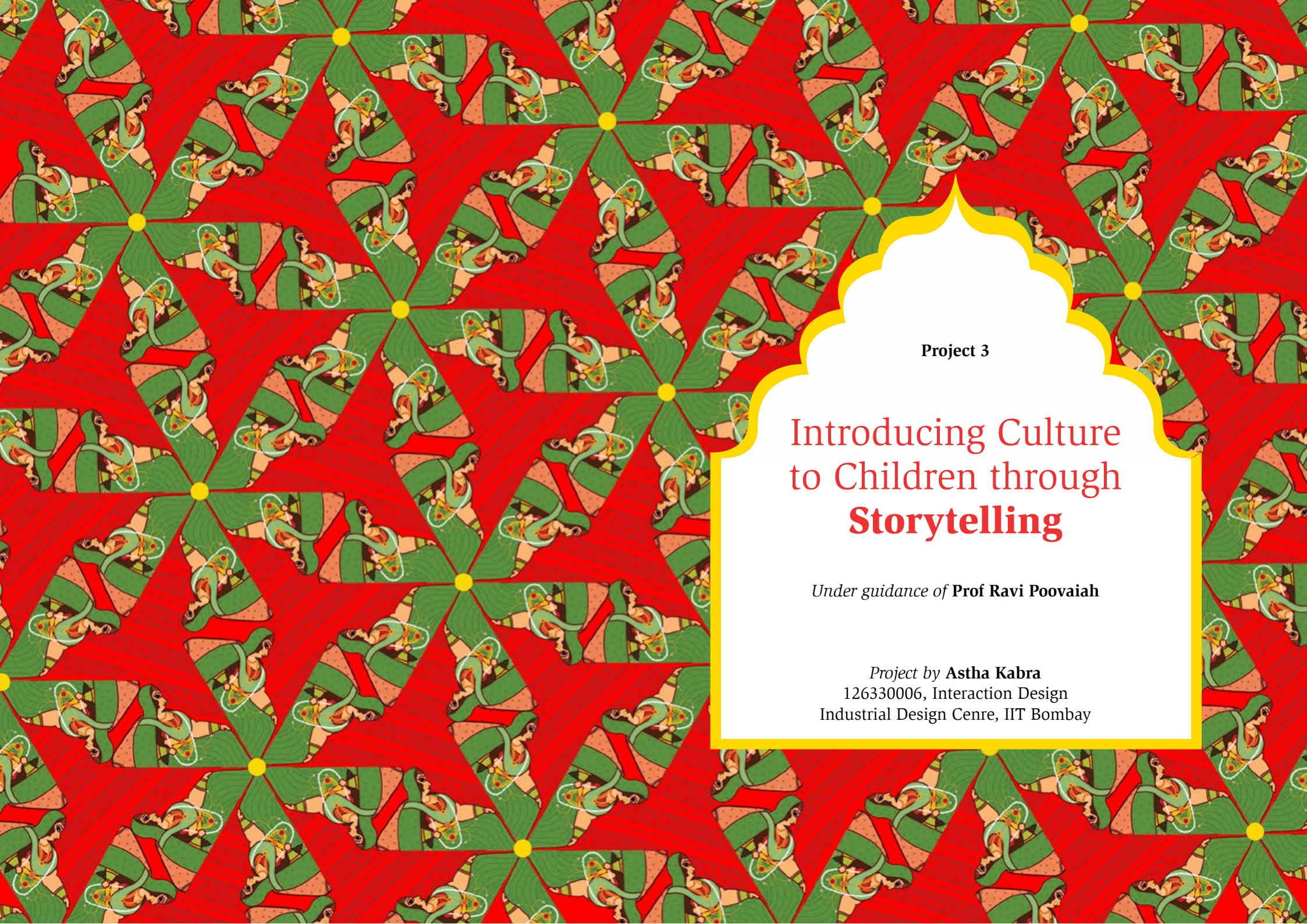




Project 3

Introducing Culture to Children through **Storytelling**

Under guidance of **Prof Ravi Poovaiah**

Project by **Astha Kabra**
126330006, Interaction Design
Industrial Design Centre, IIT Bombay

Declaration

The research work embodied in the written submission titled “Introducing Culture to Children through Storytelling” has been carried out as Project 3 by the undersigned as part of the post graduate program in the Industrial Design Centre, IIT Bombay, India under the supervision of Prof. Ravi Poovaiah.

The undersigned hereby declares that this is an original work and has not been plagiarized in part or full from any source. Appropriate reference information or links have been provided wherever due. Furthermore, this work has not been submitted for any degree in this or any other University.

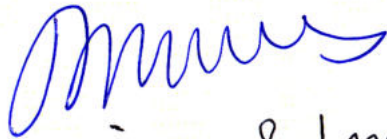
I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action if need arises.

Astha Kabra
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Industrial Design Centre
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Approval Sheet

This interaction design project entitled "Introducing Culture to Children through Storytelling" by Astha Kabra, 126330006, is approved in partial fulfilment of the requirements for Master of Design Degree in Interaction Design.

Project Guide



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Date

31-07-14

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An extended note of thanks to my sister who have been a constant support and believer in my work. I am obliged to many of my friends who supported me, at various stages during the process. And last but not the least; I thank my family members for their motivation during the hard times.

Abstract

The project aims at introducing culture to children from 4 -7 years who are not in touch with their native culture or who have migrated from their hometown. The idea is to promote, foster and propagate Rajasthani culture through storytelling as it helps in enhancing active imagination and bringing in curiosity about their own roots. Giving them a tacit experience about Rajasthan by imitating certain cultural activities and taking them to a journey of fun, play and learn.

This project is an attempt for designing a platform, which bridges the gap between children and their native culture. The challenge involved designing an interactive public space. This project involved study of space, interactions, sound, children behavior, architecture, history, stories, culture etc .

Inspired from Kaavad, a traditional storytelling tool from Rajasthan, the installation is designed to transmit the culture hymn to young children. The project allows users to experience different aspects of the tangible and the intangible culture of Rajasthan. Non - sequential stories, artifacts and activities make the installation participative, playful and interesting.

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Introduction

Culture is a way of life, a mode of thinking, acting, doing and feeling. In my understanding, the food we eat, the clothes we wear, the language we speak and the god we worship; all are aspects of culture. It's representation of the way in which we think (value) and do things (behavior). Culture as a general concept consists of two distinctive components tangible culture and intangible culture. Tangible culture is all the physical objects that people of a society create and give meaning to whereas intangible culture consists of ideas, thoughts and behavior that people learn and acquire as a part of culture. One of the essential attributes of culture is that it's transmitted from one generation to next. It's shared, observed, learned and is dynamic in nature. It also shapes basic fundamentals of living in a society such as what you eat, what you think, what you wear, where you live; this helps children identify themselves and relate with surrounding.

As living away from hometown, adapting urban lifestyle sometimes result in diluting the understanding of native culture. If not practiced at home the culture slowly subdues and dies. Migration in urban cities

has both positive and negative effect on culture. Remembering and knowing where one's roots and strength lies is important. The migrated children, due to out of practice or less curiosity (considered boring or out of fashion) may loose interest in knowing their own rich culture and heritage.

This project is an attempt to bring the children close to their culture and experience it without being in their native land. It also helps in better understanding of activities done by people in a community. Maintaining all the aspects of culture can allow the child value their culture and heritage.

Culture

Culture is that complex whole which includes knowledge, beliefs, arts, morals, law, customs, and any other capabilities and habits acquired by as a member of society.” One of the earliest and simplest definitions of culture by Edward Burnett Tylor. In simple words culture is embodied in the way of life, our mode of thinking, acting and feeling. It’s made up of three components: what people think, what they do, and the material products they produce. It’s transmitted from one generation to next and is acquired as member of society.

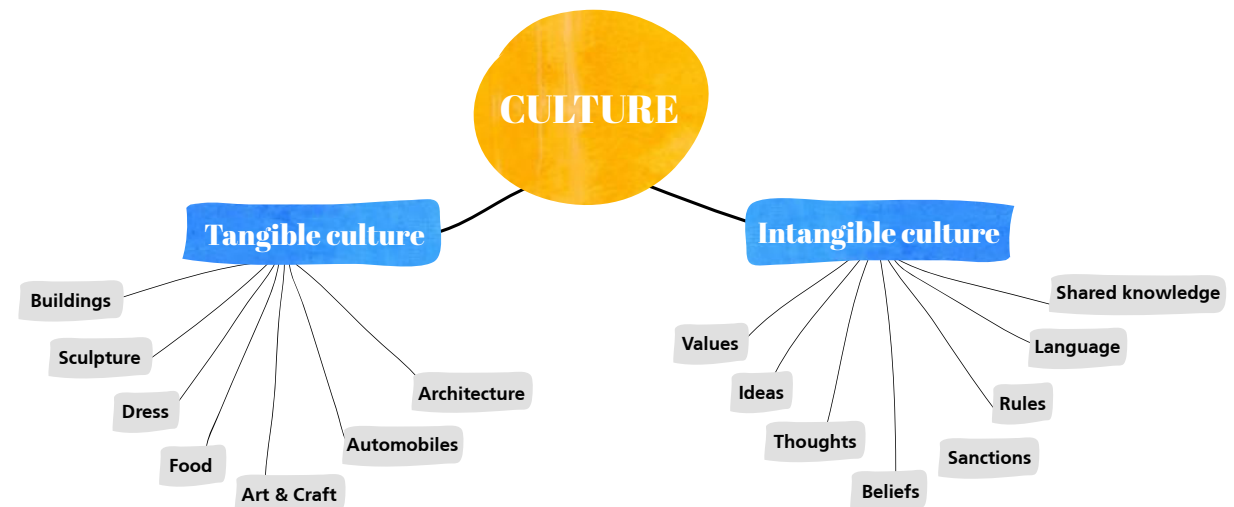
Culture consists of two main distinctive components- Tangible Culture and Intangible Culture.

Tangible Culture

It comprises of physical object, spaces and resources created by people from people to define culture. Tangible culture includes temples, buildings, architecture, products, dress, food, art and craft, sculptures, automobiles and so forth.

Intangible Culture

It deals with non physical ideas, thoughts and behaviour that people inherit and learn as part of their society and the culture they live in. It comprises of shared knowledge, values like concept of good and evil, ideas, thoughts, beliefs and perceptions, rituals, sanctions in terms of rewards and punishment, language, and norms.



Characteristics of Culture

Culture comprises of several characteristics. Different cultures in different location have the following qualities.[2]

adapt the changing environment. It changes constantly with new ideas, new modifications, new techniques added in time changing the old ways.

Culture is shared: Culture is something that is shared, believed and is transmitted to and among the members of society. It's transmitted in terms of learning's and ideas. It's passed through language, signs and symbols in form of customs, traditions, beliefs, ideas etc.

Culture is adaptive: Culture is adaptive. Individuals adapt to the environment around with the resources available around like growing different food, building, houses, climates etc. It contains information about how to survive in the world.

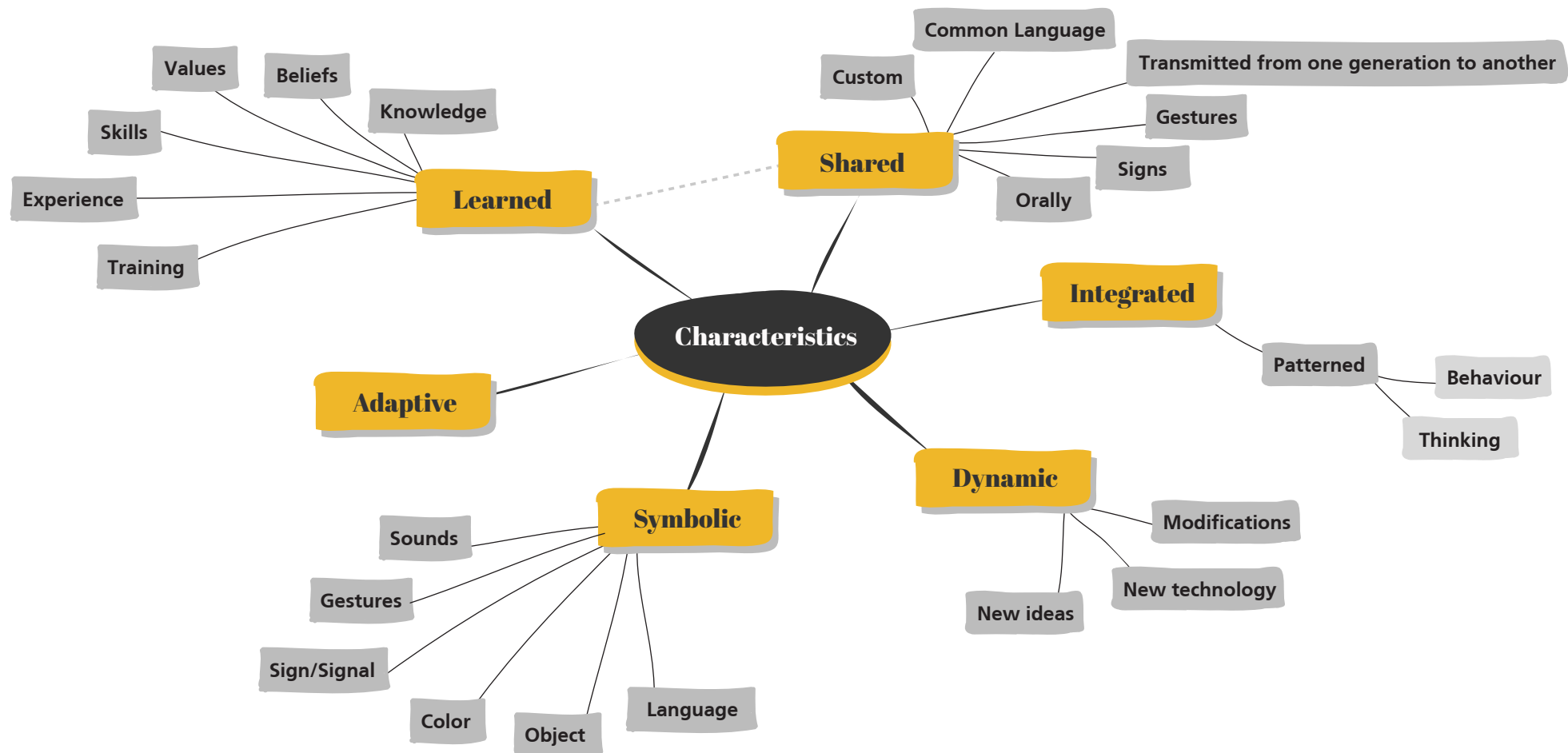
Culture is learned: Culture is not instinctive. It is learnt. It's acquired in the way where certain behaviours are native as it is hereditary. Individuals acquire knowledge and few qualities from their parents and family but some of it is native which they learn without being taught. The physical and social environment through which they operate influences the culture.

Culture is symbolic: Culture is learned through symbols. A symbol allows people to develop complex thoughts and helps in communicating those thoughts with others. Language being the most crucial way of communicating helps in transmitting the thoughts, information and ideas in a simple way.

Culture is integrated: Culture is patterned. i.e. one aspect of culture reflects the other aspect which helps in understanding it better. All the aspects fit into a pattern as a whole. One must learn and understand all parts of it and not just few in order to keep the culture functioning.

Culture is dynamic: Culture is not static which simply means that culture interacts and is prone to changes. As most cultures are in constant touch with other cultures, they exchange ideas and symbols that help to

Characteristics of Culture





Culture of Rajasthan

Rajasthan has a rich, vibrant and artistic culture, which reflects the way people live, the food they eat and the things they do. It's one of the most attractive and charming states of India. Each region of Rajasthan has a different and diverse folk culture and form of art.[3]

It's also known as the land of princes where tradition and history blend with contemporary lifestyle. The rich cultural heritage of the state is reflected in its impressive folk music and dances, different languages and dialects, the majestic forts, palaces, mansions and divinely holy places of religious worship, its multihued fairs and festivals, its tempting cuisines, and, above all, its inviting and cheerful people.

Rajasthan is truly one such place to experience all the hues of a healthy culture.



Culture of Rajasthan

The figure on right shows different attributes of Rajasthani culture that is further classified into Tangible and Intangible culture.

Tangible culture

Art and Craft- Rajasthan is famous for textiles, semi-precious stones and handicrafts, and for its traditional and colorful art. Block prints, tie and dye prints, Bagaru prints, Sanganer prints and Zari embroidery are major export products from Rajasthan. The blue pottery of Jaipur is particularly noted.

Food- Each region of Rajasthan has its own traditional dishes and specialties with unique flavour. Rajasthani food is well known for its spicy curries and delicious sweets. The spice content is quite high in comparison to other Indian cuisines.

Music- It's a prime part of culture, which displays all aspects of Rajasthan culture. Rajasthani music and songs talk about its rich past by many religious and devotional songs and dramas. Various traditional musical instruments like dholak, ektara, matas, nagada, chang, kamayacha, sarangi, sitar are commonly used in all types of music.

Paintings- Art with the use of strong and vibrant colours reflect the culture. The traditional paintings are generally based on the subjects related to royal life style, religious and secular. The miniature painting of Rajasthan is the

most characteristic paintings of Rajasthan generally executed in paper, marble, ivory, wood & cloth.

Architecture- It's known for the the majestic forts, intricately carved temples and decorated havelis, which were built by kings in previous ages. Jharokha, and Chattris are very unique to Rajsthani architecture.

Dresses- Reflecting the colorful Rajasthani culture, Rajasthani clothes have a lot of mirror-work and embroidery. Rajasthani dresses are usually designed in bright colours like blue, yellow and orange.

