

Exploration in Tangible Storytelling

Visual Communication | Project 2

Done in partial fulfillment for the requirement of the degree of
Masters of Design in Visual Communication (2008-2010) at the
Industrial Design Centre, Indian Institute of technology (Bombay)

Guide: Professor Nina Sabnani

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Certificate

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Exploration in Tangible Storytelling

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I would like to profusely thank Mrs. Nina Pangaonkar of 'Lovely Toys' Mahim, who has helped me in shaping my project.

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Introduction

Foreword

Explorations in Tangible Storytelling

Storytelling or the verbal narration is an art that makes stories more immediate. Storytelling is an oral tradition. It is known to use several media such as painted scrolls etc. to enhance the telling. However the control still stays with the teller. I wanted to add one more dimension to the already existing art of storytelling i.e. to make it more tangible in the physical sense of the word and a personal experience. I also wanted to let the child learn storytelling and use the same tangible characters to create multiple narratives.

Stories and Storytelling have always fascinated me. As a child I always loved to listen to various stories told by my grandmother and my mother. Also I used to love making up stories with the innumerable toys that I had. Remembering my days of wild imagination I wanted to create a similar platform for children that could allow their thoughts and imagination to be free.

Story

It is an account of imaginary or real people and events told for entertainment. They are composed of events narrated in a particular order and told from a particular point of view.

Storytelling

It is the means of conveying events in words, images, and sounds often by improvisation or embellishment. The earliest forms of storytelling were primarily oral combined with gestures and expressions.

Everyone tells stories about events they see present in the world around, about their experiences in the past and about events that take place in their imaginations.

Tangible

Tangible means perceptible by touch, something that is clear and definite and real. Anything that can be grasped, either with the hand or the mind is tangible.

Tangible Storytelling

A 'tangible story' is one that provides the target audience with continuous access to multiple and specialised inputs which can serve as medium for physical changes and spatial arrangements. Physical objects will not only allow target audience to employ a larger expressive range of gestures and grasping behaviors but to leverage off the child's innate spatial reasoning skills and everyday knowledge of objects.

Also 'tangible' means that it is of material nature, following physical laws, is situated in an environment and can be experienced by the living body.

'Grasping' refers to the act of enclosing something with ones fingers. Our hands are the most sensitive part of our body and their representation occupies a rather large part of our brain. They have been our foremost and most versatile, creative instruments for ages. One interacts directly with graspable objects, touching and feeling them. The word tangible expresses the doubleness of touch – in the physical sense as well as the mental sense.

Need for the Project

Premise

Stories for children take the aid of pictorial elements or technologies to support children's fantasies and storytelling. Pictorial elements or illustrations play an important role as they help in telling the tale twice – once verbally and once pictorially. They may go beyond this role by adding additional meaning to the story.

Stories serve as an additional aid for reading to learn. When objects are incorporated into children's play they encourages the child to be imaginative and serves as a channel to take different perspectives.

Taking these insights to a new level is using 3 Dimensional objects or forms will not only encourage the above but also will make the stories and the crucial elements of any story more graspable and tangible physically. Thus adding a new level to playing and learning along with increasing the inter child interactions and developing a sense of confidence in children.



Research



Interacting with children

- I interacted with teachers at Shishu Vihar which is a creche for children from 2 to 8 years of age at IIT Bombay.
- I attended the storytelling sessions that happen everyday from 10:30am to 11am in the morning and 4:30pm to 5:15pm in the evening at Shishu Vihar, IIT Bombay.
- I met with parents of children of different age groups to find out exactly what parents want for their children.
- I observed children in their playtime to find out their imaginative skills and level of role-play among them.

