, I got feedback on the shapes and their size and texture. I also got feedback on the board and its interface.

Prototype 2.0
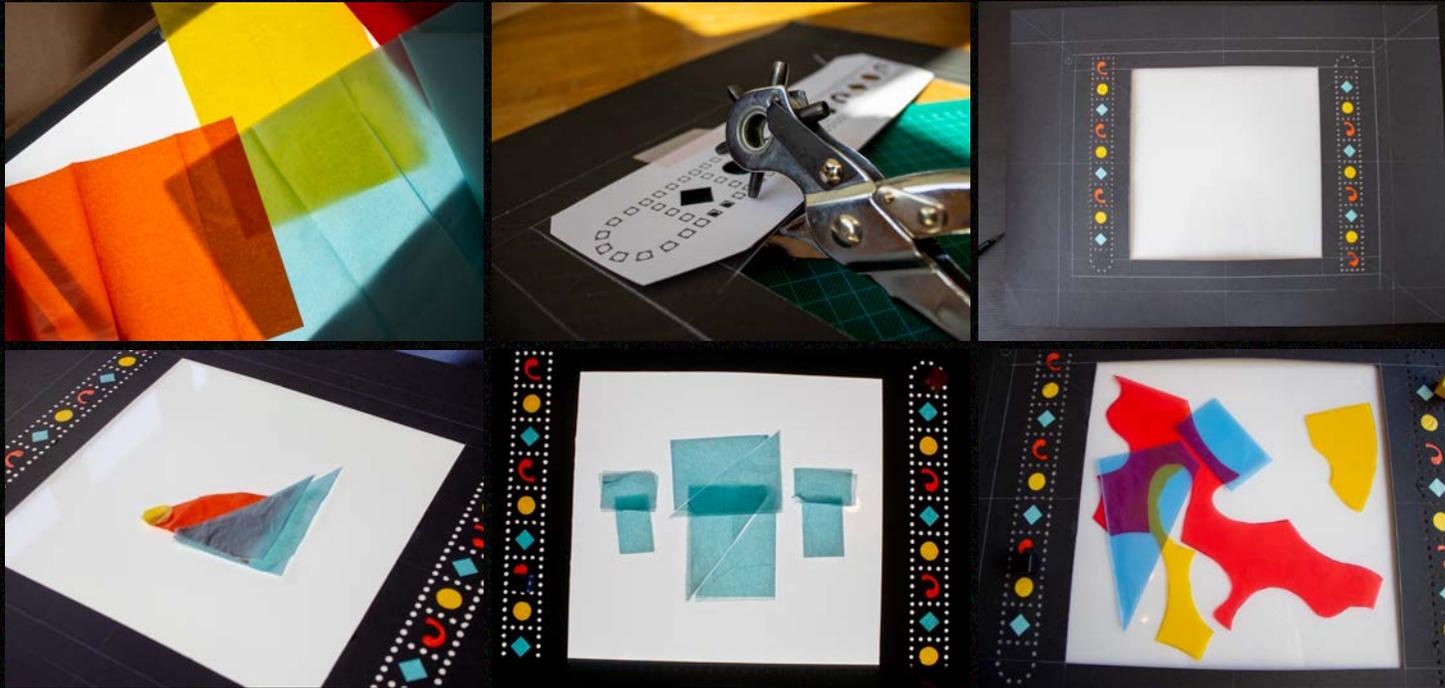
The feedback that I got after doing the user test help me to develop the next prototype. For this prototype, I tried different materials and different transparencies. I also redesigned the platforms and created a new visual identity. This new identity embraced the light that is coming from the light board to distinguish the different categories.

The
Board Dice

The
Figures Dice

FIGURE
OUT

Fantasy

Food

Places

Starting Point

The Light borad

FIGURE
OUT
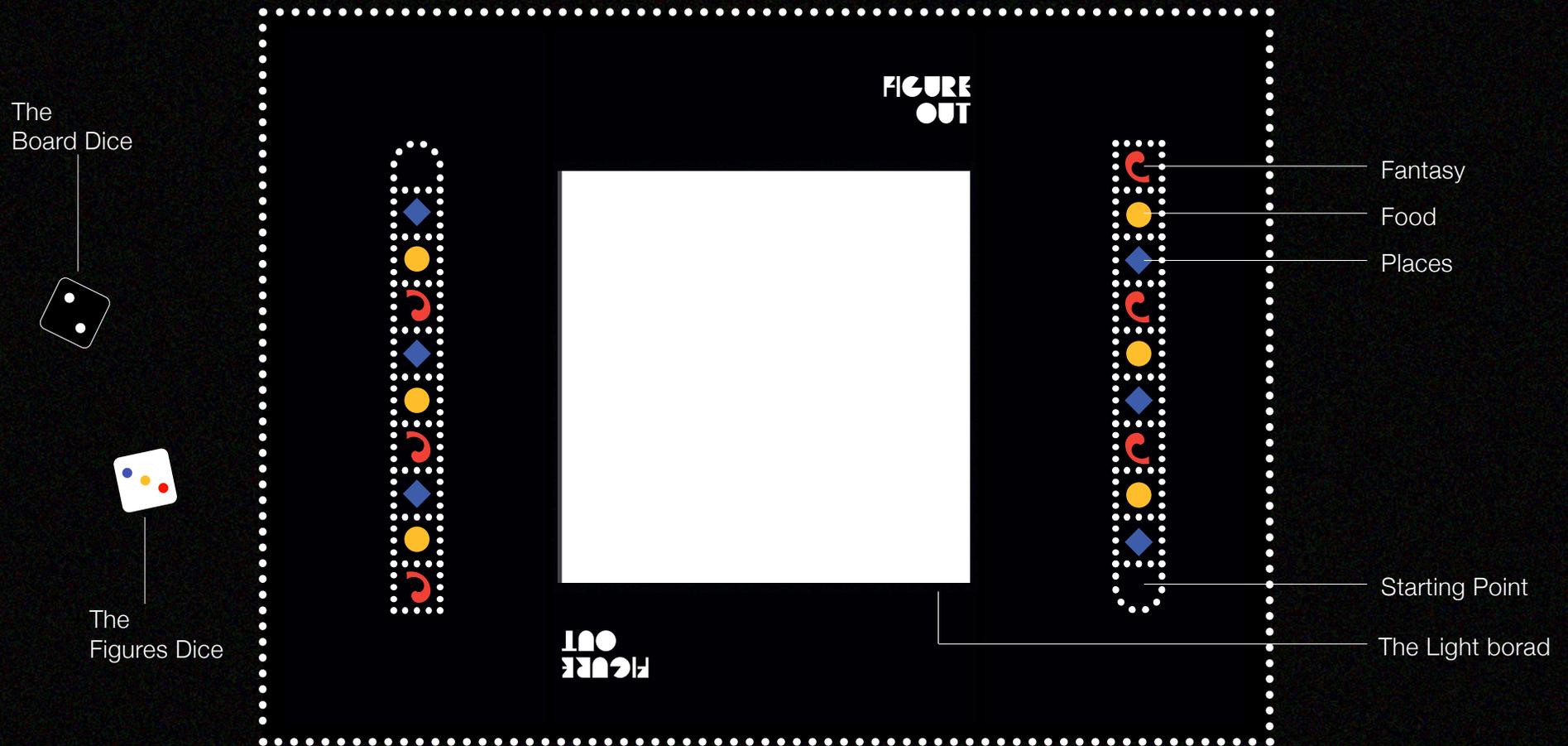
I created three categories for the words that will be illustrated. Every category has an icon; the icon will be seen on the playing cards as well. The first category is Fantasy which could be animals, Tools, or almost anything. The second category is Food, and the third category will be places.