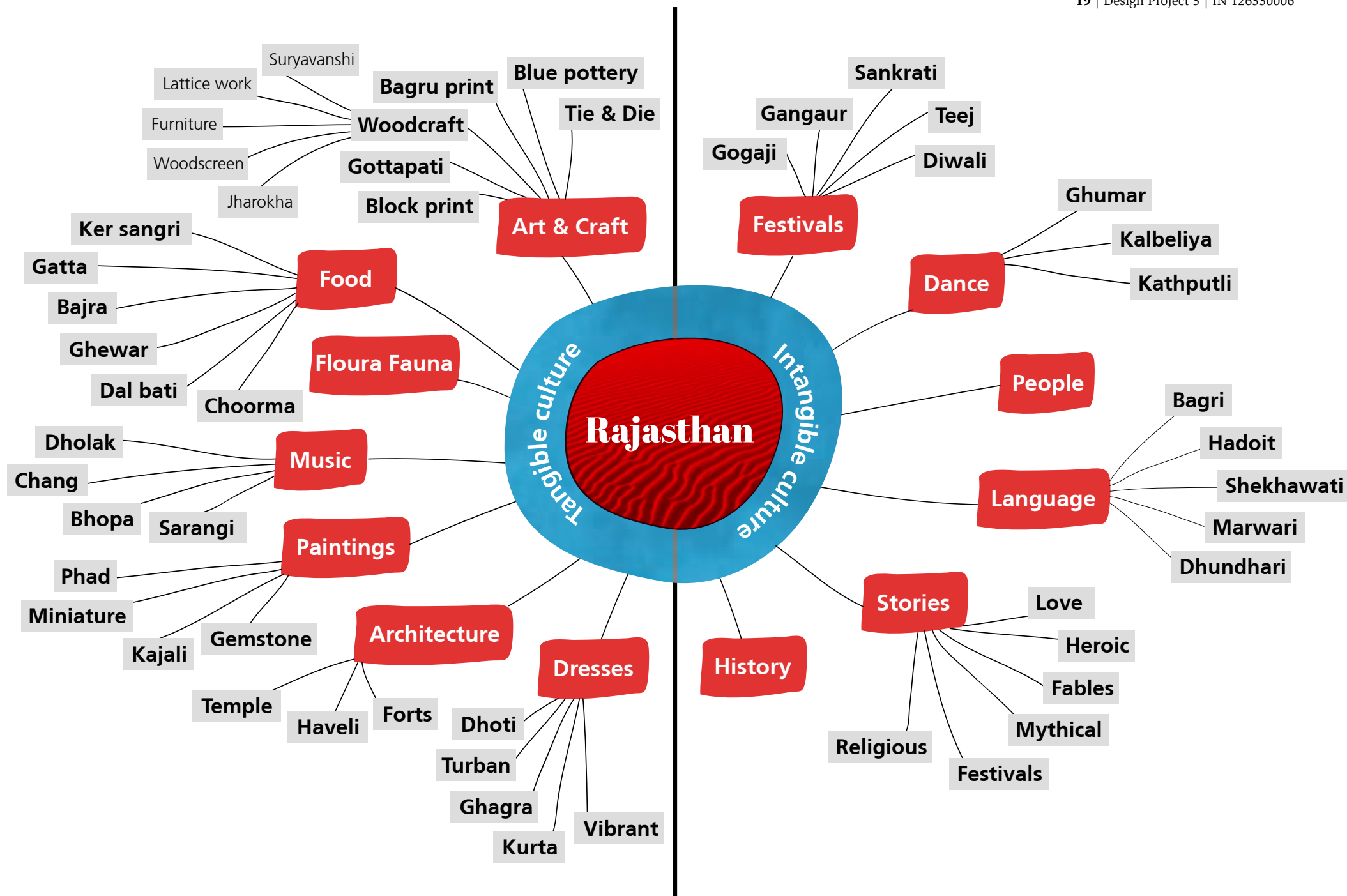
Intangible culture

Festivals- Numerous festival offers a chance to know about the life of Rajasthan. Some of the well known festivals of the state include the Pushkar Fair, Desert Festival, Gangaur Festival, Marwar Festival, Camel Festival, Summer Festival & Teej.

Dance- Rajasthani dances are essentially folk dances tracing their origin to rural customs and traditions. Apart from the simple expressions and daring movements that add beauty to the dances, there are the vibrant and colorful costumes adorned by the dancers.

Language- The primarily spoken language of Rajasthan is Hindi. However, there are different dialects in the local languages of Rajasthan. The four main dialects of Rajasthani language are Marwari, Dhundhari, Malwi, Mewati.

Stories- Folk rajasthani stories are about valor, romance and tragedy. Most of the folk songs are commonly based on stories which revolves around heroic deeds ,love stories, religious or devotional stories, gods, goddesses, saints, local heroes etc.



Importance of Culture

Culture comprises of attitudes, values, laws, and cherished beliefs or ways of doing things. Many cultures have foundation based on myths and beliefs. Culture can influence adults in their everyday lives in the decisions they make and attitudes they have towards other people. As culture is learned and shared, adults can majorly influence child's attitude.

A child who feels free and safe in the presence of there native cultural will be able to sustain the confidence they need to learn. There awareness about it is important to the child's development. It will stimulate and strengthen their ability to relate and explore. When children learn about there culture, they become interested in how people live, their cultural norms and values, different religions and languages.

I think it helps them see the beauty of there own and different cultures and appreciate the differences and similarities in how others and they live.

Need for cultural awareness

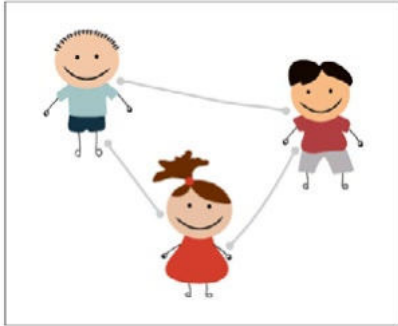
Many families along with their children migrate from their home towns to urban cities, while trying to fit in the urban lifestyle they ignore their own culture and native language. There are less sources and opportunity available to know.

The child's native culture is important to his/her identity. Children who are not completely aware about their own culture can face problems like identity loss or alienation from their grandparents or other family members. If nurtured properly, it will benefit them throughout their lives. Maintaining all the aspects of culture will help the child value his/her culture and heritage.

Being from Rajasthan, I am focusing on Rajsthani culture and it's aspects that are promoted through storytelling, as it's the best tool for children to learn and understand.

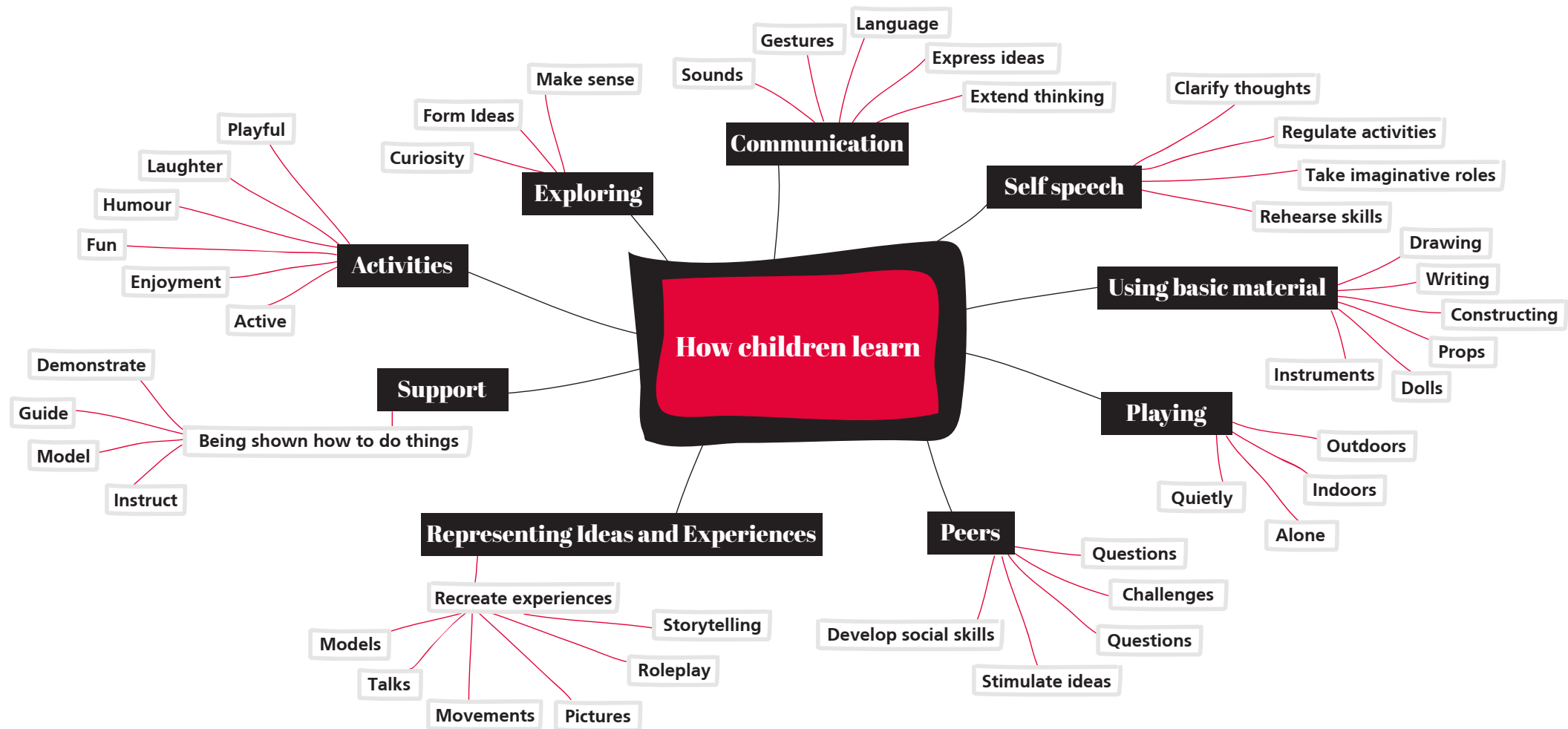
Project Brief

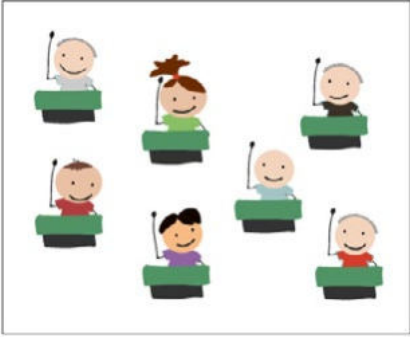
The aim is to promote, foster and propagate the cultural heritage and value system of Rajasthan amongst young children in a fun and interactive way. A platform which helps the children to take pride and understand their native culture(Rajasthan).



How Children learn

As part of my primary research I tried understanding how children learn, their behaviour, different learning styles and the environment in which they learn the best. Also looked at how physical, social and emotional, communication and intellectual skills are developed in children of this age group.





Learning Styles

Learning styles is a term that refers to different ways in which children learn, process, and retain information. Understanding how children learn can help them absorb the information. Learning style is defined as the way that information is processed. It focuses on strengths, not weaknesses.[11] Most children show preference for one of the following learning styles:

Visual- Visual learners learn by watching. They call up images from the past when trying to remember.

Aural- These children learn by listening and remember facts when they are presented in the form of a poem, song or melody.

Verbal- Prefer using words, both in speech and writing.

Physical- Learn best through body movements, hands

and sense of touch.

Logical- Prefer logics and reasoning. Main aim is to understand reason behind it.

Social- These children prefer to learn in groups or with other people.

Solitary- Prefer to work alone and use self study as mode of learning.



VISUAL
(spatial)



AURAL
(auditory/musical)



SOCIAL
(interpersonal)



SOLITARY
(intrapersonal)



PHYSICAL
(kinesthetic)



LOGICAL
(mathematical)



VERBAL
(linguistic)



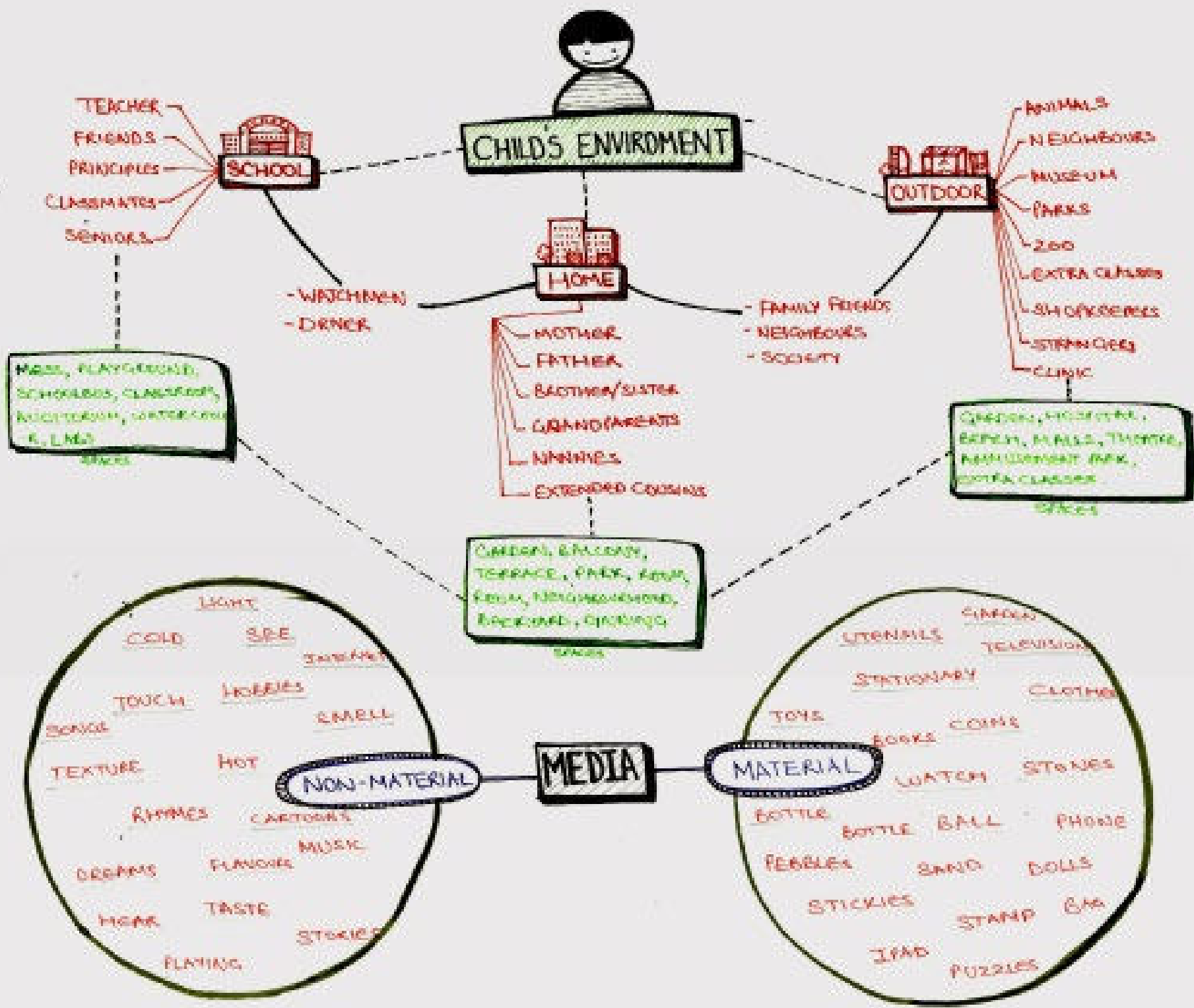
Age group

Intuitive Phase (4-7 years)

According to Jean Piaget's theory of cognitive development, speech becomes more social, less egocentric.[4] However, there is still a tendency to focus attention on one aspect of an object while ignoring others. It's called phase of "intuitive thought" because Piaget believed that children at this stage tend to be so certain of their knowledge and understanding that they are unaware of how they gained this knowledge in the first place (i.e., knowing by intuition).

By this age children have formed a more complete understanding of concepts and have mostly stopped reasoning. Their thinking becomes more logical, although it is structured more about perception than logic.

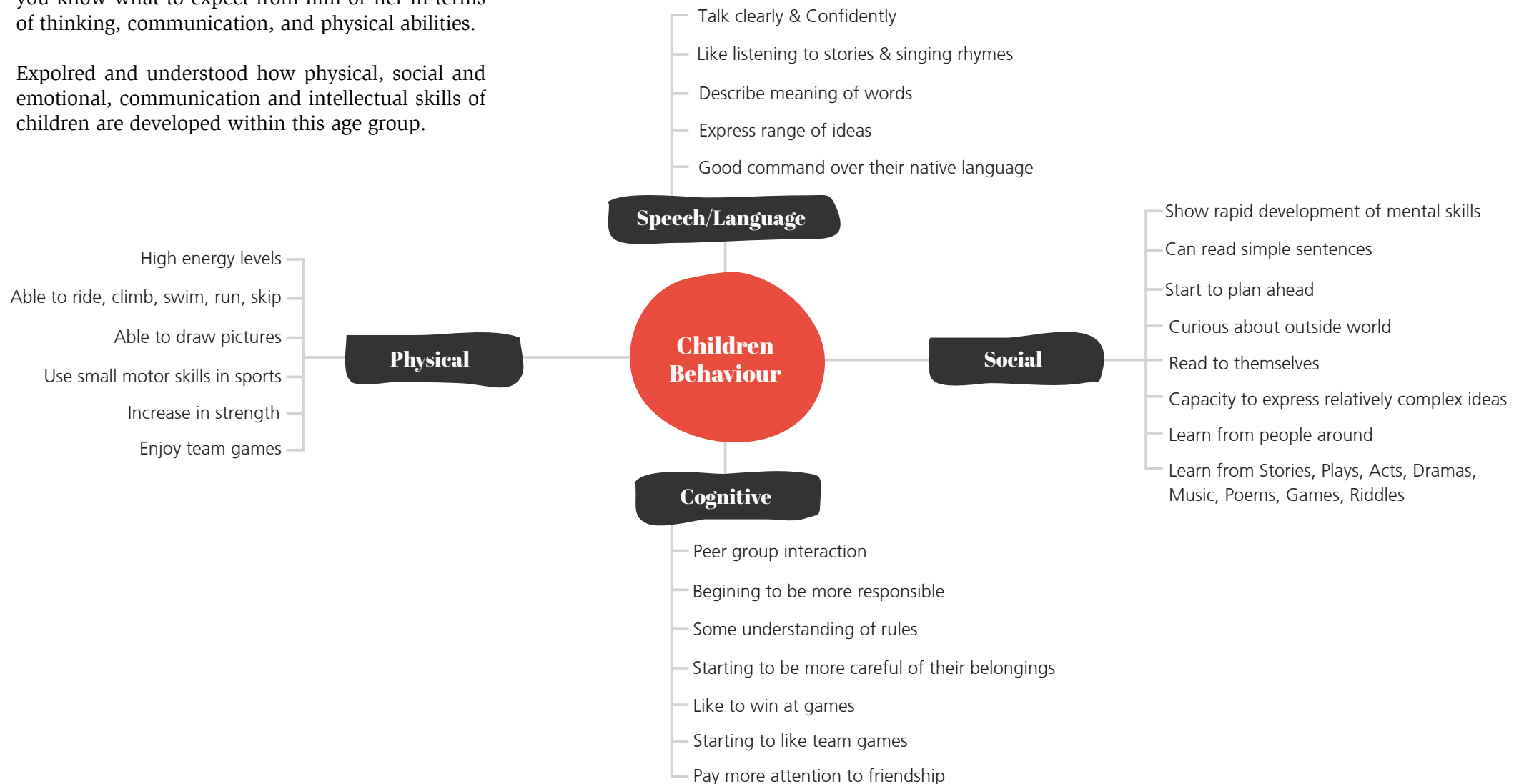
In between this age, children tend to become very curious and ask many questions, beginning the use of primitive reasoning. There is an emergence in the interest of reasoning and wanting to know why things are the way they are.