Conclusions from these interactions

- Most stories are in English and have to be told in bilingual language for children to understand them.
- Teachers use day-to-day examples to explain concepts in a Story
- Parents and teachers lay more emphasis on expressions and gestures to convey a story.
- Also they use repetition of a stories i.e. they tell the story verbally, as well as using the given pictures or creating hand gestures of their own.
- Children like stories that elders make up on their own.
- Children can make imaginative things from Lego and use it in role play.
- Children of the age of 3-5 are highly imaginative



Jean Piaget on Child Psychology

According to Jean Piaget's theory on child psychology the Preoperational period in children exists from 2-4 years. During this stage the child is unable to focus on a single object. The child may become egocentric, moody and possessive.

By the age of 5 he is able to draw and understand complex shapes, differentiate between inanimate and animate objects. He has communication problems. He has a problem focusing on one single dimension.

Thus on a broader scale we can say a child at 2-6 years

- May assume role-play all the time.
- May endow life-like qualities to inanimate objects.
- May have good hand to eye coordination.
- He may have an eye for colour and art.
- Learns how to play constructively.
- He is possessive, moody and egocentric.
- He may have communication and focusing problems.

Papers on Storytelling

After interacting with children and reading Jean Piaget, I read a few articles which gave me great insights on how children are and how they react to their environment. This was an extension to Piaget's theory on children. Some of the papers that I have read and derived insights from are:

- Making Space for Voice: Technologies to support Children's Fantasy and Storytelling. By Justine Cassell and Kimiko Ryokai MIT Media Lab
- How Can Interaction Media Facilitate Learning
Yvonne Roger¹ and Mike Scaife ,School of Cognitive and Computing Sciences, University of Sussex, Brighton, UK
- Pictorial Illustrations Still Improve Students' Learning from text
By Russell N. Carney and Joel R. Levin
- Tangible Interfaces and Graspable Interfaces by Eva Hornecker
Wonder Objects: Magic and Interactive Storytelling
by Tarun Jung Rawat
- Storytelling with Puppets

Insights from the above mentioned papers

Storytelling is an art which has many applications in the overall development of the child. Some of them are stated below.

- Storytelling aids make children more imaginative.
- it also improves their cognitive and social skills
- Help in acquiring and practicing language styles
- Increase social interaction and bonding
- Increases their abstract thinking and higher mental processing
- Helps them explore role-playing
- Instills a great sense of achievement and self-empowerment when they can create and control their own environment.
- Also help them explore the possibilities of life



Defining The Age Group

Defining the Age group

The general age that I was targeting was 2 to 6 years.

After the testing done with kids I understood that children under the age of 4 find it difficult to string sentences and may need assistance by parents or teachers in their storytelling.

Also the teachers say that children that age like to hear stories that the elders make up on their own and not the ones they listen to all the time

After this testing my intended audience age shifted from 2 to 6 years to children of the age group of 4 years and above to create newer stories.

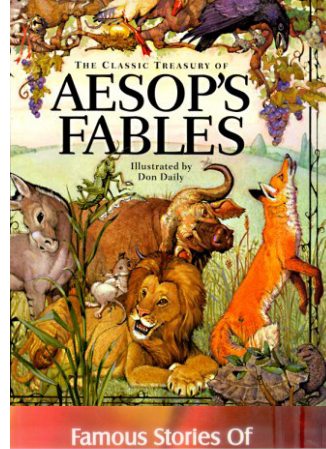
Thus my intended age group is 4 years and above.



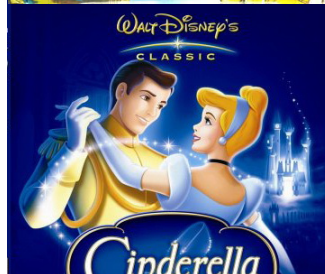
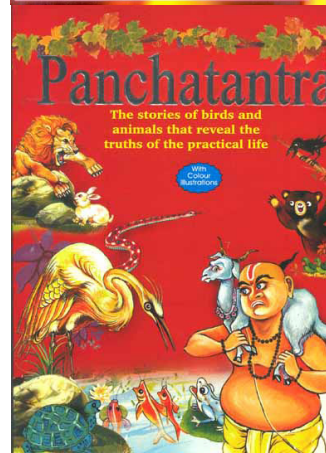
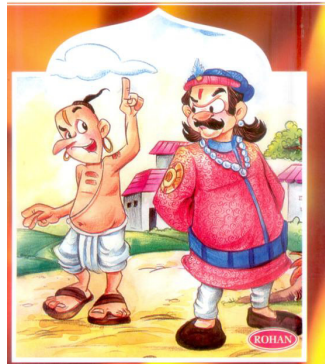
Selection Of The Story

I was impressed by a particular part in the story. It is the part of the wellspring of Stories where new stories are always generated. These Stories are always connected to each other. Stories mix with one a new story is born.