Shape design
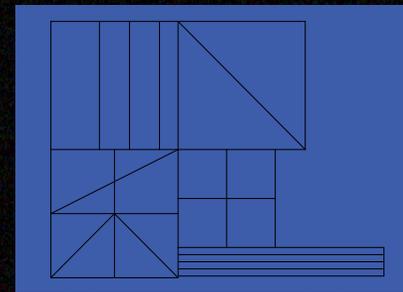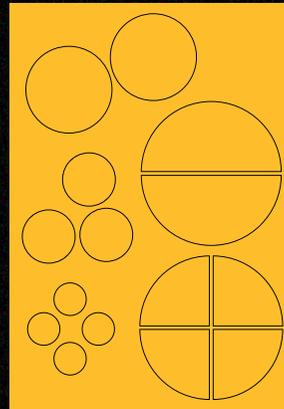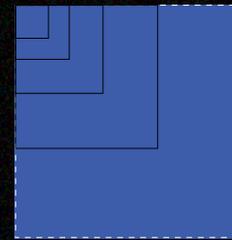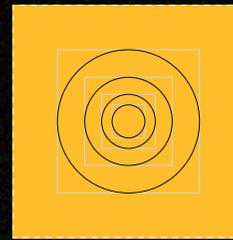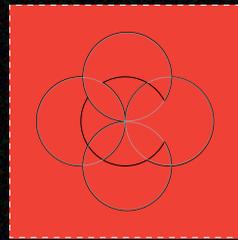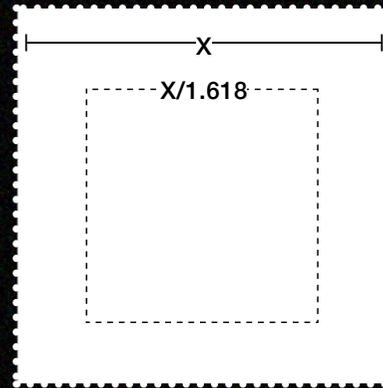
I used the golden ratio to design the playing shapes. I took the dimensions of the forming platform and divided it by 1.618. I created a connection between the color of the forms and the color of the category giving the player an advantage but not an easy winning opportunity if they have the same.
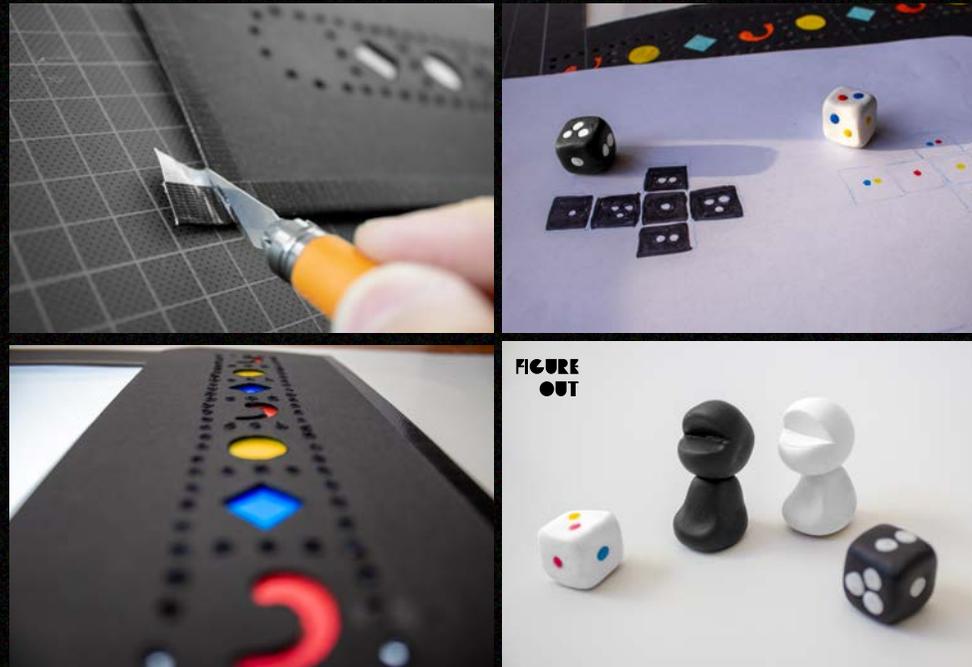
Finalisation

At this point, I felt that I had a cohesive game strategy and solid components for this version of the game. The next step was to do game explanatory and visualization.

FINAL RESULT

Cards holder

3 words cards

90 sec timer

Cards "Backside"

FIGURE OUT

◆ Eiffel Tower
● Avocado
⌐ Dog

Black team counter

White team counter

Board dice

Figures dice

FIGURE OUT

◆ Eiffel Tower

● Avocado

) Dog

The cards: Tells which word will be illustrated.
The board dice: Decide how many steps the player is moving forward.
The figures dice: Decide which forms the player is going to use.
The counter figures: Helps to keep a count of where in the platform the player is.
The forms: The used pieces to illustrate the given words.