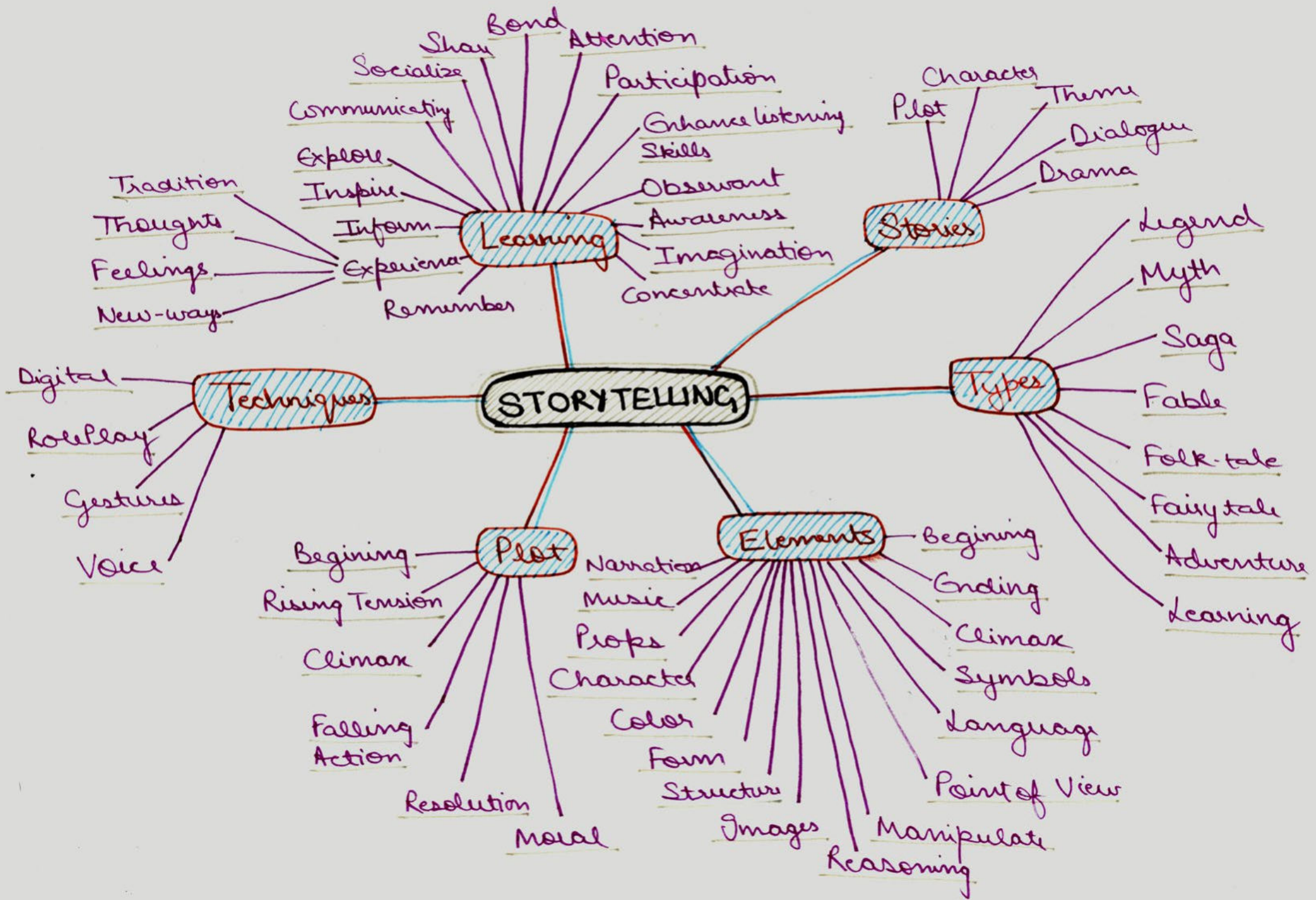


Children Behaviour

To look after and work with children it is important to understand their development. It is almost impossible to think about how to meet a child's needs unless you know what to expect from him or her in terms of thinking, communication, and physical abilities.

Explored and understood how physical, social and emotional, communication and intellectual skills of children are developed within this age group.





About Storytelling

Storytelling is a mode for sharing and interpreting experiences. Stories are universal in a way that can bridge cultural, linguistic, and age-related gaps.

Storytelling can be used as a method to teach ethics, values, and cultural norms and differences. Learning is most effective when it takes place in social environments that provide social cues about how knowledge is to be applied.

Stories also provide a tool to transfer knowledge in a social and cultural context. It's a means for sharing and interpreting experiences. Through this mode of communication, the aim of the project is to promote Rajasthani culture to children in a fun way where they get a holistic view of how people live in Rajasthan, things they do and their daily chores.

Benefits of Storytelling to Children [5]

Storytelling is an activity that can **transfer emotions and feelings** and also can **boost thinking capacity**.

Storytelling is a great **activity of learning**. At each phase of the development of the story, kids ask questions, and become familiar with a range of customs, personalities and points of view. It offers insights into different traditions and values of the culture.

The most important benefit of storytelling is **increased knowledge in children**. They get to know about various places, practices in life, relationships etc.,

through stories. Most of the stories depict good and bad characters. Listening to stories helps children to have an idea of accepted style of behaviours and must to avoid acts. Stories also allow children to know about their own cultural roots.

Story telling **introduces lot of new vocabulary** to children. It is easy to teach the meanings of the words as kids learn faster from the context of story.

Story telling also **encourages children to participate actively** in the learning process. It can enhance the listening skills of children. Kids love to talk instead of listening to anything.

It's a social experience unlike any television show, video game etc., storytelling provides a fun experience for children with real and live human interaction.

Benefits of storytelling for Children

Story telling is an art that has mental, social and educational benefits on children. The mind-map below shows different ways of storytelling which helps children to learn and grow



Storytelling tradition in Rajasthan



Kathputli
(Puppets)

Puppet show is a traditional way of having a taste of puppets (otherwise known as kathputli) is a conventional method for storytelling. Rehearsed by artists and particularly the bhat community of Rajasthan, puppetry is a necessary part of Rajasthani life style. These hand tailored puppets are not simply a doll or a toy but are a way to send a message to the masses through captivating story telling. The stories mostly revolve around the exploits of the local heroes.



Phad Paintings
(Cloth Scroll)

The phad of Rajasthan are extraordinary large folk paintings made in honour of Rajasthani folk deities. Sacred oral epics are illustrated on phad, which is used for nightlong storytelling performances by bhopas (storyteller). The bhopas dance in front of the scroll during a musical interlude and the diyala stands nearby focussing light on the part where the story is being narrated. The phad tradition of Rajasthan is known to be extremely conservative in its artistic form.



The Kaavad storytelling tradition
(Mobile Temple)

The Kaavad is a portable wooden temple/shrine that has visual narratives on its multiple panels that are hinged together. These panels open and close like doors simulating the several thresholds of a temple. The visuals are those of Gods, goddesses, saints, local heroes and the patrons. [6]

About Kaavad tradition

The term kaavad comes from 'kivad' meaning door. The shrine consists of numerous hinged panels that open outwards. Kaavad is a movable shrine with multiple narratives. It's a theatre of narratives with visual imagery. [7]

Storytelling Ritual

Before beginning the narration the storyteller lights an incense stick and introduces himself (Kaavadiya).

Storyteller uses a peacock feather to point and brush the images as he opens the kavad panel by panel.

This is followed by opening verses composed by poet Kabir and Tulsidas, in which they talk about the virtues of sharing and charity.

Then he introduces all the figures and gives synopsis of the stories to follow. As he continues to sing, he opens the panels of the kavad one after another

Ends the story with a chanting by opening the innermost door to reveal the image of Rama, Sita and Lakshaman.



Stories

A single image may inspire an hour long narration.

Same image can have multiple stories.

Stories about challenges and hardships faced by those who keep their faith in deities, despite being tested by them to make sacrifices which they do unconditionally.

Some tales revolve around marriages between humans and birds/animals or humans/human and monsters.

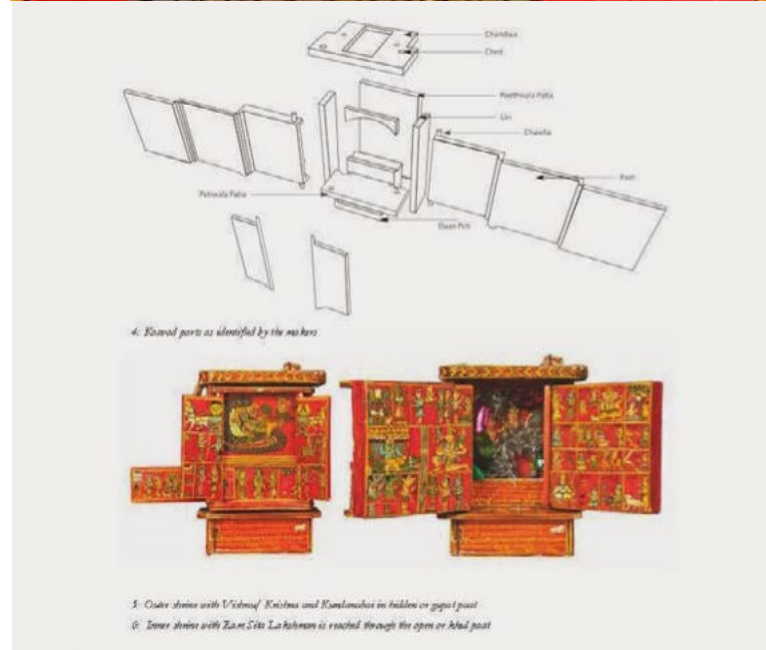


Structure and Order

The traditional marwari kaavad is usually one foot high and has 12 to 16 panels or pats that are hinged together. This enables the teller to move the listeners from one story to another through time.

Each panel has a name and the images drawn on the panels have predefined locations.

At the base is a donation box on which it states the donation will be used for feeding cows.



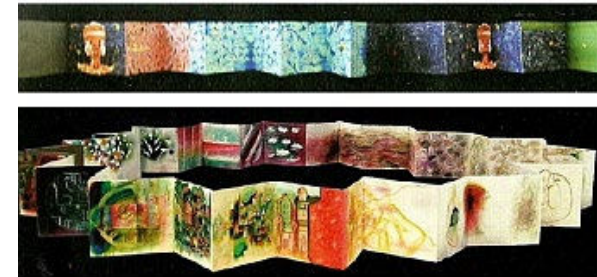
Projects inspired by Kaavad

Kaavad: Traveling Shrine: Home Gulam Mohammed Sheikh

The following Kaavad with folding doors and walls is made of boards mounted on steel structures. It tells the story of Mohammed Sheikh's return from England in 1967 to his hometown. [8]

His "Kaavad" is an interesting structure with multiple doors opening in varied directions. It is almost a room-sized assemblage of many-leaved doors that can fold and unfold in complex configurations. When shut, it appears like a box, eight feet high and covered with images.

Mohammed Sheikh's small-format Kaavads take users back to the riot-ridden days and their impact, the bigger ones narrate tales of hope and love. This particular kaavad is about his memories of migration and displacement.



Projects inspired by Kaavad

Home

Nina Sabnani

Like the wooden Kaavad used by traditional storytellers of Rajasthan, storytelling house 'Home' designed by Nina Sabnani is a stand-up book which unfolds visual narratives like multiple windows on a computer screen. It allows communication in any language, anywhere in the world.

Its designed to motivate children to tell their own stories and through these stories to tell us what they are thinking and imagining. It is interactive as it allows for multiple interpretations of the image. It can be used to initiate discussions around multiple themes besides home and family.

The book inspires discussion around the ideas of home, family, identity and belonging. [9]



Children and Technology

Interactive Spaces [10]



Puppet Parade

design-io.com/projects/PuppetParadeCinekid

Puppet Parade is an interactive installation that allows children to use their arms to puppeteer larger than life creatures projected on the wall in front of them. Children can also step in to the environment and interact with the puppets directly, petting them or creating food for them to eat.



Funky Forest

design-io.com/projects/FunkyForestSAM

Funky Forest is an interactive ecosystem where children create trees with their body and then divert the water flowing from the waterfall to the trees to keep them alive. The health of the trees contributes to the overall health of the forest and the types of creatures that inhabit it.



Weather Worlds

design-io.com/projects/WeatherWorlds

Weather Worlds is an interactive installation that grants children weather controlling superpowers. Utilizing a camera and real-time greenscreening, the installation allows children to see themselves immersed in an interactive and dynamic environment. Using their bodies children can conjure a storm, release a twisting tornado.

Children and Technology

Interactive Toys



Jabber Stamp

web.media.mit.edu/~cati/publications/Jabberstamp_IDC07.pdf

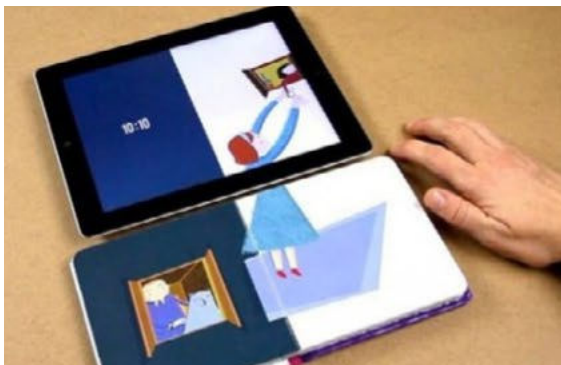
To use Jabberstamp, children create drawings, collages or paintings on normal paper. They press a special rubber stamp onto the page to record sounds into their drawings. When children touch the marks of the stamp with a small trumpet, they can hear the sounds playback, retelling the stories they created.



Talking Maps

www.amazon.com/Zanzoon-Interactive-Map-USA-English

The interactive talking map brings America's 50 states to life with more than 1,000 facts and questions to use in sessions that feel more like play than like a dull lesson. The map can be placed on a wall, table, or floor. It features distinct graphics indicating topography, landmarks, regional motifs, and more.



Bridging Books

www.bestinteractiveebooks.com/2013/06/bridging-book

Bridging Book is a mixed-media picture-book that blurs the line between printed and electronic books. It consists of a printed book and a digital device, placed side-by-side, with synchronized content. Thumbing through the book's pages triggers the device to display the complementary digital content.

Children and Technology

Interactive Tablets



Tiggly

tiggly.com

Tiggly toys and apps are specifically intended to help children between 18 months and 4 years old develop spatial reasoning, motor skills, language, and creativity. The idea is to manipulating physical objects that is essential for early childhood development.



Apptivity

www.mattelapptivity.com

To begin with start the app and place your hot wheels vehicle on your iPad screen. Special contact points on the bottom of each vehicle allow the app to identify which car you are using, then the app can enable the custom features unique to that car.



Inno tab

www.vtechuk.com/innotab

Using InnoTab, kids can send and receive texts and stickers with VTech Kid Connect Basic, to and from iPhone and Android Smart Phones. With this, kids can send and receive voice messages, photos and drawings. Kid-safe web browsing is easy with parent-approved websites.

Children and Technology

Construction Toys



Construction set with standardized pieces that allow for the construction of a variety of different models.

Construction toy play is beneficial for building social skills and building trust in children because it acts as a collaborative task where individuals have to cooperate in order to finish the task.

These toys build resourcefulness, creativity, visual-spatial skills, fine motor skills, and problem-solving ability.



Ideation

*After brainstorming from multiple ideas,
following four are the initial concepts.*

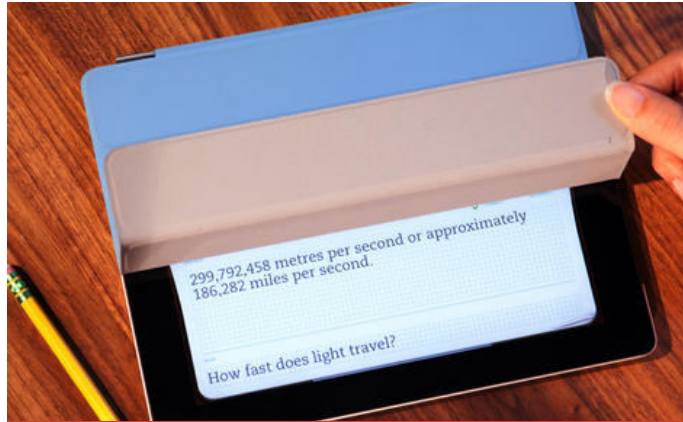


Concept 1

Kevad



Inspiration: Foldable Ipad cover + Kaavad



Inspiration: Evernote Peek learning app

Kevad

Unfold the story

Audio + Visual + Narrative

Inspiration

Kaavad, the traditional storytelling tool of Rajasthan, inspires this design idea of unfolding new stories with multiple interpretations.