Insights from this story were used to explore the imaginative prowess of the children by letting them create stories of their own.



Famous Stories Of **Tenalirama**



Reading different stories

Stories that I have heard, read and explored

Panchatantra

These stories were created to educate the dimwit sons of some King. This king asked Vishnu Sharma to teach them the ways of the world. Vishnu Shara Created the Panchatantra stories to pass on the wisdom of the world where in he made animals speak about ways to succeed in life.

Aesop fables

These were created by a slave and a storyteller of ancient Greece. He also used animals to convey his message. These stories are used to educate children on moral values.

Amar chirta katha

It is the largest collection of stories available in the India. These stories include all the stories related to Hindu mythology and also to fables and stories of great kings.

Disney Stories

These are the more widely accepted stories by small children as they see the same cartoons on television and want the book of their favorite Disney character.

Selecting Panchatantra stories

The Panchatantra stories that I have selected are the ones that have been retold by the authors in the modern context. These stories reflect the human behavior in today's world and thus giving insights as to how these stories are bringing in examples from today and telling children the difference between the right and the wrong.

Revised stories

These were the stories provided by Tulika publishers which had a more modern outlook to them.

The lion, The Fox, The Donkey, Retold by Deepa Balsavar

The Rumour, Retold by Niveditha Subramaniam

The Four Friends, Retold by Kala Sasikumar

Snake and the frogs, Retold by Mariam Karim-Ahlawat

The Talkative tortoise, Retold by Jeeva Raghunath

The Story

The Talkative Tortoise

Retold by Jeeva Raghunath

Should I tell the story of how I came or the story of how I went?
I lived there, near that pond.
I had two bird friends, Ganga and Yamuna.
Whenever I saw them, "yak yak yak yak" I would talk.
Meet in the morning, "yak yak" ...
Meet in the afternoon, "yak yak" ...
Meet in the night, "yak yak" ...
Fed up with my "yak yak" they decided to go away to another pond.
Boo-hoo, I began to cry.
They felt bad and said, "Okay, come along, but you must keep your mouth shut and not talk at all."
They took a stick.
Ganga held one end.
Yamuna held the other end.
I held the middle.
Flap flap we flew high.
All was well until I opened my mouth.
"Yak yak yak yak... Owwww!"
That's all, I became like this.

Reasons for selecting this story

The story 'The Talkative Tortoise' is very exciting. It provides immense possibilities for character development. In the story there is a tortoise who is very talkative and there are two birds who are his friends. Also many supporting elements have to be developed such as the forest, the feel for earth sky and water etc.

It uses slang like "yak-yak" for talking. Also this story gives out a moral message that we should talk only when needed otherwise we may lose our friends and may also be badly hurt. This story is very different as it is a story told from the tortoise's perspective and is unique in that sense. Also this story encourages self reflection as the tortoise is reflecting on his deeds and so we create a sense of sympathy towards the tortoise rather than blaming him for his actions.

In the story the tortoise wants to fly in the air to go with his friends, hence encouraging movement in space. So there is movement of all the animals in three spaces i.e. the pond, on earth and in air. The aspect of the tortoise falling down from the sky is quite imaginative.



Methods of storytelling/ Means to an end

Puppets and Theater

Puppets are representational figures animated or manipulated by a person. It is usually a depiction of a human character, or animals or the things around us. Puppetry is a play or a theatrical presentation of daily things and is a very ancient form of theatre. The puppet is usually made up of many joints and hence can move according to the will of the puppeteer.