SCENARIO 1

The player starts with throwing the dices.
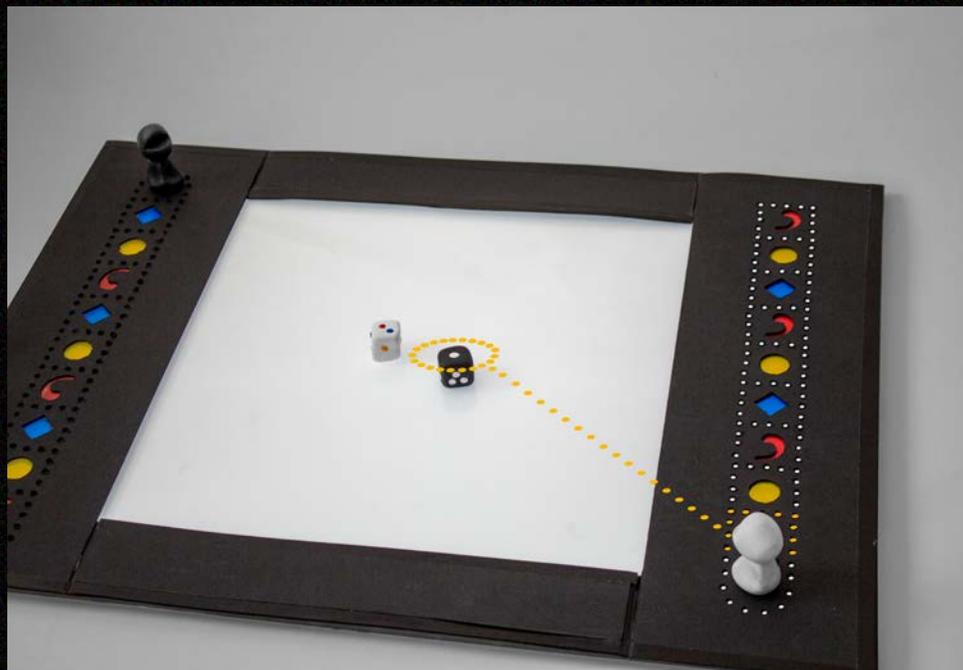
Getting one on the black dice which means moving one step forward.
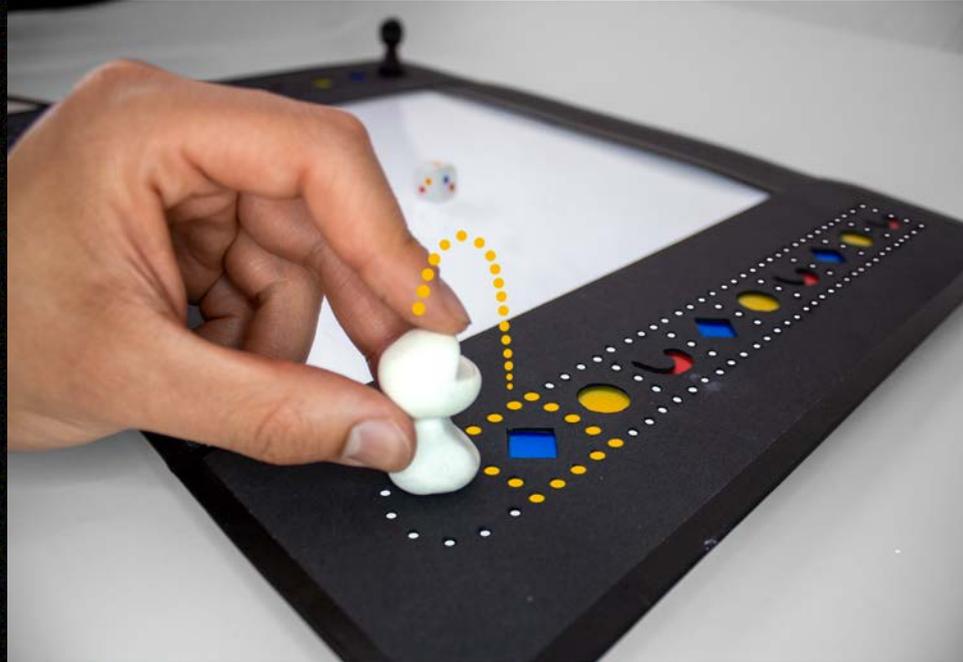
Moving one step forward to get on the Places category.
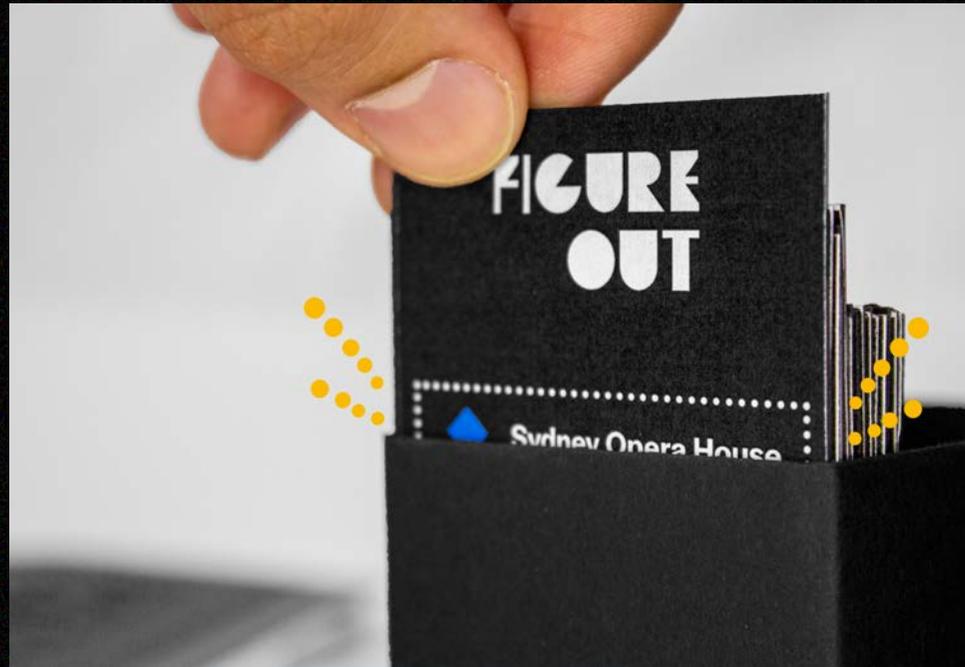