Concept

'Kevad' means door in Rajasthan. The foldable cover of tablet will have an interactive narrative, which can be further explored and learned by unfolding each and every flap through auditory and visual inputs. This concept is an elaborated extension of 'Evernote Peek' application. The cover and evernote peek app works with each other where first you choose something featured to study and then peek under the cover to see clue and then you lift the cover higher to see the answer. Close the cover and repeat the process again with a new clue.

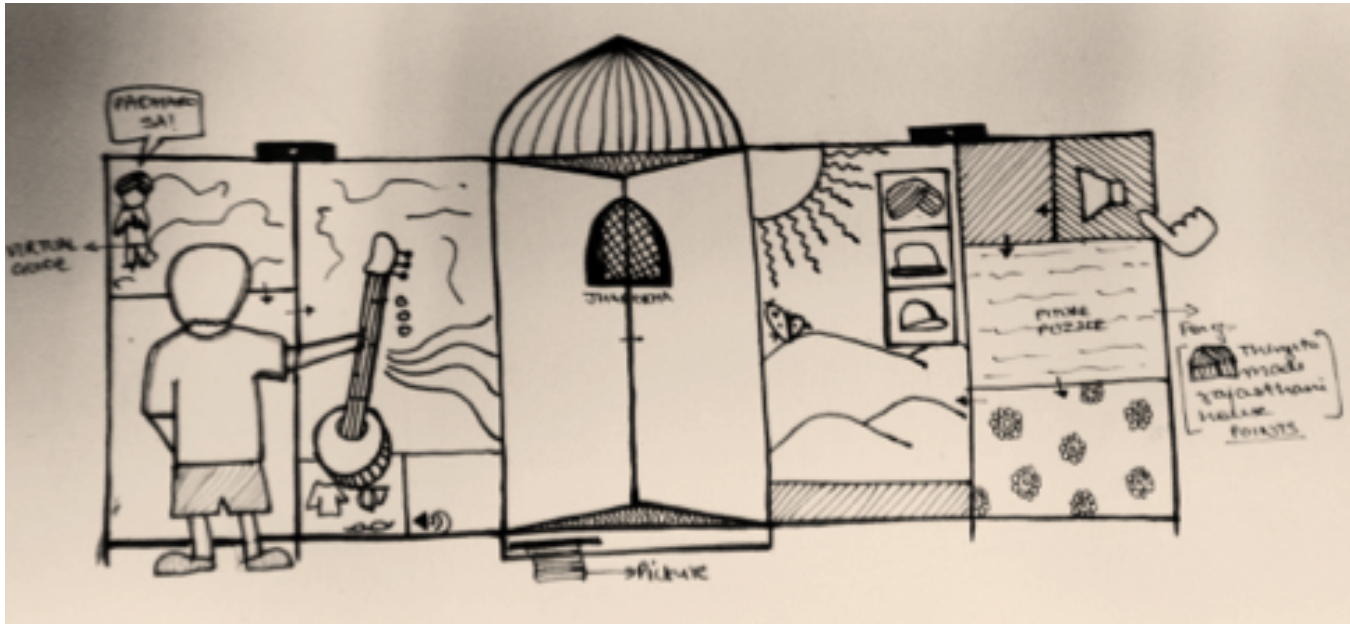


With amalgamation of digital and print media children can interpret a new story every time they use *kevad*. Story goes through several numbers of variations, as tablet will have different stories integrated in it. This allows the children to interpret and explore new tales. Interactivity can be further enhanced with combination of sound, visuals and narrative on pressing the touch points.



Concept 2

Experiential Kaavad



Experiential Kaavad

Interactive Installation

Interactive + Activity + Artefacts

Concept

This concept revolves around an interactive installation, which can be placed in either of the spaces: Museum/ Airport/Malls. It's an interactive, playful and life size set up inspired by kaavad.

Numerous panels are hinged together which can be unfolded outwards and unlocked step by step with set of activities giving information about the culture of Rajasthan through a story. It comprises of fun activities like playing an instrument or looking through jharokha to get the next fold unlocked or knowing some facts about Rajasthan can be a part of the interactivity. Experiential Kaavad aims to give jist of Rajasthani culture. With cultural artefacts incorporated with it the experience becomes more realistic and amusing. With the combination of digital media and traditional kavadi painting the story is narrated through a series of tasks. Added Rajasthani sound of the ambience makes it lively and perky at the same time. The vibrant colours and content enhances the experience of this idea.



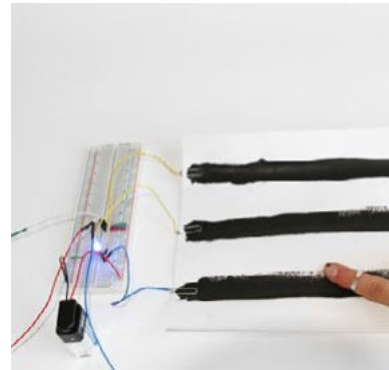
Inspiration: Kaavad, Musical Instruments, Folk Dance, Jharokha, Artefacts like Safa (turban), Facts

The content contains interesting facts like usage of cow dung to make house, concept of rain water harvesting (well), hospitality of people there, arts & crafts about Rajasthan. In order to explain these concepts in a fun way there are tasks for e.g. if a child plays a Rajasthani instrument (right chords) a new door will open.



Concept 3

Interactive Visual Narrative



Interactive Visual Narrative

Conductive Ink

Map + Story + Facts

Inspiration

Inspired from traditional *phad painting* of Rajasthan done on a long piece of cloth for telling stories of gods and goddess.

Concept

Concept allows the visual narrative to provide kinaesthetic and audio feedback to the user. The painting can be placed on wall or floor that is created from conductive ink. Conductive ink is a ink that results in a printed object which conducts electricity. The transformation from liquid ink to solid printing involves drying, curing or melting processes. This ink enables interactivity in the painting.

It's an accessible platform for children to get creative with technology in fun and intuitive way. The concept involves exploration in different mediums with audio and light feedback for bringing the painting to life. It could be in a form of map, storybook or puzzle with 3-D pop-ups and so on. It involves day-to-day activities of Rajasthani people giving the children a holistic picture of the culture.





Concept 4

Interactive Poster/Board



Interactive Poster/Board

Dark room storytelling

Interactive + Story + Magical

Inspiration

Inspired from traditional *phad painting* of Rajasthan done on a long piece of cloth for storytelling.

Concept

The concept requires the content to be printed in light sensitive ink so that the visuals in the book or scroll appears only when it's in contact with some form of heat. Colour change is from colourless to coloured when exposed to sunlight or ultra violet light, colour-to-colour.

Through this concept, children can explore stories with magical and enjoyable experience. The appearing and disappearing of images can result in increased curiosity that can enable better understanding.

The idea comes from storytelling through *phad* scroll. It can be in form of a indoor camping kit, indoor umbrella type structure, ceiling hanging lamp and so on. In dark when child moves the torch on display space it projects only some part of the story along with movement of light. It's a very subtle interaction, which increases curiosity and makes the game play more fun, interesting and exploratory. Content about the culture of Rajasthan can be absorbed in easy way with the element of fun involved throughout.



Evaluation Matrix

Concept

The concept was evaluated intuitively on basis of physical, emotional, cognitive and social engagement that the user will experience.

	Physical Engagement	Cognitive Engagement	Emotional Engagement	Social Engagement
 Concept 1 Kevad Unfold the stories <i>Audio + Visual + Narrative</i>	LOW	HIGH	MEDIUM	LOW
 Concept 2 Experiential Kaavad Interactive Installation <i>Interactive + Activity + Artefacts</i>	HIGH	HIGH	HIGH	HIGH
 Concept 3 Interactive Visual Narrative Interactive Poster/Painting <i>Map + Story + Facts</i>	HIGH	MEDIUM	MEDIUM	HIGH
 Concept 4 Interactive Board Interactive dark room storytelling <i>Map + Story + Facts</i>	HIGH	HIGH	MEDIUM	LOW

Final Concept

Experiential Kaavad for Children

Final Concept

Experiential Kaavad for Children

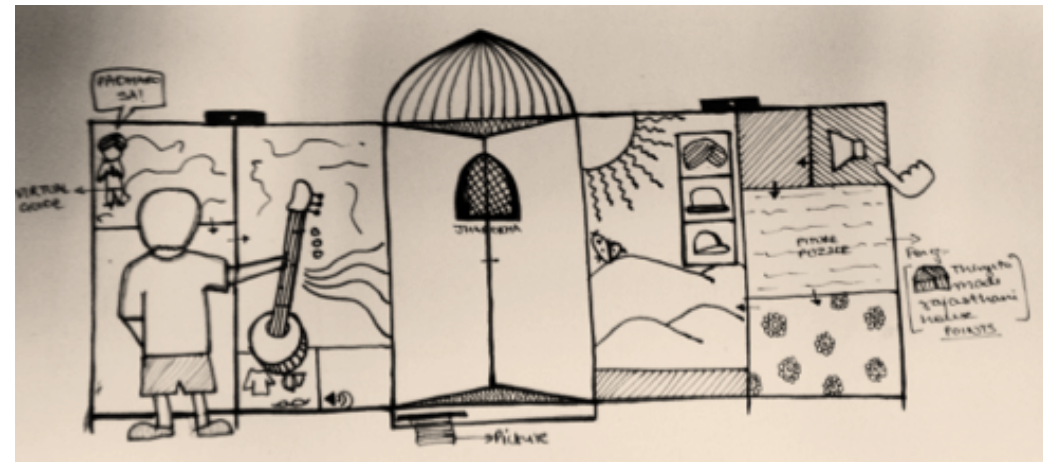
Interactive Installation

Introduction

Experiential Kaavad is an interactive installation for educating children about the culture of Rajasthan. The installation uses Kaavad for metaphorical inspiration.

1. The installation is a walkway of real life cultural habits in story form.
2. The story is divided into chunks; these chunks can be strung together in random sequences, every time making a new string of story.
3. Structurally getting inspired by Kaavad for eg. Bringing in element of hide and seek, multiple doors opening, sequenced yet multiple combination of events in a story. This brings in the playfulness in the installation.
4. Inspiration from fort architecture in the structure of installation brings in hidden visual clues of Rajasthan architecture.
5. Introducing artefacts native to the land of kings.

The concept is a space to enshrine the heritage and culture of Rajasthan.

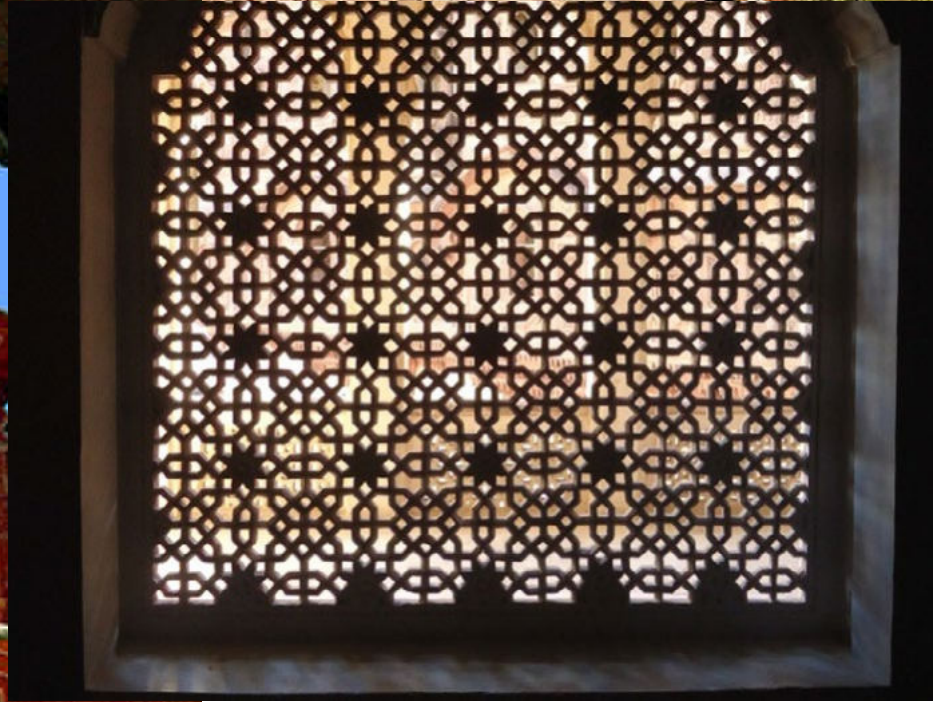
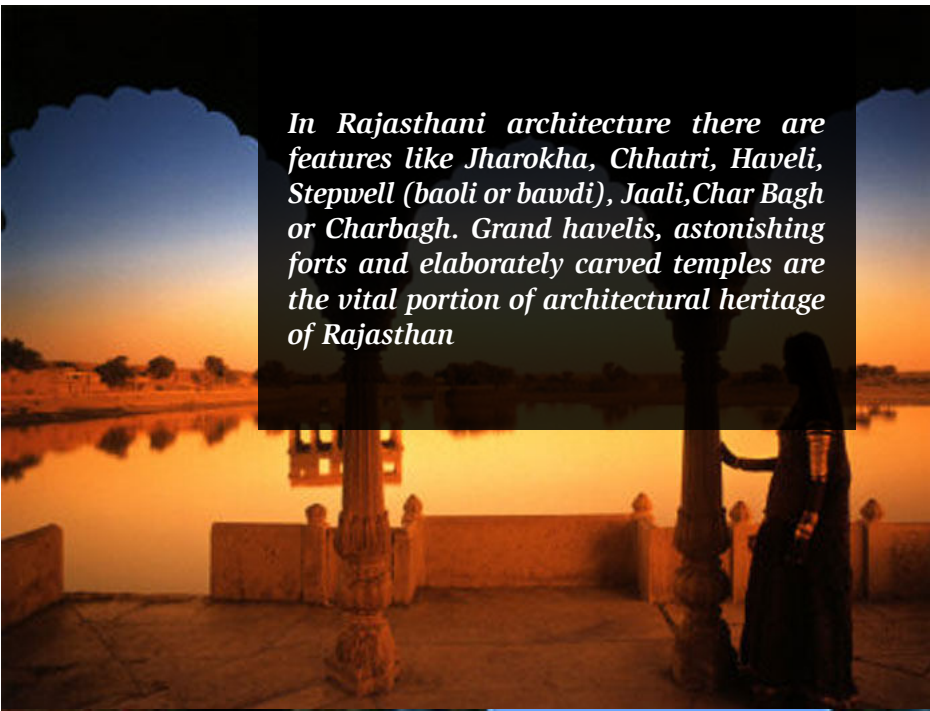


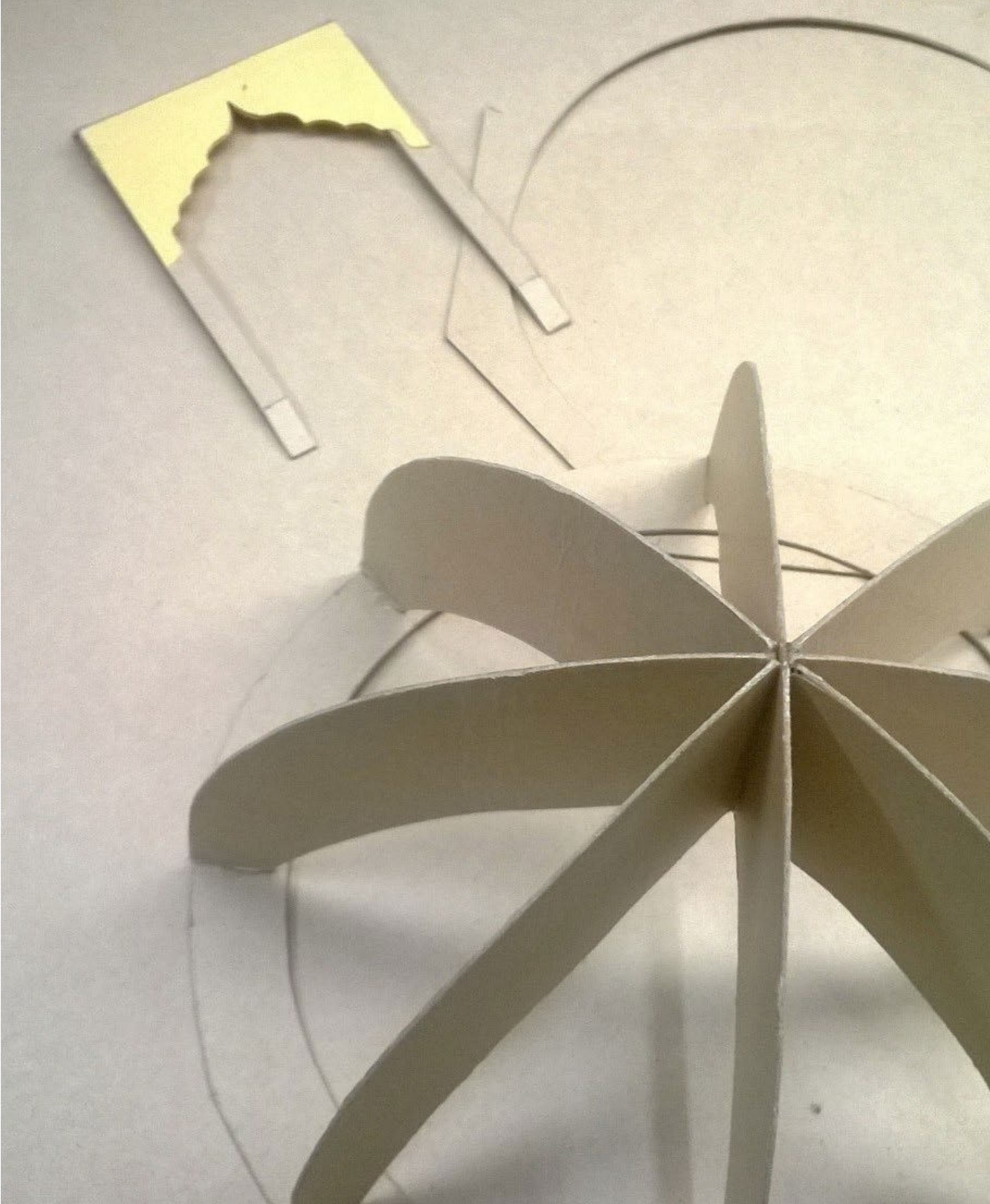
Final Concept Deliverables

Research till now	Deliverables for Installation	
Kaavad Structure Architecture	Structure	1
Colour Texture Art Craft Traditional painting	Visual Language	2
Kaavad History Tales Story of folk songs Cultural habits Daily Chores Humour Poem Food	Story	3
Activities	Activity Flow	4
Sequence	Interaction	5