Pop-up books

The pop-up is often implies any three-dimensional movable book. It is said to be pop up as it may employ some techniques known as paper engineering. It is similar to origami as both arts employ the art of paper folding but yet are different as in origami an object is created out of the whole paper but in paper engineering the object emerges out of paper.



Toys

Toys are used by small children to make up stories on their own. They mix and match various toys to create an imaginary make belief world of their own.

Picture Cards

Picture cards are generally used in schools by teachers or by parents at home to trigger a thought in the kid or to help them recognise the picture



Design Brief

Design Brief

My aim is to design a tangible assistive device for children to learn the art of storytelling and expand their imagination. This product can be used for telling stories by parents, teachers and children themselves. They can understand the stories better and create new stories with the given objects.

These tangible objects will trigger the imaginative power of small children, expand their thought and challenge their minds. This design may trigger role-play among children, increase inter-child interaction, may develop their confidence and may act as a channel for change in a child's perspective.



Building A Scenario

Scenario

Tina is a four and a half year old girl living with her parents in Pune. They have a flat in a large colony. Being such a large place Tina has many friends. She plays many games with them. Still Tina has a problem. She is too shy to talk to her friends and generally submits easily to their demand.

One day Tina hears her mother call out from their house asking her to stop playing and come home immediately. Sulking, Tina goes home. When she enters the house she gets a surprise.

Her *Nanni* has come to visit them. She is going to stay with them for a few days. Tina is very excited. Knowing that grandma always gets something for her she closes her eyes and puts out her hands.

This time *Nanni* has got a big gift. She tells Tina that she can have it only if she promises to use it well. An excited Tina makes the promise. Tina then opens her gift. It is a storytellers kit. It has many toys and a board and some other objects made of cloth. She does not understand how to play with it so she begs *Nanni* to show her how to use it.

At that time her mother comes from the kitchen and tells Tina that she will have to wait till after dinner time to play as *Nanni* is very tired and needs some rest. Tina is disappointed and goes to her room sulking.

She is eagerly waiting for dinner time so that she can play with the kit. It is finally dinner time Tina gulps down her food and waits eagerly for *Nanni* to finish her dinner.

As soon as *Nanni* is done with her dinner Tina takes her to her room and opens the kit. *Nanni* takes the parts of the kit and meticulously arranged them on the board with Tina looking on with curiosity.

Nanni then begins to tell a story using the toys and the book. The story is of 'The Talkative Tortoise'. Tina has heard this story before but what she finds new is that it is the tortoise telling his own story. Also she realises that the characters of the story stick on the background. Seeing the interesting way the toys are used, Tina wants to make up a story too.

She starts telling the story. At first she falters but *Nanni* keeps on encouraging her. So she starts by creating scenes of her own story. When she finishes her story to her surprise her Mom, Dad and *Nanni* start clapping for her performance.

The very next day shy Tina calls her friends over to her house to show them her new kit. She first tells the story that her *Nanni* had told her the previous day. After finishing the first story she tells another one and then another. Her friends are astonished to see shy Tina talk so much.

Tina's storytelling sessions have become a big hit amongst her friends. They have also bought similar kits from the market with different stories. Now all of them come together with their toys and create many stories by mixing up the characters.

Everyone is surprised how Tina has opened up to become a girl who is more confident and can speak out amongst her circle of friends and also have all the children listen to her.



Materialisation Of Ideas

Visit to the stores and toy industries

Either Or (Pune)

Either or is a store that sells ethnic and unique stuff. This store has a special section for children where it has cloth, paper mache, wooden toys. These toys are made by various techniques using a mixture of two or more materials.

Bombay Paperie (Mumbai)

Here all the playable objects are made out of paper which in turn were made out of cotton waste. Some examples of the paper objects are paper dolls, paper mouse, birds, flowers, Ganesha, etc. Also Kinjal Shah the owner of Bombay Paperie organizes regular creativity sessions every saturday and sunday for children

Su:riti the culture shop (Mumbai)

This is a shop in powai which had cloth wall hangings, paper mache hangings, Clay dolls, etc. This shop had varied colours and textures which impressed and inspired me.