Pulling a card
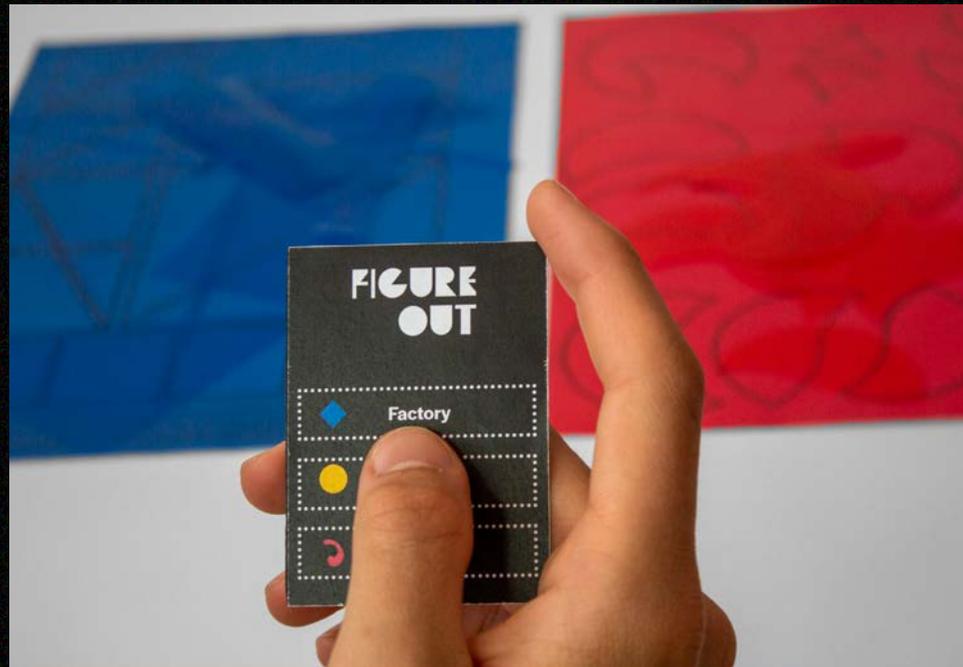
The word of Places category is "factory".
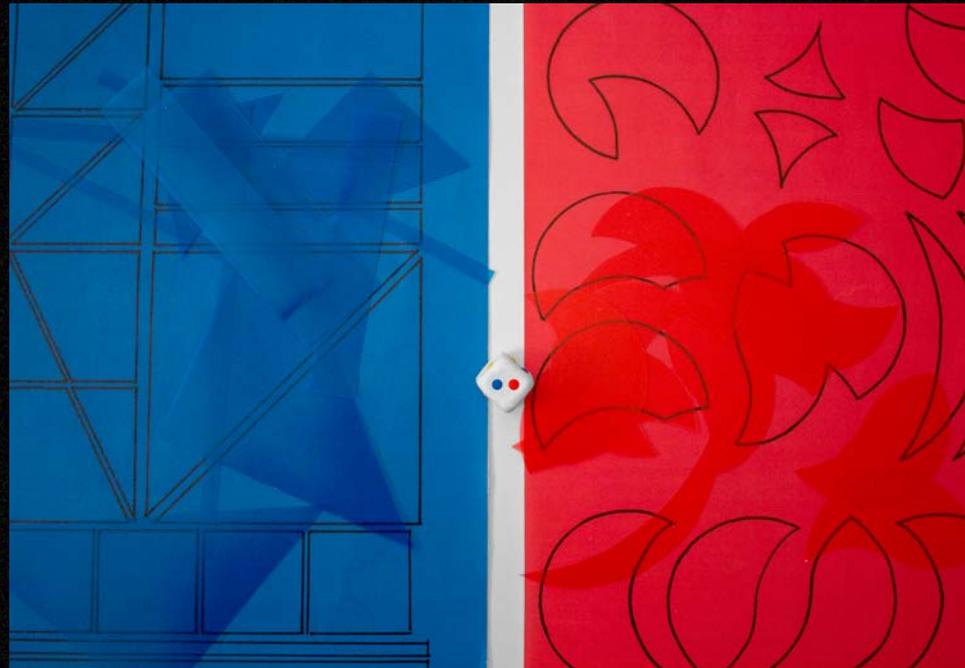
The white dice gives the player the chance to use the blue and the red shapes.
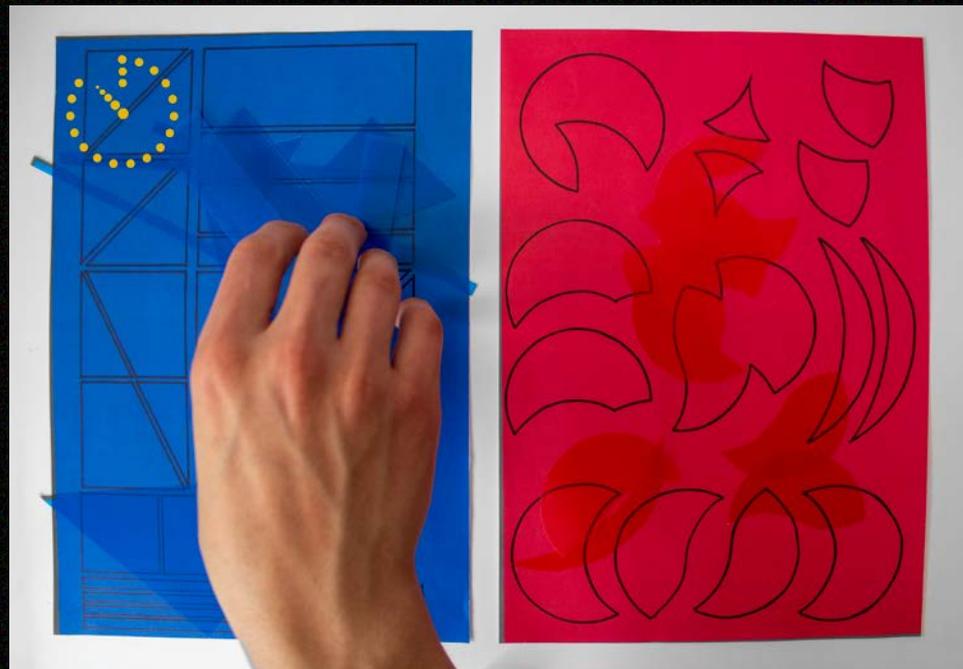