1. Form Study

In Rajasthani architecture there are features like Jharokha, Chhatra, Haveli, Stepwell (baoli or bawdi), Jaali, Char Bagh or Charbagh. Grand havelis, astonishing forts and elaborately carved temples are the vital portion of architectural heritage of Rajasthan





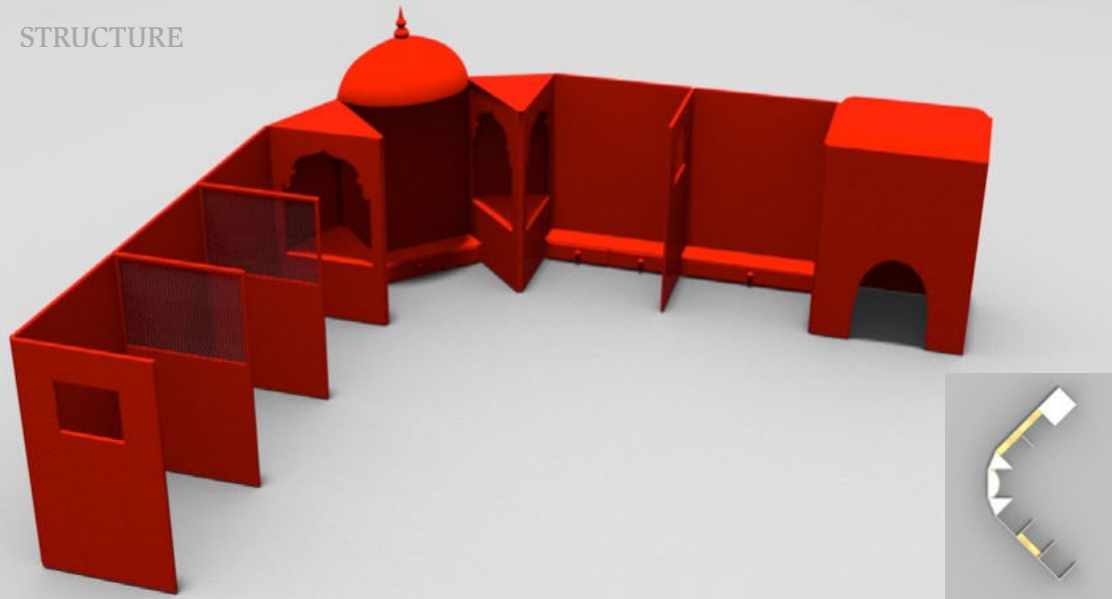
1. STRUCTURE

Explorations

Explored different possibilities for the walk in life size installation by integrating the features of kaavad. With 1 major story panel and 6 other activity panels the idea is to explore different arrangements and orientations to make the space more fun and interactive.

The aim is to create a cabinet of curiosity with real physical belongings which invites the user to an enchanted discovery of Rajasthan and it's culture.





Structure exploration

Exploration 1

Concept

The long corridors of Rajasthani architecture called *naal* were entrance gateways to different utility rooms.

The idea here is to have a long walkway of the activity rooms keeping the main room in the centre or at the end of *naal*.

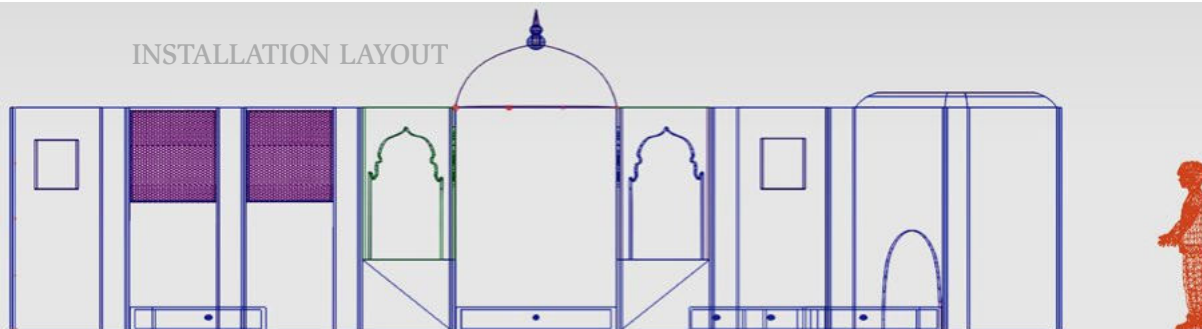
The idea further developed into a open Kaavad like structure, where children interact with activity rooms in a random sequence. Different shaped jharokhas and windows on the side walls lets children peek. The installation allows them to see what the other kids are doing at the same time. Jumping from one panel to other, ducking in the cave like structure are few features which makes the set up entertaining for kids

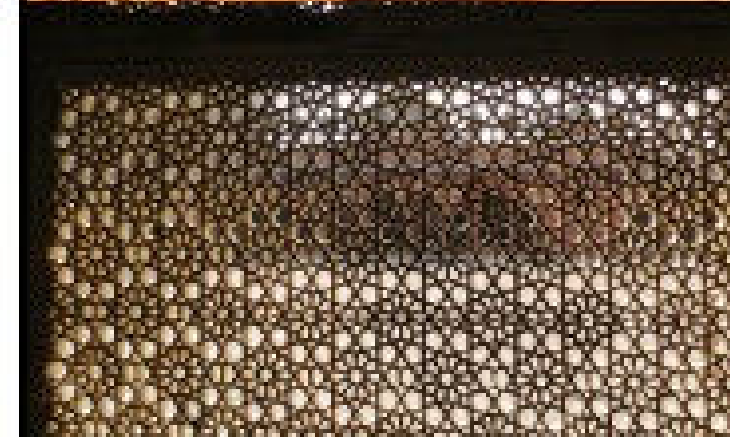
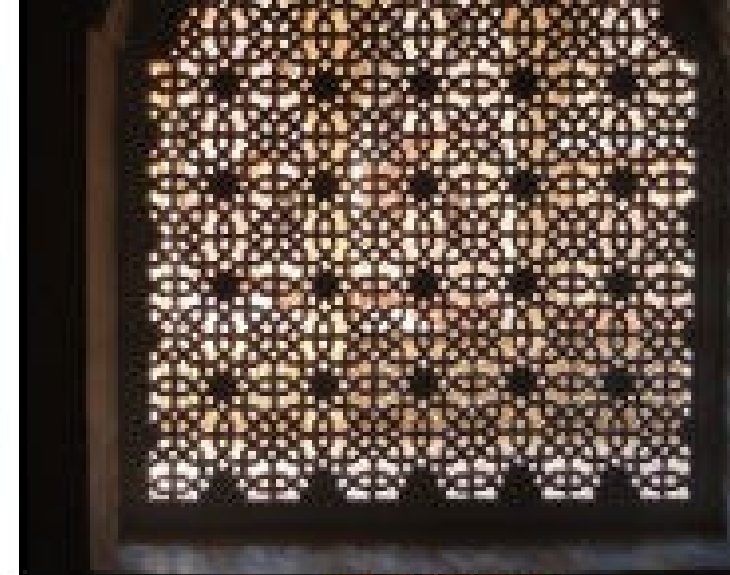
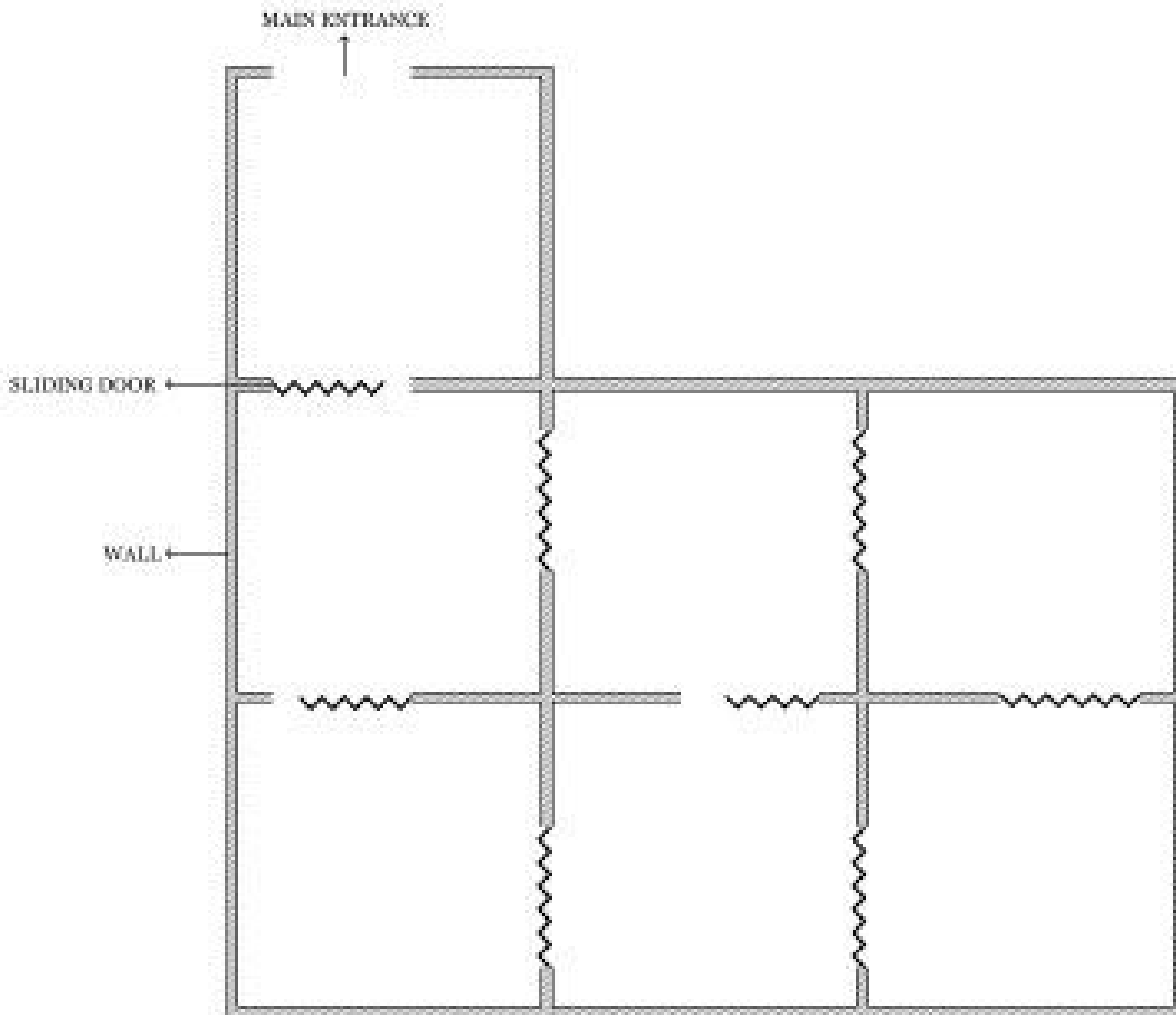
After each activity, children are directed to the main panel in the centre.

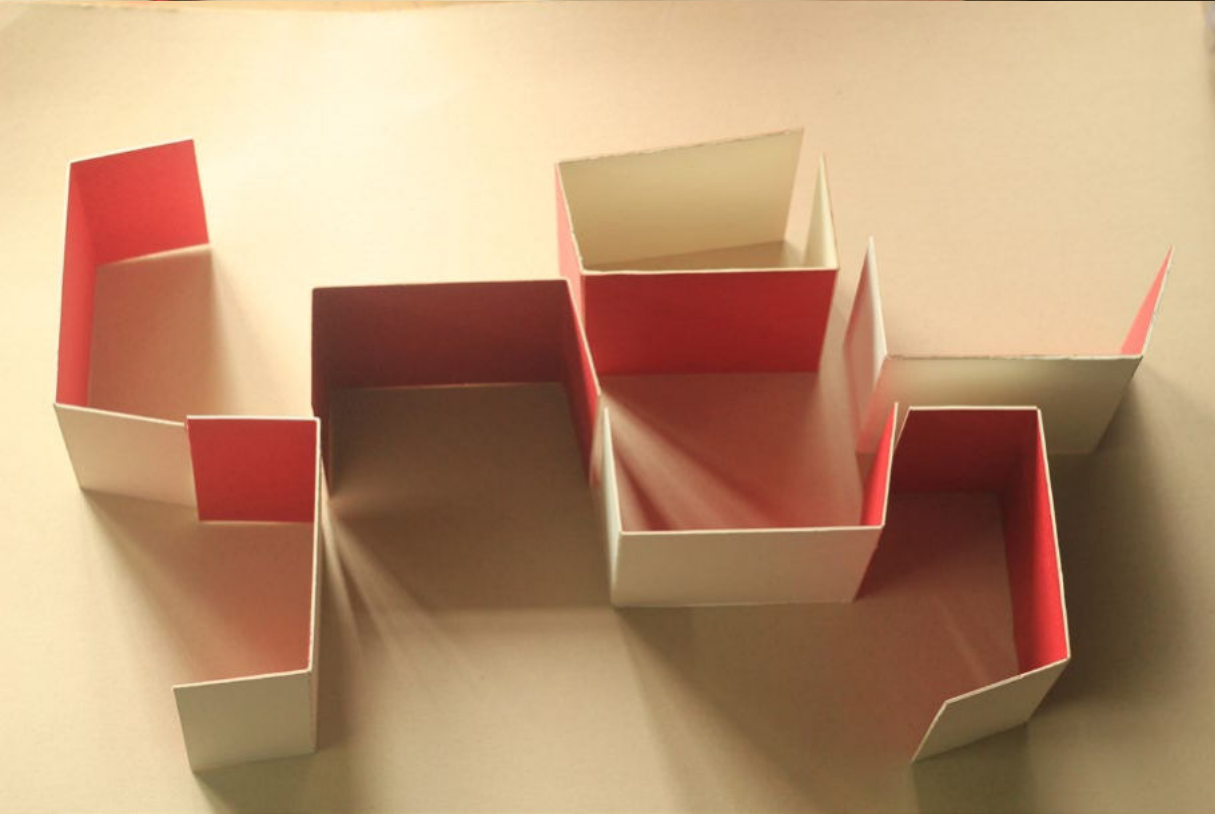
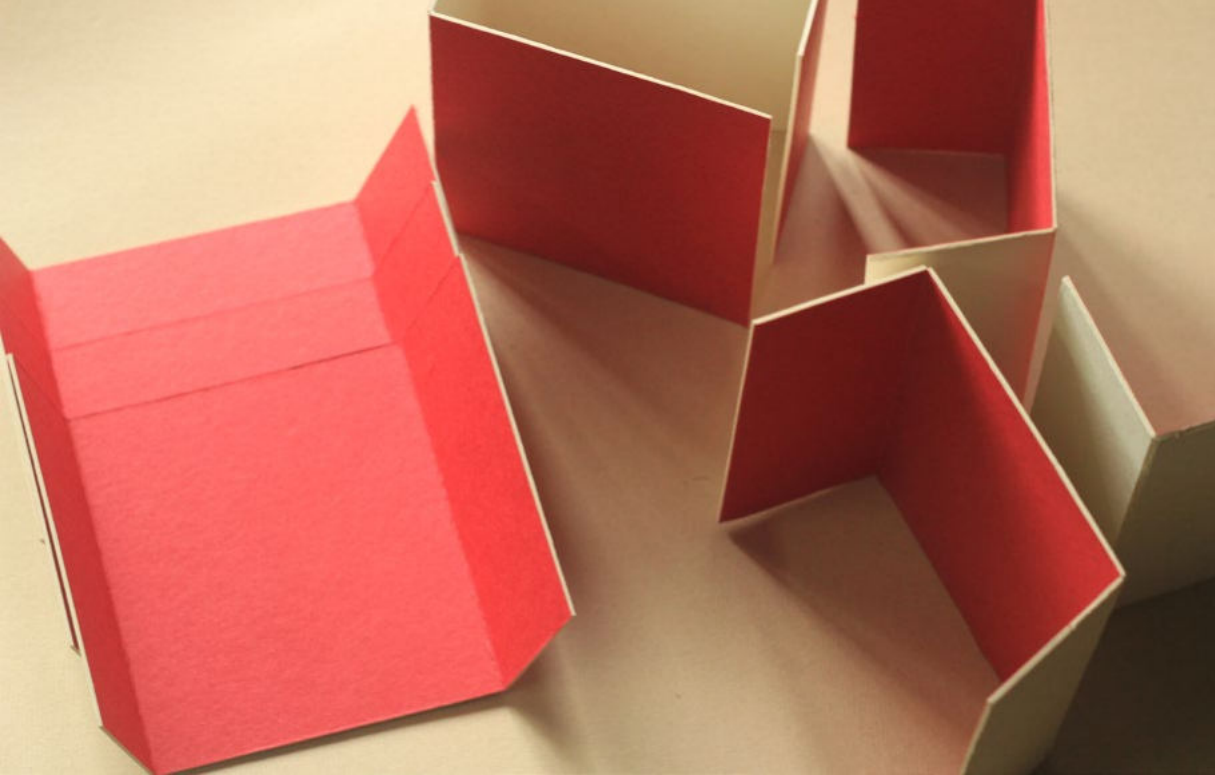
Problem

A major set back with this structure was the flexibility. Structure displayed on right is very rigid and it can't be moved unlike the doors 'pats' in kaavad. It goes in opposition to the real structure of kaavad that is extremely movable and versatile. The idea is to increase curiosity in kids and kaavad has a lot of unique features which can fulfill these requirements.