Colaba Causeway (Mumbai)

This is a street in south Mumbai which is a mini flee market. There were many types of the Russian doll in Indian style, Traditional wall hangings, ethnic painting, rajasthani boxes, etc.

Visit to Lovely Toys Mahim (Mumbai), Owner Mrs.Nina Pangaonkar

Lovely Toys is a small scale industry situated in the industrial estate, off Mohri road, Mahim, Mumbai. This industry is owned by Mrs. Nina Pangaonkar. She has helped me to understand the production technique of how to make a toy. Also she has helped me understand how materials work and need different stitching. I have seen the process of making stuffed toys from her and have used them in my stuffed toy making process.



Material Study

Paper

Paper doll

This was made by studying the paper doll from Bombay Paperie. The technique was to make a tight roll of a long strip of paper and then push the center to make a cone like structure which is wide at the bottom and tapering at the end. Then instead of making the head out of paper mache I used a plastic ball and covered it with strips of curled paper to make it look like a doll.

Finger puppets

These were made from an art kit from Bombay Paperie. This involved making a cone out of a square paper and then attaching a hand drawn face and hair cut out of paper.

Using paper was not a good technique as it involves making objects which may not be durable and children may end up tearing them or they may crumple if not handled properly. I needed some material that would last long and yet be fun to play with.



Cloth

Cloth toys are of various types. I have studied some types of these.

Cloth dolls from Rajasthan are essentially made up of a frame work and the rags of cloth are wrapped around it to give the flesh (body structure) Also at the end shinny material is used to tie the cloth firmly to the frame work.

Cloth combined with other materials such as clay makes the toy very flexible but clay if thrown with force can break and may be hazardous if the child puts the toy in the mouth.

Full cloth toys or stuffed toys are made up of a cutting of cloth which is stuffed with polyester fiber to give it a 3 dimensional look. These toys are really soft to touch, not very dangerous and also may be made to look very close to reality.



Wood

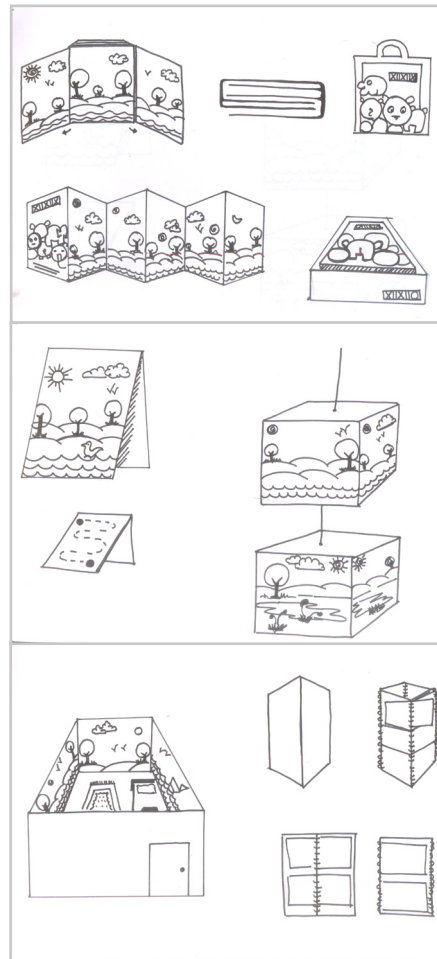
In our second semester we did a workshop with Mangilal Mistri of Udaipur where we had to make a wooden puppet. In this work shop I learnt how to carve wood and make a puppet. However during this process I found out that wood is very heavy though it can be made light by drying but yet it is difficult to use it in making toys.

I also have been studying the russian dolls and the savantwadi toys which are made of wood. Russian dolls are very inspiring as they can be used to convey layered stories by opening up one layer to reveal another layer of stories. The savantwadi toys are incredible for their mechanisms and movement.