When the player starts using with the shapes, the time starts, which is 90 seconds
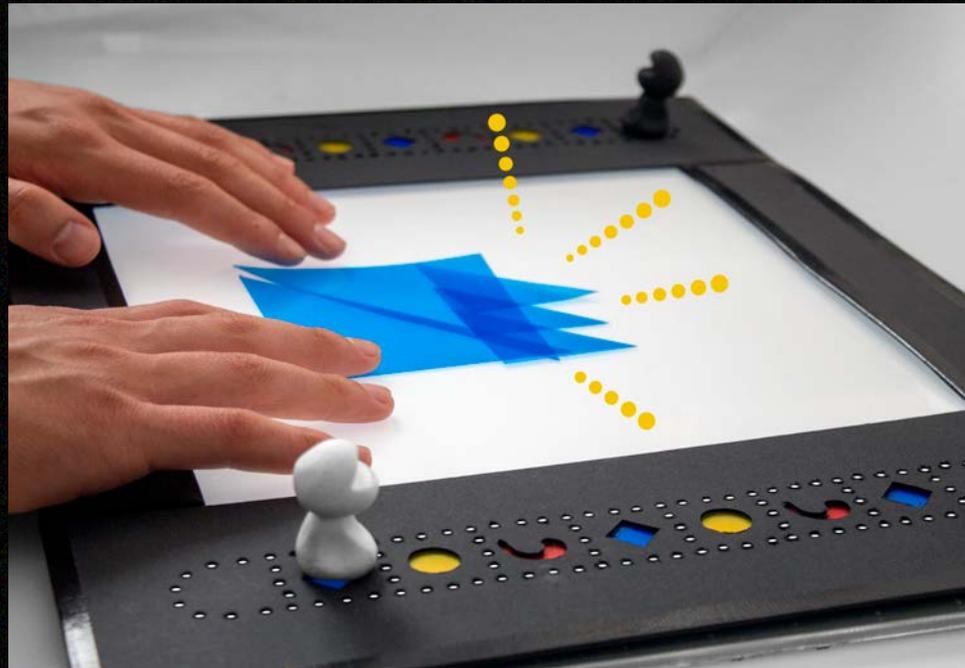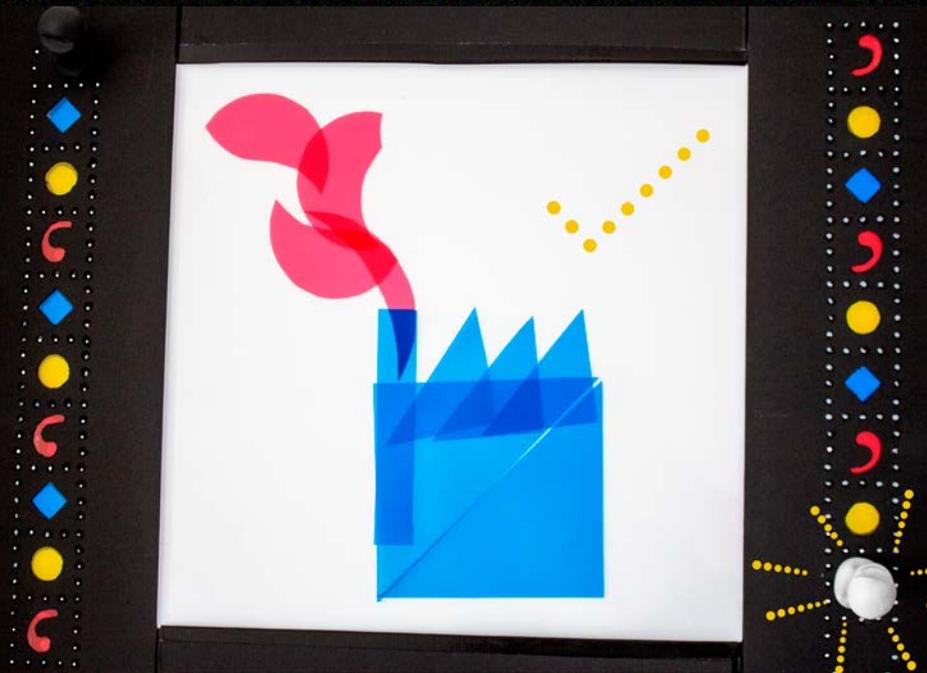
By being able to create an illustration of a factory in less than 90 seconds and get the players team to guess the word, the player wins the round and maintain the position