INSTALLATION LAYOUT







Structure exploration

Exploration 2

Concept

Rajasthan is famous for its maze architecture and palatial maze gardens called bhulbhulia.

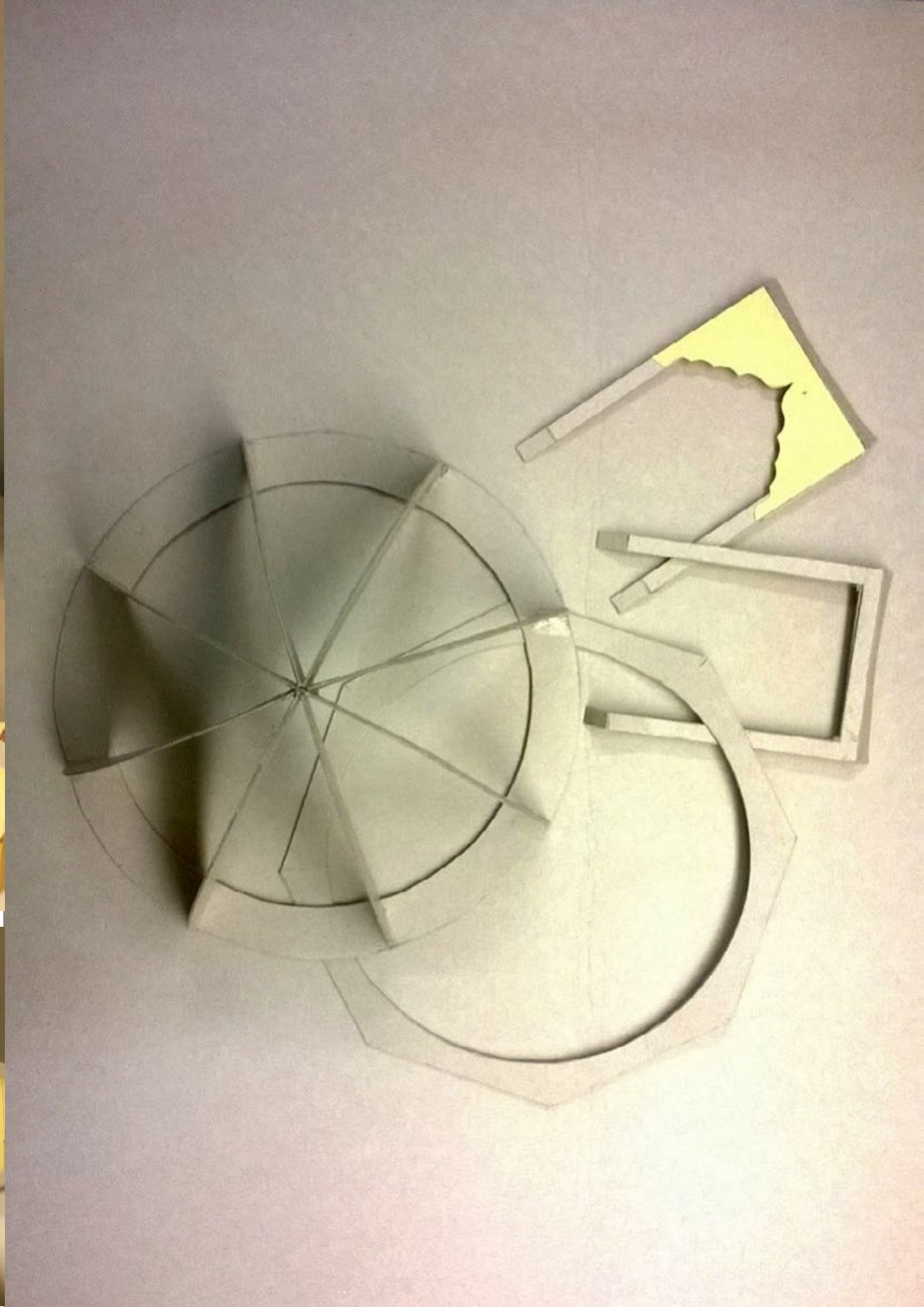
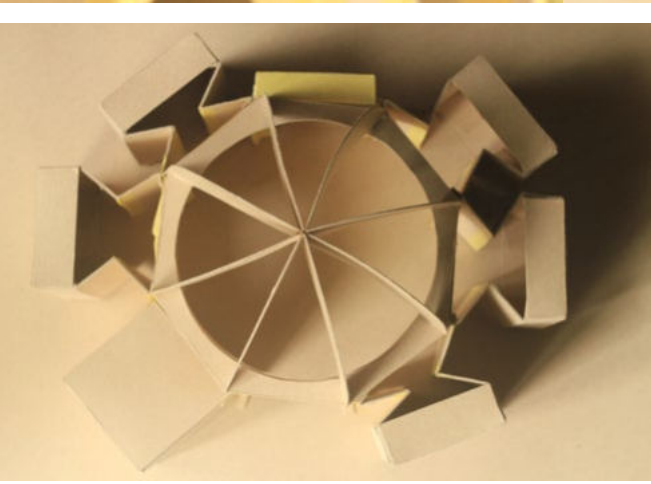
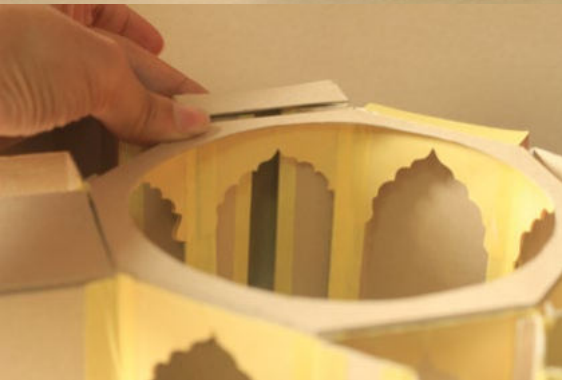
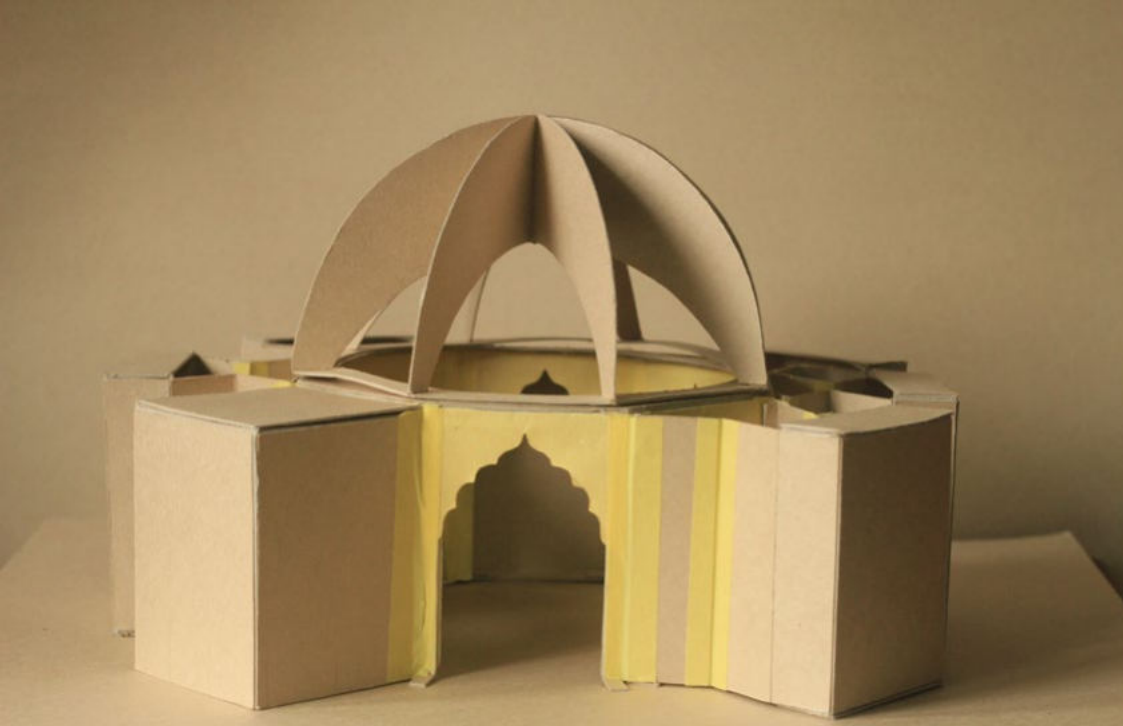
The idea is to have interlinked activity rooms. Every room is a surprise and is a let out to two other rooms. This structure is full of surprises.

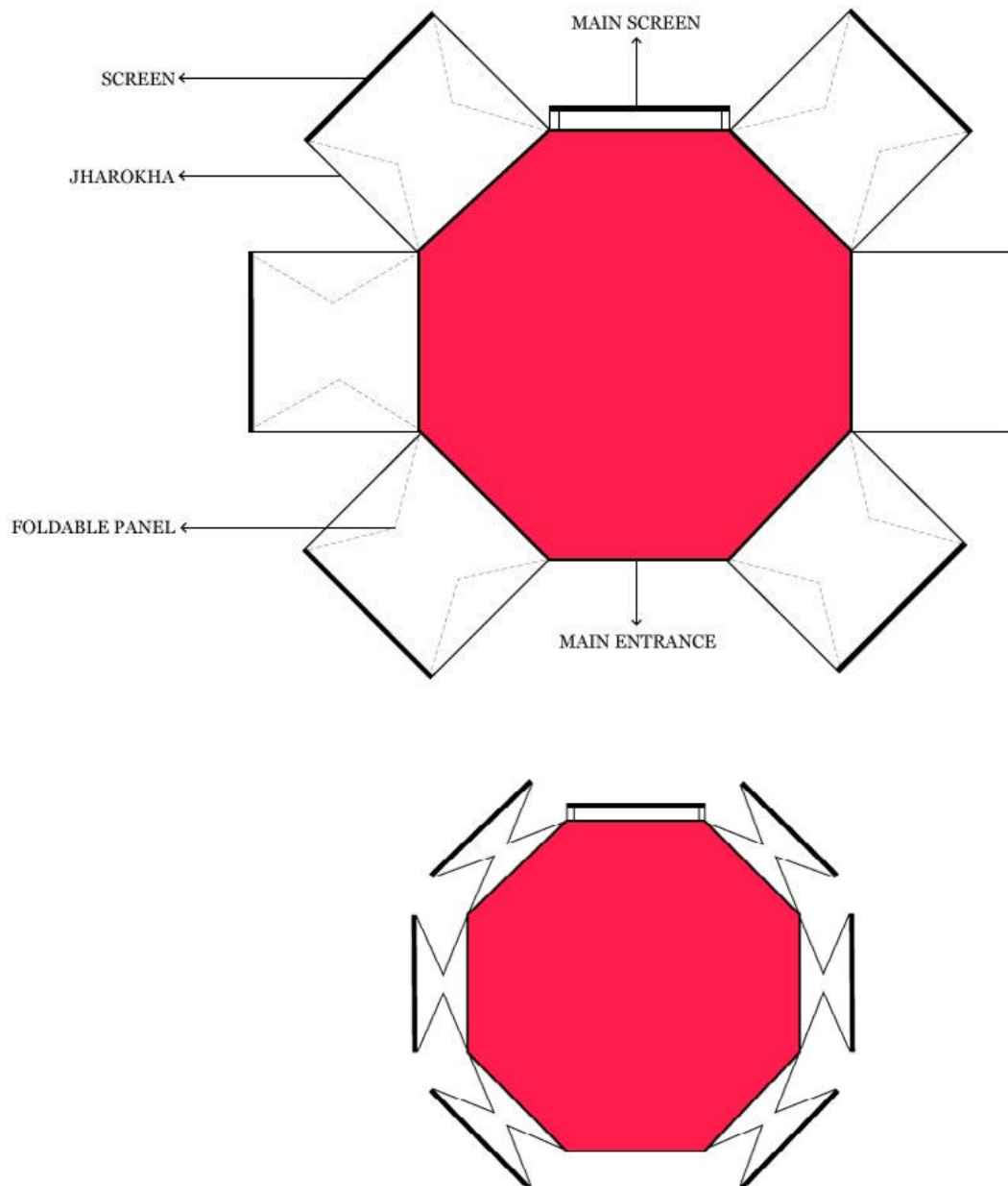
Discovering a new room with varied activities makes the whole experience fun and entertaining. The divider between two rooms is in a form of see through jharokha that opens to a new room. This structure enables the playfulness and makes the experience entertaining. Entrance and exit is from the same common room.

Problem

If placed for a long time, kids might feel isolated and scared in the closed structure as activities are done individually.

Design of structure might reduce the chances of interaction with other children.





Structure exploration

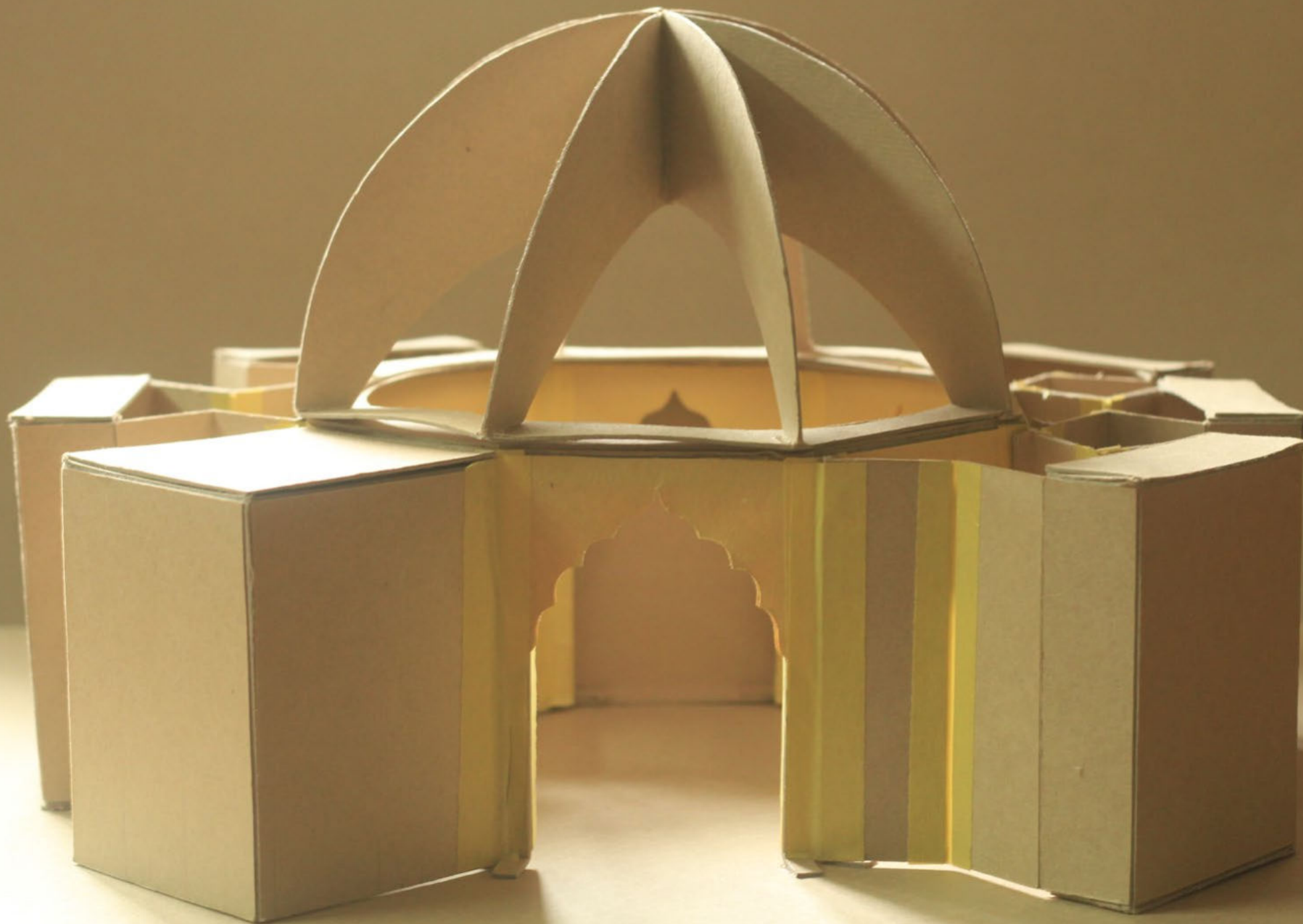
Exploration 3

Concept

It's based on the concept of kaavad and chatris. Chatris is a circular elevated dome that has multiple opening doors. It has multiple purposes as it was used as a point of gather, crossover, as a structure of pride etc. Deriving from kavadi, a structure can have multiple facets and stories with non-sequential story plot. The story is a part of structure. Pieces of story are planted as activity into chatris openings. There is no linear pattern to approach the story or the structure.