Yet I would not choose wood as an Ideal material for children of the age of 2 to 6 as they may hurl the wooden pieces and hurt themselves or others. Also the weight of the toys put together will be too much for the children to handle. Hence ruling out the use of wood in my product.

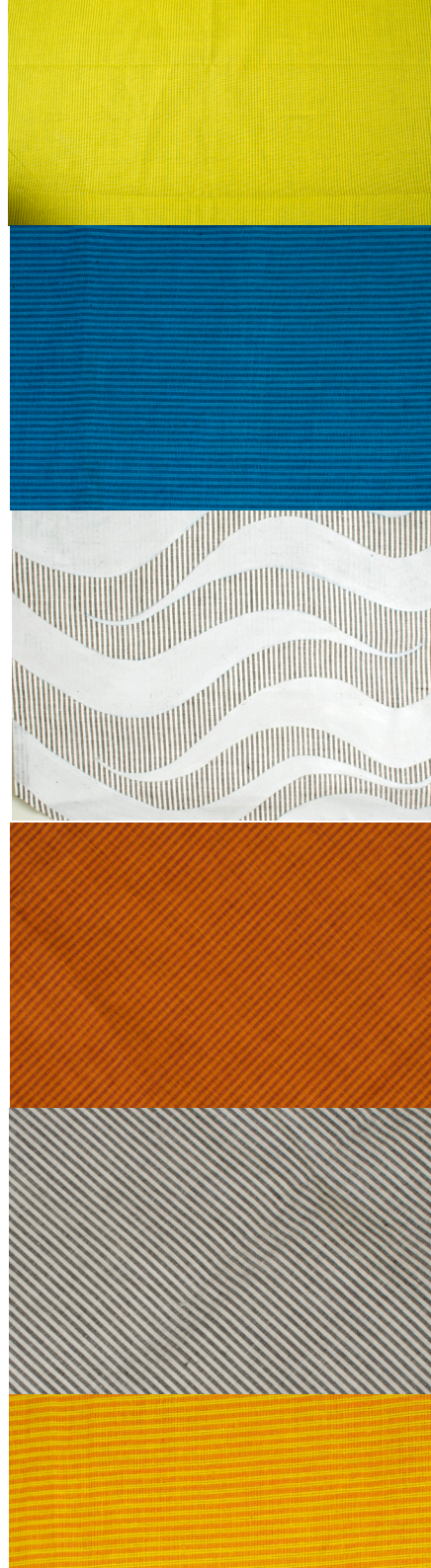


Concept Development



Initial concepts

Having explored various places and seen many toys and materials the sketches below were my initial concepts out of which I decided to work further on three of them and finalise on one which would then grow into one final concept.



Medium for Execution

Cloth toys are a safe way to make the tangible objects as

Cotton cloth is less harmful as compared to other materials generally used in fur toys. Toys made from cloth are very graspable and hold able. They can also be cuddled and enclosed within one's fingers. These toys are really soft to touch. Cloth toys can be made to look very close to reality. Cloth also gives a large medium to explore as there are many types of cloth, with many textures and patterns. Also cotton cloth can be painted and customised graphics can be added to the toys which might not happen while using the usual materials for making stuffed toys

Hence I decided to use cotton and in that also a specialised cotton called as Bizzylizzy which is a mixture of cotton and another material. Bizzylizzy is softer to touch than pure cotton and readily takes the shape given to it and is more long lasting.



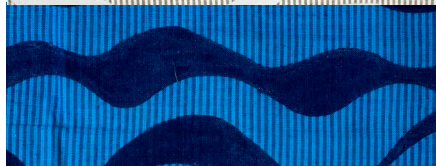
Exploring the Form

Tortoise

My first and foremost out look was to create an abstract form of the tortoise by using a textured cloth with a different print but when showed it to some children they did recognise that it was a tortoise due to the form but they could not understand why I had used flowers on the back when a tortoise has a rough and cracked back.