SCENARIO 2
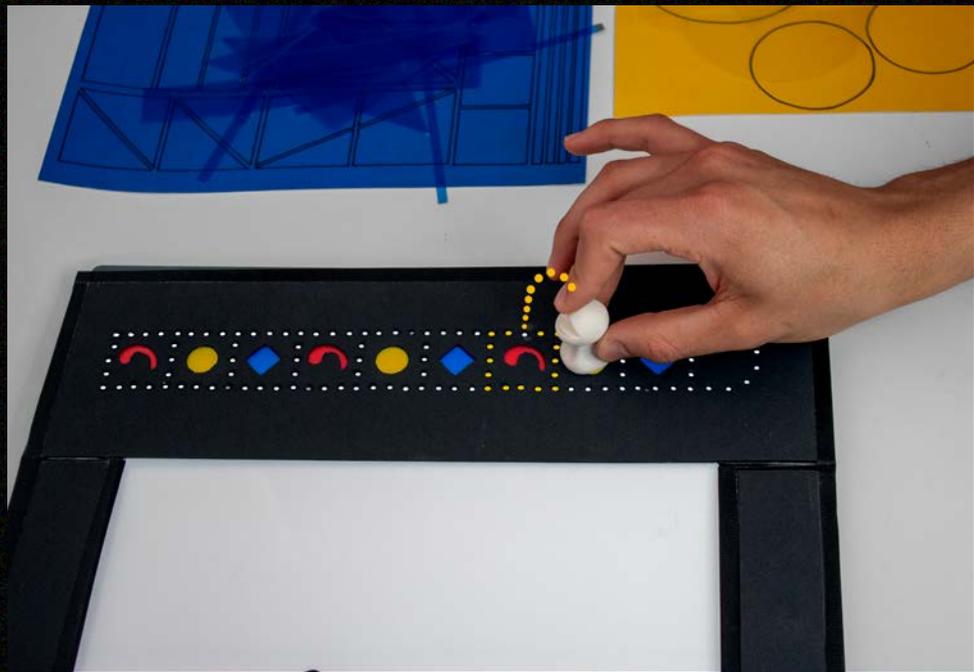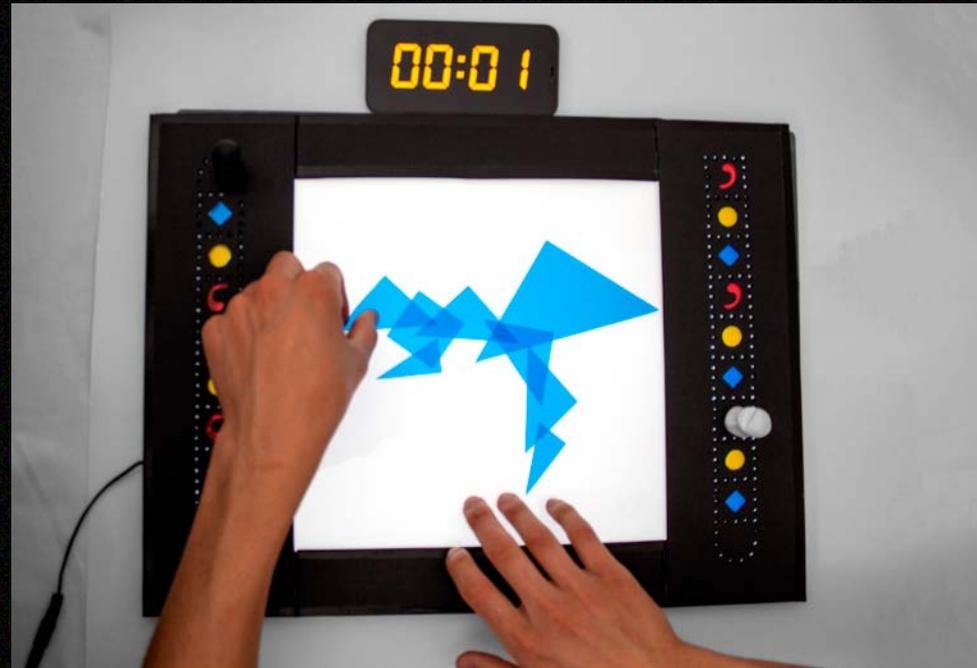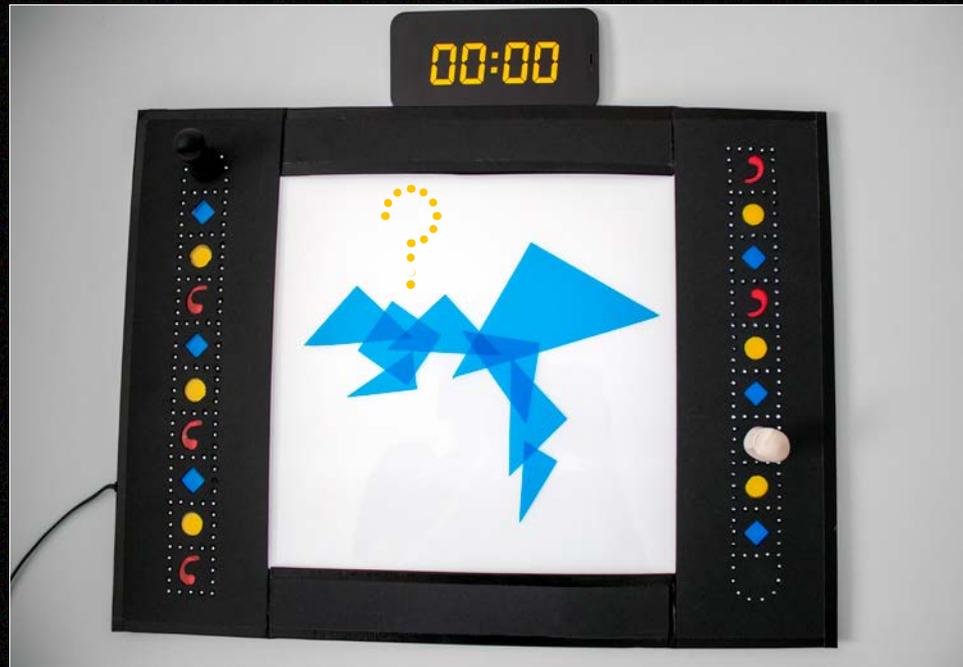
The time is up and the team couldn't figure out the word.
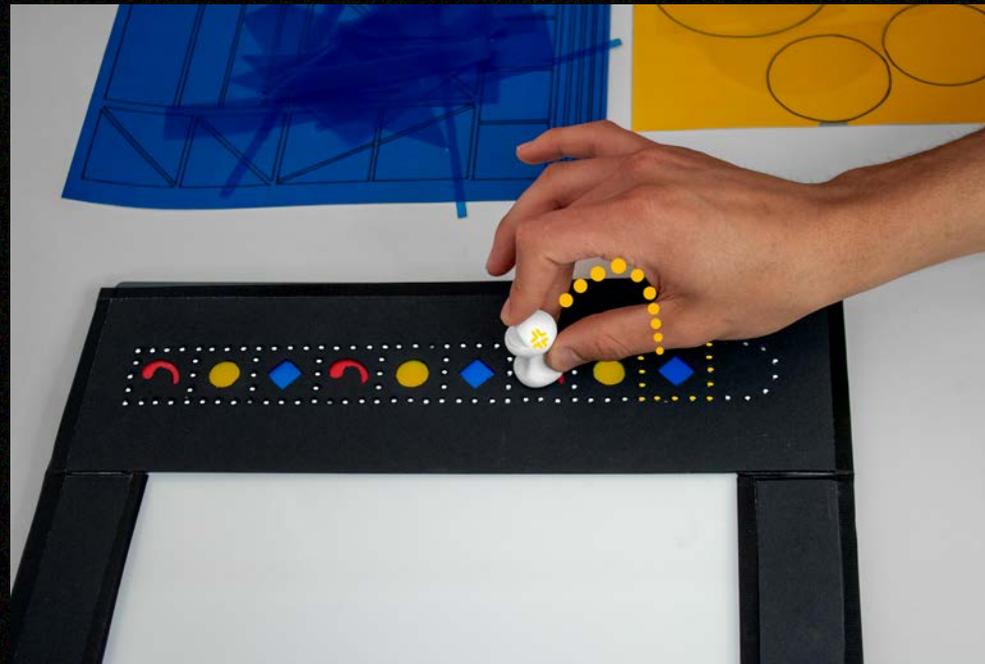
In this case, the player has to go back to the previous platform.