The central area (under the dome) increases interactivity amongst children, acts as meeting point and adds to the playfulness. The central area is the one of the major interacting point for children. From there they scatter in different directions to discover the activities hidden. The doors are such that the child has to push open the door to enter the room. The walls of room has jharokhas (small windows) and is covered with cutwork, so that other children can peek in, which helps in building the curiosity.

One of the rooms is a doochati (low heighted entrance and room), here the child has to bend and enter the room. Element of door inside a door is build to tickle the child's inquisitiveness. The structure is circular and modular. The room/panels are detachable and can be placed in different settings as they are placed on wheels (like a maze, a straight structure, scatter etc). The dominant material used for making this structure is balsa wood.



Final Design of the Structure

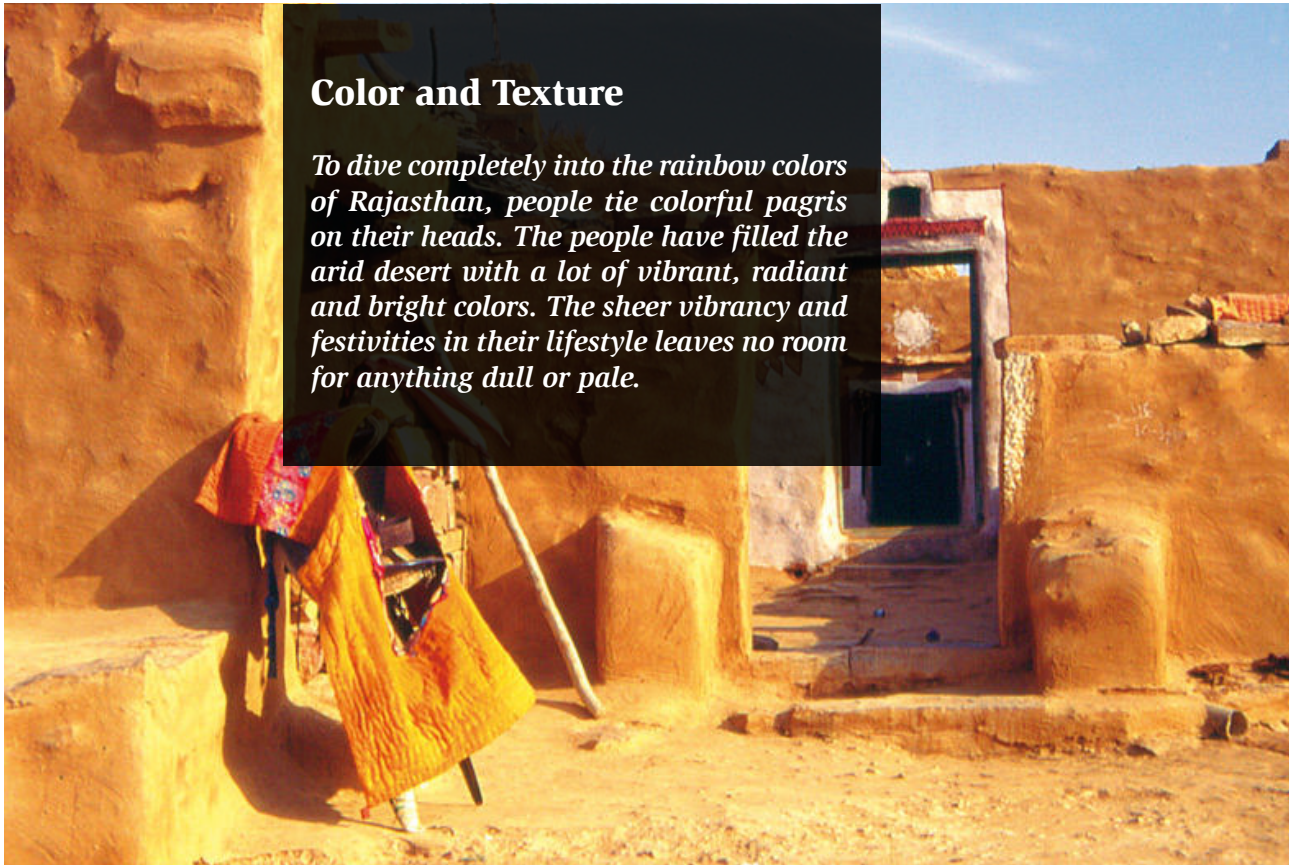
Due to the following reasons, this installation is most appropriate for the structure.

1. Due to the common circular space, children will interact with each other more while switching the panels for different activities. Later the area can be used to discuss, play, watch movie etc.
2. The activities are designed in a way that there is no linear way to approach it, therefore the circular form allows random activity pick.
3. The structure allows flexibility, which introduces playfulness like opening and closing doors, peeking and ducking etc.
4. The structure is inspired by chatris and jharokha, which are strong visual clue of a palace or fort from Rajasthan.

2. Visual Language

Color and Texture

To dive completely into the rainbow colors of Rajasthan, people tie colorful pagris on their heads. The people have filled the arid desert with a lot of vibrant, radiant and bright colors. The sheer vibrancy and festivities in their lifestyle leaves no room for anything dull or pale.





3. Final Story

Background

Main character – Moti Mahrani

The legacy tales of royal family still runs in the palatial spaces of Rajasthan. The Kshatriya women have been the supporting structure in crisis and of war struck kingless lands. The righteous, sacrificial yet extremely jovial and cheerful queens of Rajasthan inspire the main character. Her beloved people give her the title of “Moti Mahrani” .

People of Rajasthan have extreme love for food and music and so is the character of Moti maharani.

Story of Moti Maharani

The story is about a queen ‘maharani’ of Rajasthan. She loves her people and gives them order and advice for sustaining in future. The villagers with love call her ‘Moti maharani’. As a caretaker, she feels responsible for her people and so she plans secret coded activities for the village children to perform, in order to keep the culture alive amongst the young generation.

So the “Moti Mahrani” plots plan where she ask the children to become her personal care taker and makes them do certain activities as test. Whoever performs well and makes the queen happy, gets crowned as responsible member of royal family. In order to make moti maharani happy children have to do certain tasks for her.

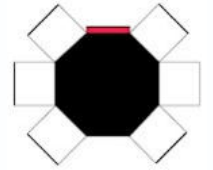
Activities

Everyday being and survival techniques are laid deep in the culture of Rajasthan. Bearing hardship of extreme weather, work around limited resources and abundance of care and love for every living being is embedded in culture of every person living in Rajasthan.

The most influential and common areas -

1. **Food**
2. **Music and dance**
3. **Water**
4. **Cattle**
5. **Hospitality**
6. **Mud and clay**

Following are the six activities which children have to perform in the panels.



Main Panel

Introduction of **Moti Maharani**

This is the main central panel and as explained earlier, it will introduce the plots of “Moti Maharani” where she ask the children to become her personal care taker and makes them do certain activities as test. The screen is placed in a box like structure and is viewed from a distance. This makes children feel as if they are seeing the story through a jharokha.

The main panel, which is a simple screen, activates other activities after the intro session. It also directs children to their respective panel.

In attempt to make moti maharani happy children have to do certain tasks for her. The tasks are guided by maharani’s personal caretaker, which is further explained in detail.



Activity Panel 1

Baajra ri Roti

Facts

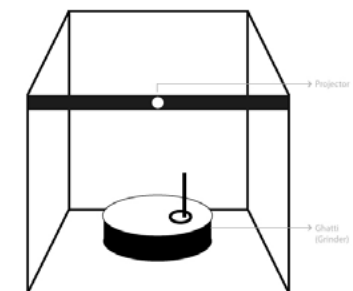
- Bajra also known as pearl millet is very popular in Rajasthan, this humble food is eaten in India since pre-historic times. It is mostly consumed in the form of rotis or khichdis, majorly in the winters.
- It provides ample amount of energy to fight the extreme temperature.
- In household, they grind fresh flour every day instead of storing it for a long time.

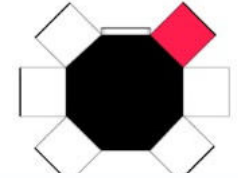
Activity

- The child is introduced to Bajra and the traditional grinder called *chakki*.
- Then he/she is asked to grind fresh flour to make Bajra roti.
- Child needs to rotate the handle of traditional grinder that leads to preparation of the bajra roti.
- For making more number of roti's, the child has to put in more grain in the center of the grinder.

Tech

- A mini projector facing kaavd pat (panel)
- Ghatti, when rotated will trigger the animation on screen. The rotation will be detected through potentiometer/ piezo/rotary sensor.
- As the rotations will be detected number of roti's will appear on screen and it will determine speed of the animation as well.





TAKEAWAY: Introducing Bajra, Eat fresh,
Introducing traditional grinder



Activity Panel 2

Music

Facts

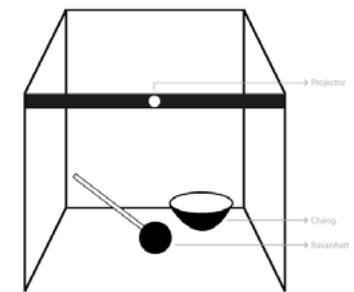
- Rajasthan has highly cultivated classical vocal and instrumental music. Traditional music includes the songs, which lyrically describes chores, especially centered around water and wells, both of which are an integral part of Rajasthan's desert culture.
- Rajasthani musical instruments that may not be found anywhere else can be classified into Percussion, Wind, Auto phonic and String.
- The materials used to make these are picked up from day to day life.

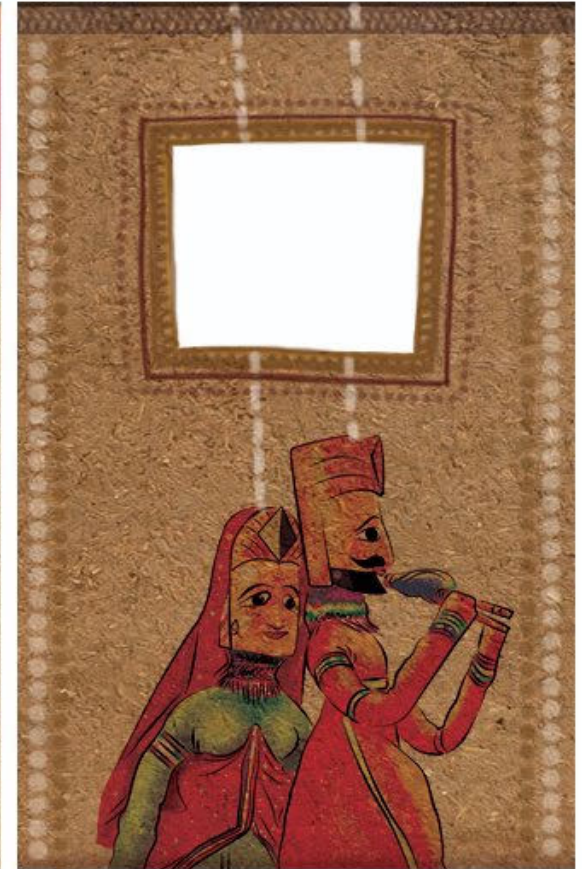
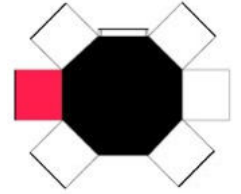
Activity

- The child is introduced to Rajasthani instruments.
- The child can play the instrument kept in front.
- As the child starts playing the instrument, puppets(kathputlis) will start dancing with beats on the screen.
- The faster they play the faster they dance with some additional music added.

Tech

- A mic is placed in the space.
- A mini projector facing kaavd pat.
- As the sensor picks up the instrument sounds, it shows the puppets dancing on the screen.
- Speed of the music is direct proportionate to the speed of dance of puppets.
- There would be automated music playing in the background and will activated when the first instrument sound is heard.





TAKEAWAY: Name and sound of traditional instruments, everyday objects used to play music for entertainment.



Activity Panel 3

Paniharin

Facts

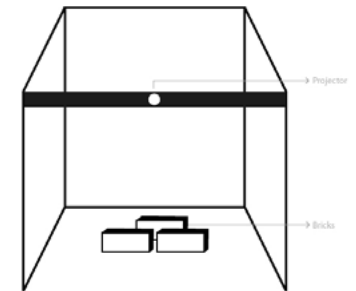
- In the scarcity of water on land (sour water), there are provisions in every house to store sweet rainwater.
- To survive the year, they collect water through rainwater harvesting in water storage rooms '*kund*' or in common stepwells '*bawdi*'.
- There are numerous festivals, songs, religious activities based around the water harvesting.

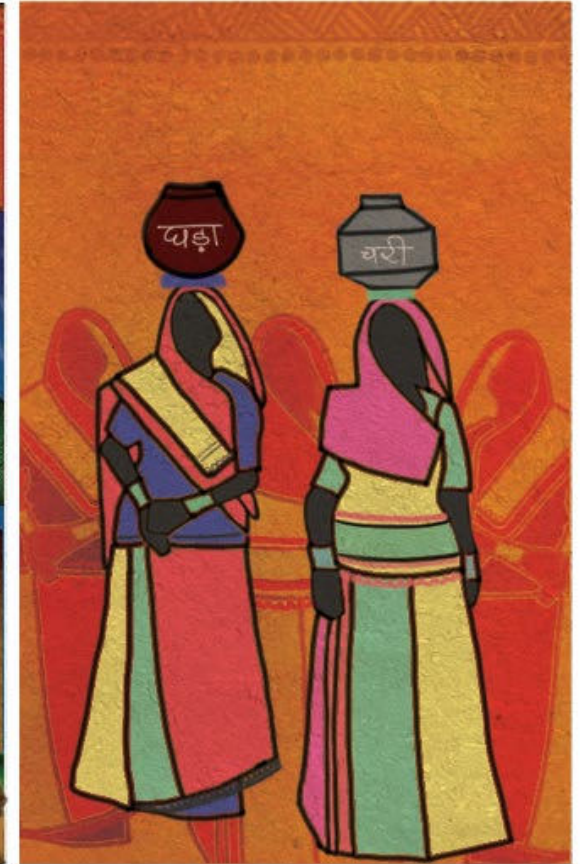
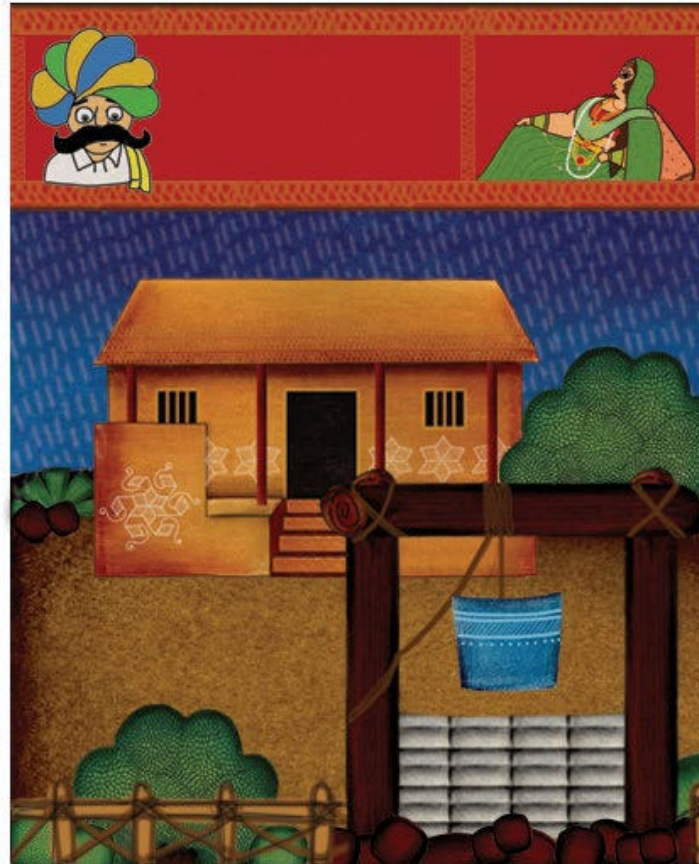
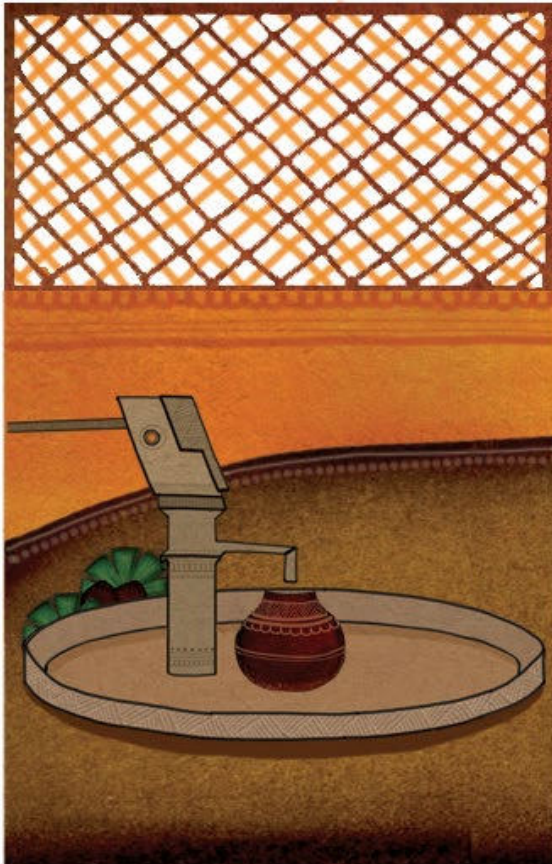
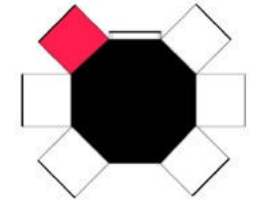
Activity

- The child is given pieces of magnetic pipe, which he/she has to place on the screen to direct the flow of rain water in *kund*(open well).

Tech

- A mini projector facing kaavd pat.
- There is an animation playing on the screen of rain falling.
- The child has to pick up bricks and place it on the screen to direct the water flow towards the open well.
- The placement of bricks can be detected by the camera through colour detection (image processing)





TAKEAWAY: Importance of rain water, rain water is sweet and remains fresh, importance of water in scarce land.