SCENARIO 3
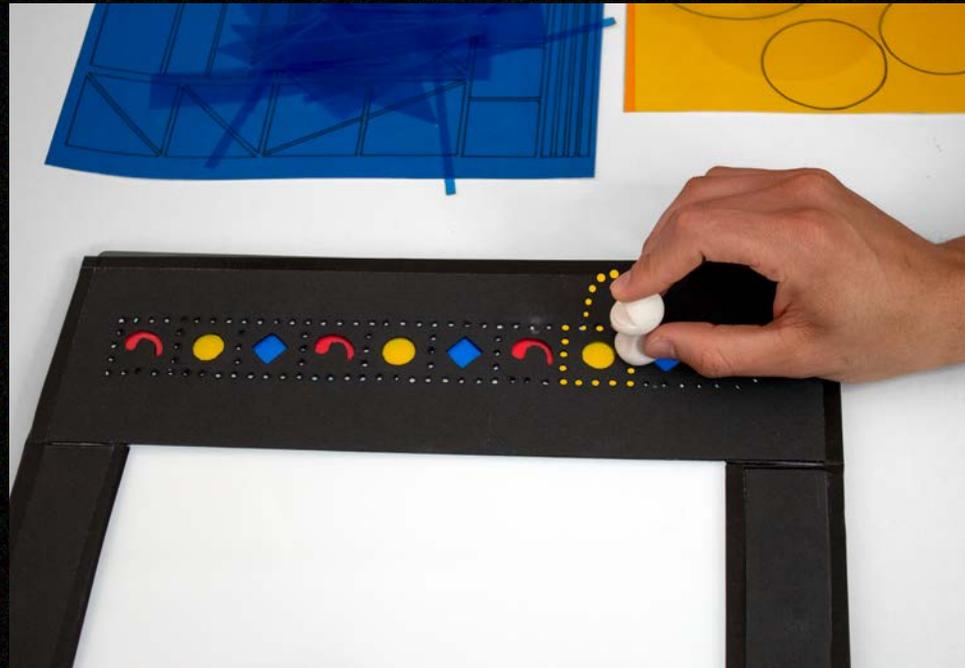
The player won't be able to illustrate the given the word with the blue shapes only.
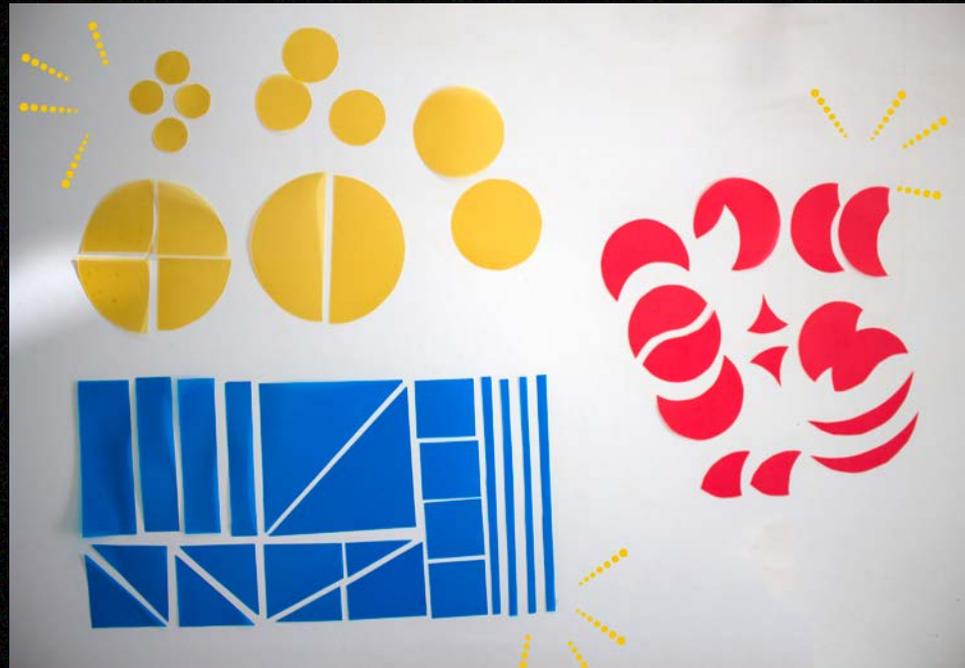
Players are always allowed to use all shapes with one condition.
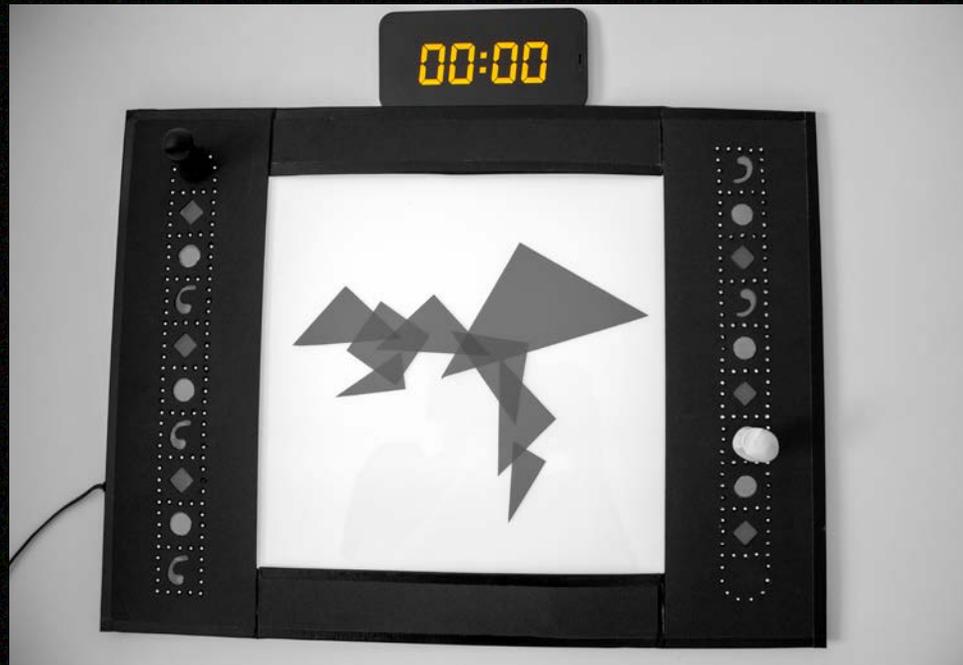
If the time is up and the team couldn't figure out the word.
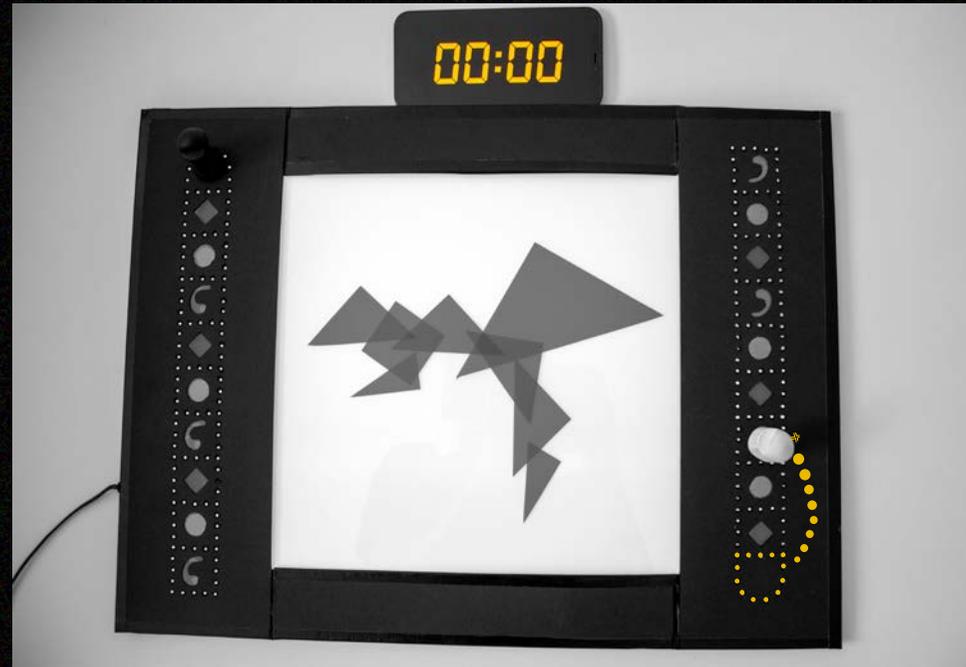
The player has to go back to the first platform of the game.

Using all three colours could be helpful sometimes.

Summary and evaluation

Introduction

Kick-Off

Final Presentation

28/01

24/03

27/04
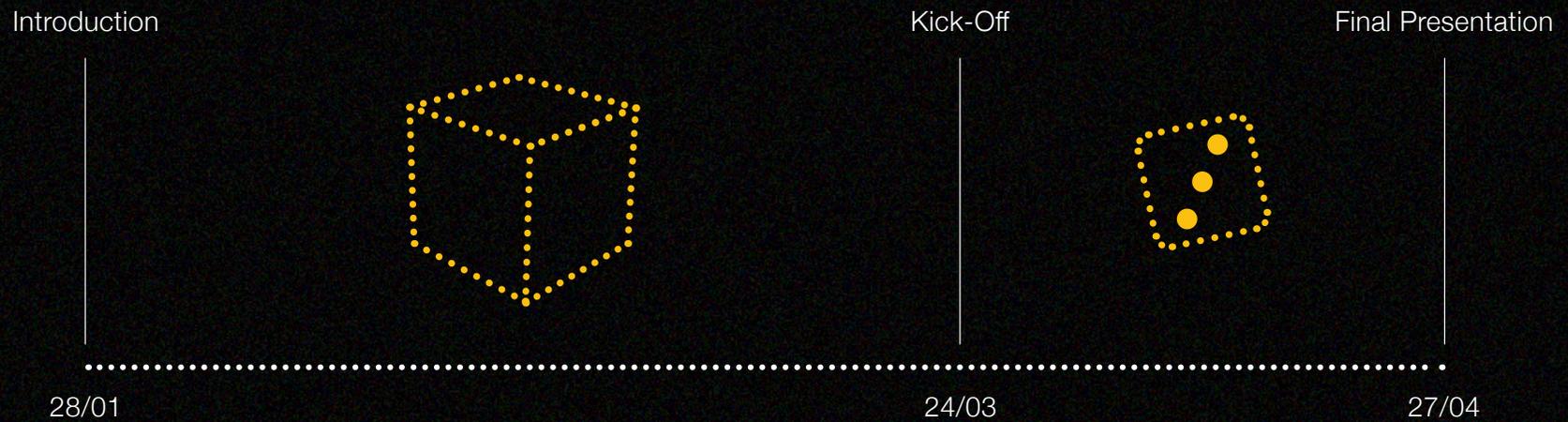
Looking at the timeline of this project, I realize that the first 2/3 of this project, I was designing a children's product, and the last third, I was designing a board game. The result of that was me not being able to cover all the areas or designing all the components that I wanted to with the board game.

Design:

☑ Board

☑ Cards

☑ Dices

☑ Pieces

☑ Strategy

☑ Packaging

☑ Timer

☐ Lightboard

Areas To Cover:

☐ Materials

☐ Manufacturing

☐ Business plan

Examples of areas and components that I could work on and the ones that I could not.

Reflection

Research   Concept 2   Concept 3   Concept 3 user test   Board game concept   Final result
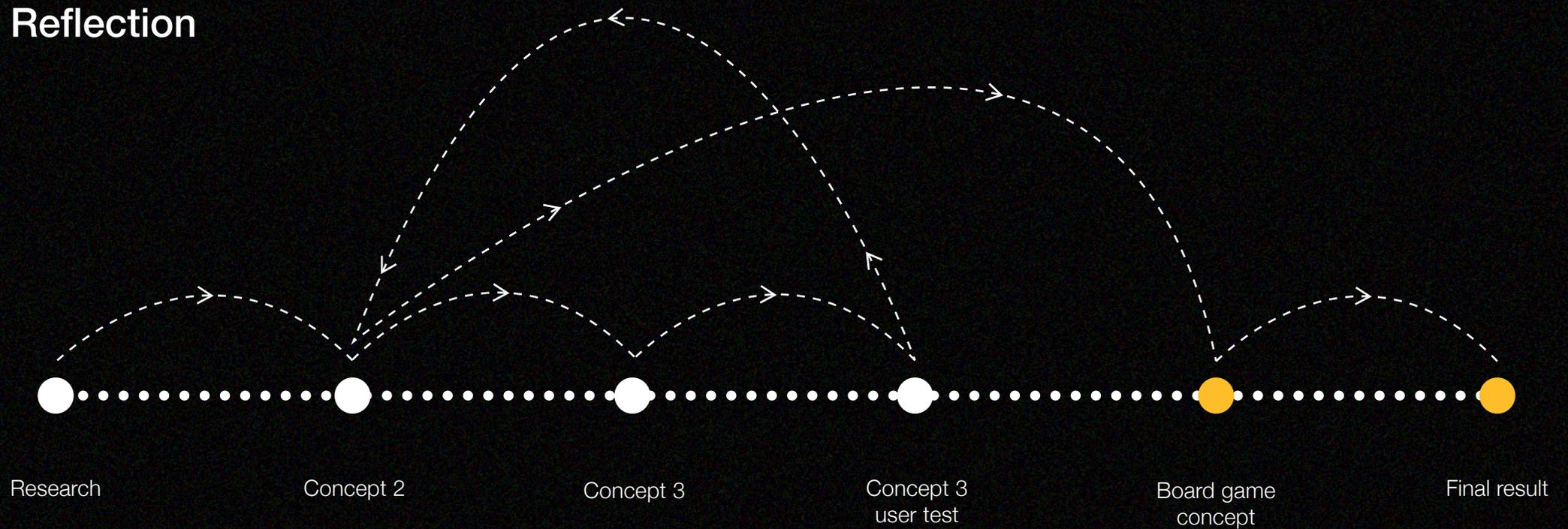
Reading my initial brief and realising how much I wanted to implement creativity and problem-solving in my product made me ask a question. The question is, "How much of my initial value I still have in my final result?". I feel that I can confidently answer that It's almost the same. Changing from a children's product to a board game was nothing that I could predict when I started this project. But studying three years in the school of industrial design taught me that the design process could rarely be linear. "Kill your darlings" is a good metaphor that helps a designer to move forward in the design process, but in this project, I learned that "Don't forget your darling" is even more important.
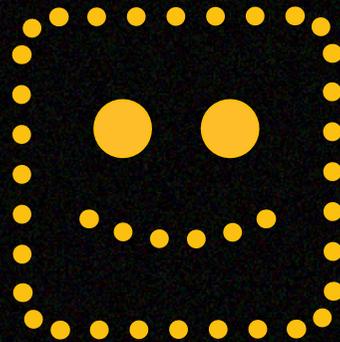
Finally, I am happy with the outcome and looking forward to developing my concept further.

Resources

Literature:

Birks, Kimberlie. Design for Children: Play, Ride, Learn, Eat, Create, Sit, Sleep. Phaidon Press Ltd 20

Meador, S, K. (1997). Creative thinking and problem-solving for young learners.

Research publications & articales:

Land & Jarman, 1992. World Class Learners book. [**Link**]

Ginsburg, R, K. (2007). The Importance of Play in Promoting Healthy Child Development and   Maintaining Strong Parent-Child Bonds. [**Link**]

Brio, The idea behind BRIOS toys and philosophy. [**Link**]

Video

Netflix. 2017. Abstract: The Art of Design. Season 2. Episode 4. Cas Holman: Design For Play.

Netflix. 2019. The Crative Brain. David Eagleman.