Activity Panel 4

Water Utensils

Facts

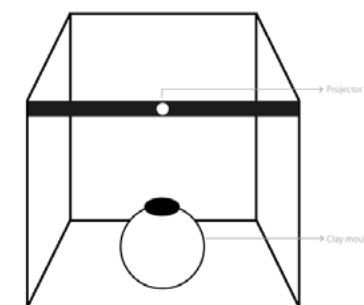
- For water storage different type of utensils are used made of clay, copper and other alloy. Ghada, Matki, Chari .etc
- The mud utensils keep the water cold in hot weather. The mud pots settles all the impurity of the water at the bottom and keeps the water cool.
- The copper utensil is used to keep water overnight so that it ionizes as it has electromagnetic energy and is used to drink in the morning.

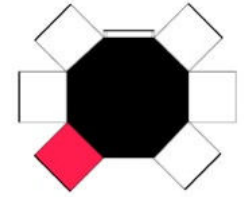
Activity

- The child has to make one of the utensil using clay and mould.

Tech

- A PIR sensor is placed for knowing when a child enters.
- The utensils and it's usage is introduced to the child.
- He/she is asked to place the clay in mould and make utensils.
- And asked to take it with them when he is finished with exploring all the panels.





TAKEAWAY: Clay utensils keep water cold.



Activity Panel 5

Unth ki Sawari

Facts

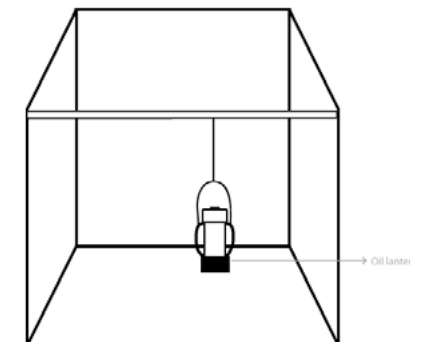
- Camel is the desert survivor. It was the only reliable mode of transport in rippling windswept thar desert. They can sustain themselves with limited water and food.
- Natives used to keep camels as pets as well as cattle.
- Camels are intelligent very quiet and human friendly animals.
- *About phad tradition:* There has been old tradition of reading stories through visuals in the dark through a lantern or lamp (diya) in Rajasthan, its called phad painting storytelling.

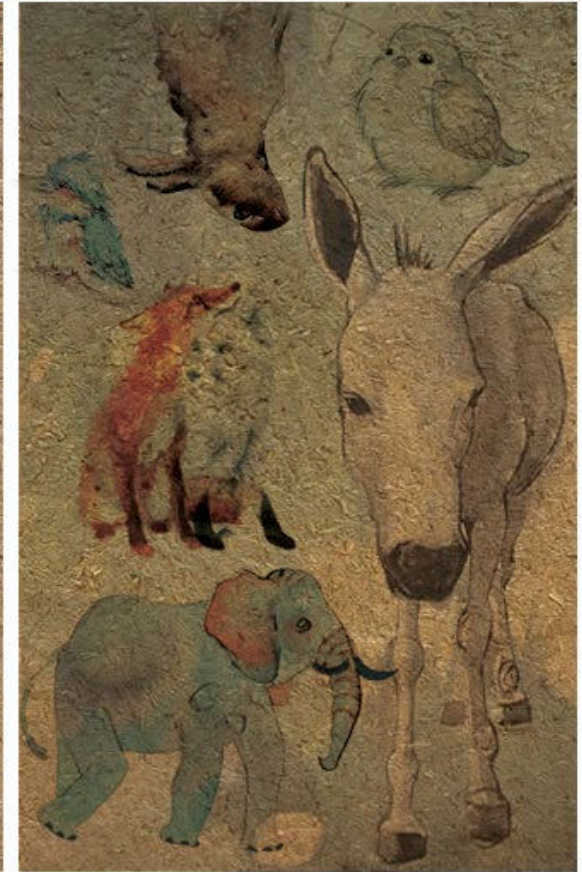
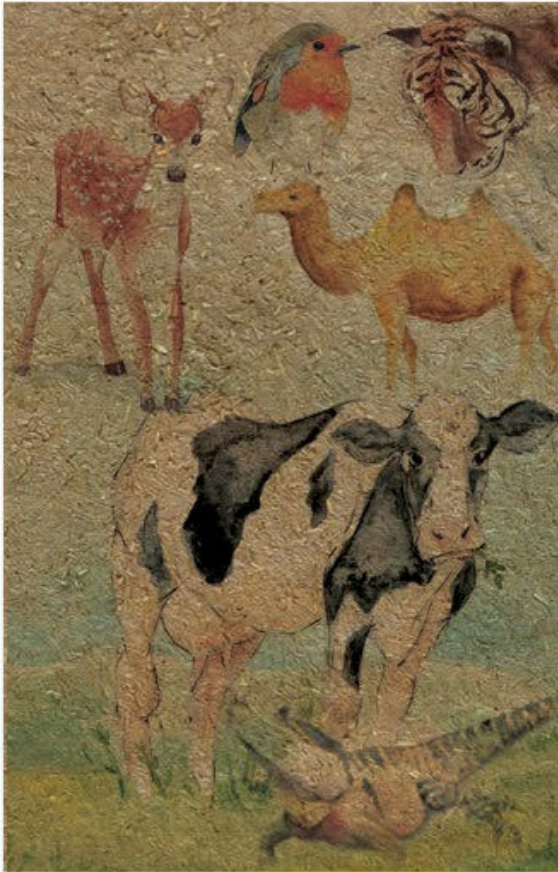
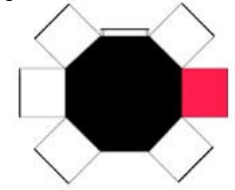
Activity

- The child has to carry lantern inside the dark room and spot camel amongst many other animals and pat hand on the spotted camel.
- In the process, they will hear sound of different animals on touch.

Tech

- Electric lantern is used to locate the animal in the darkness.
- The dark room is painted with animals, on touching there will be audio feedback.
- The paintings are painted from photochromic ink which brightens when comes closer to light.
- There are piezo sensors attached behind every animal drawing so as to activate sound.





TAKEAWAY: Introducing camel as a pet and friendly animal, understanding camel sound



Activity Panel 6

‘Jeemo Sa’

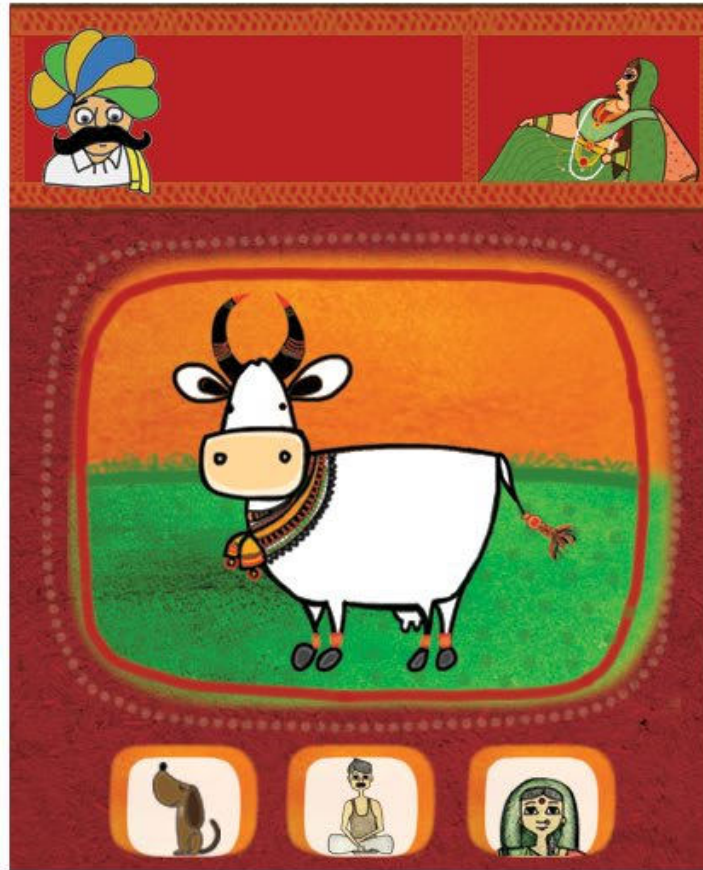
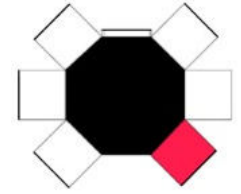
Facts

- Traditionally in every household while preparing food, the first roti is prepared for the cow, second for the brahmin (scholar in solitude), third for the helpers (untouchables), fourth for dogs and then the family. This is based on philosophy of providing for the surrounding and welfare of everyone.

Activity

- The child has to provide food (roti) in chronological order as assisted by the mascot.
- They have to place the magnetic roti on the animal and human pictures before giving it to the Rani.

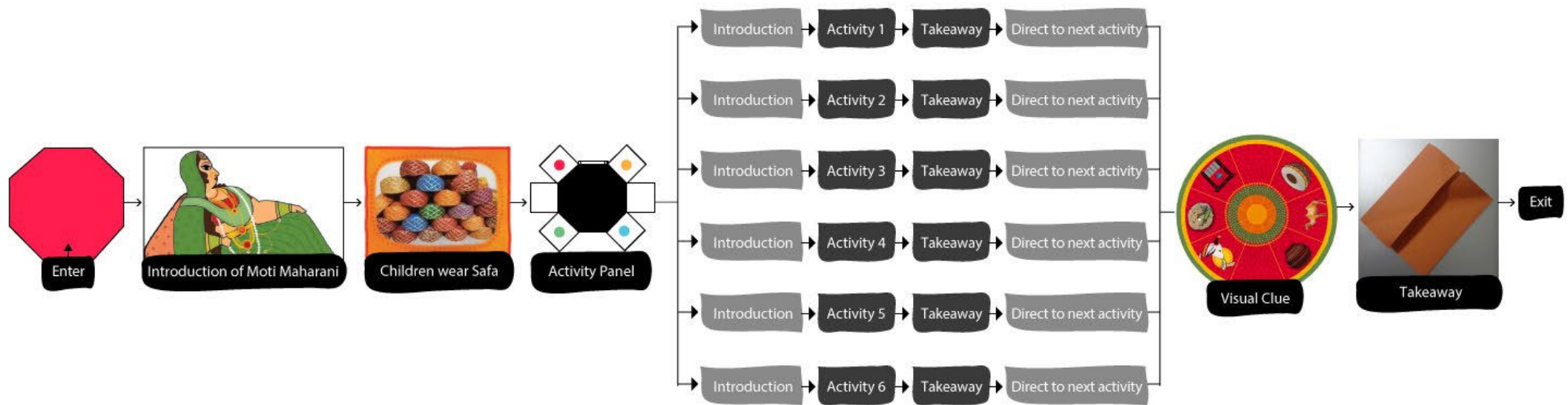




TAKEAWAY: Respect food, provide to others, think about the helpless and animals as well, learn to give and share from how much ever one has.

4. Activity Flow

System Architecture



4. Activity Flow

System Architecture

Following is the detailed activity plan to show flow in which children will do the assigned tasks.

Step 1 *Enter*: A common central space that will have entrance to the installation.

Step 2 *Introduction*: Once they enter the central space a video starts playing where kids are introduced to main character of 'moti maharani' followed by her story.

Step 3 *Wearing Safa*: At the end of story, through narration kids will be instructed to wear colourful turban 'safa' kept in front of the screen. These colour-coded turbans are bluetooth enabled and will help in identifying the user profile. It also help system understand location of the child.

Step 4 *Proceed to activity panel*: After wearing the safa, children are instructed to go in panels they are assigned to. Panels are assigned with reference to the colour of safa. The system indicates different activity for individual kid, which is displayed on screen.

Step 5 *Activity panel*: Each panel is introduced by character on the screen. Introduction includes why and how the activity should be conducted. After completion of each activity there is a takeaway that is to do with Rajasthan. It could be a ring, moustache, thick bangle etc.

Meanwhile system recognizes the empty panel and accordingly the story is directed to next activity and so on. Through this activity flow, each kid gets to experience the whole culture of Rajasthan by exploring all the activities.

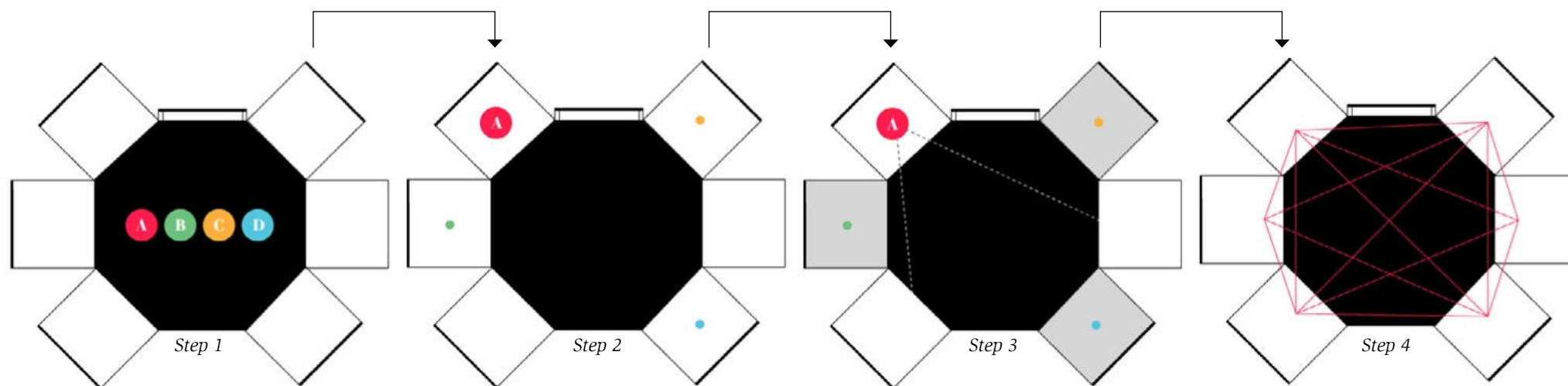
Step 6 *Takeaway*: Every child goes through all the activities individually. Once it's done, all kids gather in the central space where the story was initially started. They stand in front of screen wearing the artefacts collected from each activity panel and also they get a group picture clicked with moti maharani. For takeaway they receive a DIY foldable printout (paper kaavad like structure) with all the activities and their pictures on it.

Through this printed takeaway, kids can narrate and share their experiences with friends and other people in family.

There is no particular order for the activities designed. The metaphor of single image with multiple interpretations is derived from kaavad, as each kid experiences and explores a different story.

System Design

5. Sequence of Interaction



Step 1

Only four children can enter at one go. Once the story is introduced, system detects the colour-coded sofa and accordingly assigns the task. Dome 'chatris' of the central panel has visual clues (Fig. 1), which directs the children to their respective activity.

Step 2

After main introduction, following the visual clues on the vault of dome children goes to their activity panel and starts the activity.

Step 3

Once the activity is over, system detects unoccupied panel and accordingly directs the story towards that panel. This process goes on until the kid covers all the activities which is identified by the system through their colour-coded bluetooth-enabled turban.

Step 4

Story of one activity can be linked to other activity panels, as there is no particular sequence or order to the story. There could be multiple combinations to the flow of story. That way each kid gets to experience and discover a new story.

Ceiling of dome (Vault)

Visual clue

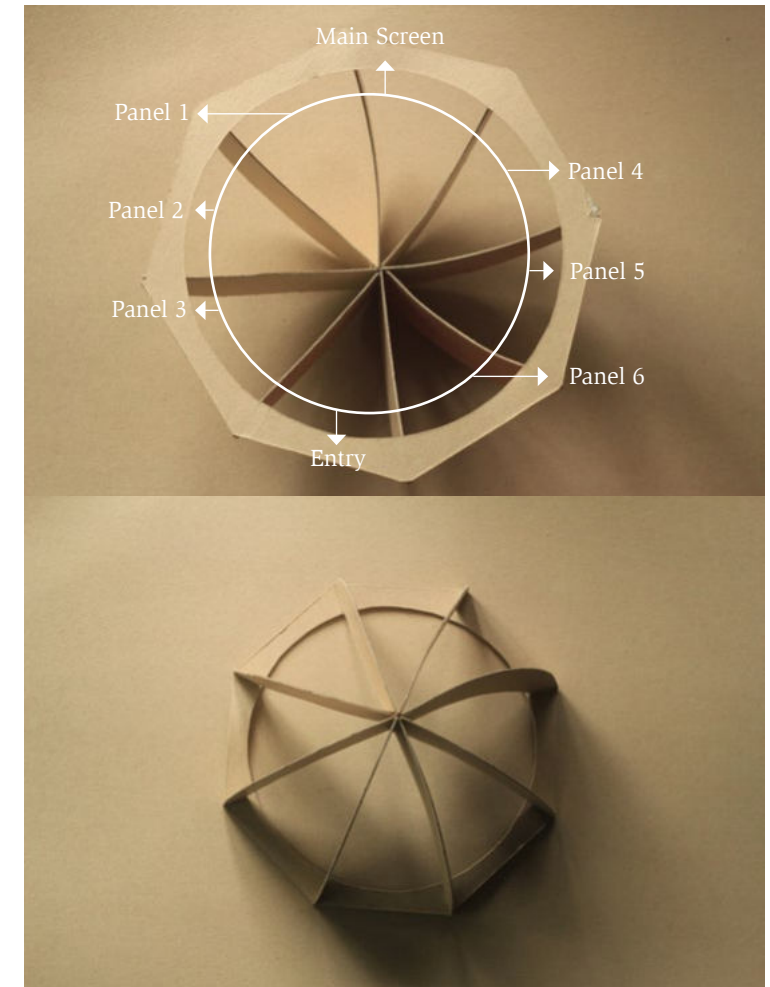


Fig. 1 This figure shows visual clues placed on the ceiling of dome to guide children in their panel.

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