Taking this point into consideration I created one more tortoise to experiment with the material of the cloth and a different texture of material. Hence I tried 'batik cloth' but got the same response as above.

I made the third exploration with more details like the mouth open and body texture with fabric paint trying to get the form as close to reality.

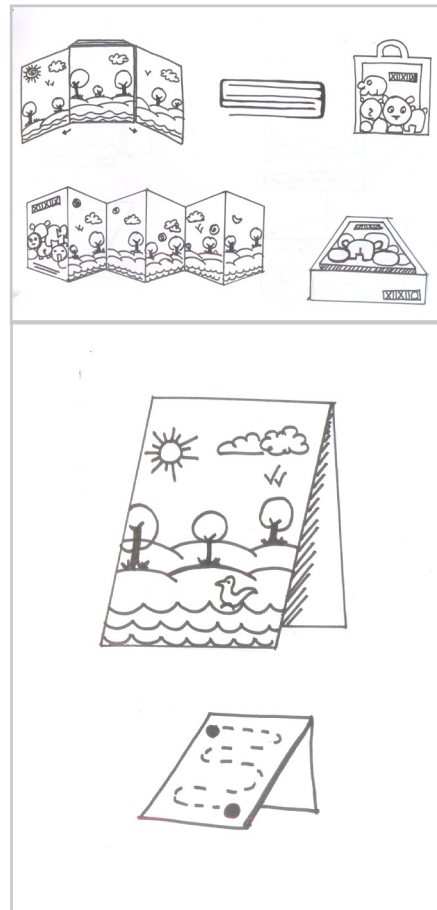


Birds

The form of the bird emerged from the fact that the birds in the story 'The Talkative Tortoise' had to fly. Hence the birds should have wings that can flap. Also the wings and the belly of the bird would have some texture which would incorporate some meaning.

Backgrounds

The backgrounds I have used magnetic sheet as the base and a cloth hand painted background on it. These backgrounds can be adjusted to suit the need of the children story.



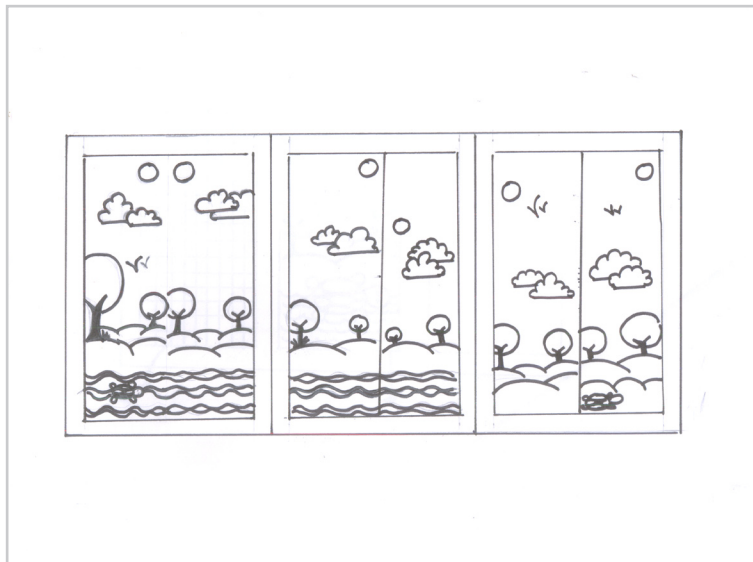
Concepts

Finalising on one of the initial concepts

In finalising the concept I merged 3 concepts which are one which is the theater style book, the other is a fan fold book and the concept of a board on which the characters will move.

The concepts consists of using Magnets which gives freedom of movement to characters along the backgrounds and in space. It also gives freedom to explore many stories with various combinations of the backgrounds and toys.

Magnets are a creative approach to the initiating imagination and storytelling. It adds a surprise element in the story when the characters are 3 dimensional and they stick on the background as well as come off. Thus giving children the possibilities to explore space in storytelling.



Stage 1

Using Steel wire and Magnets

In this concept I created a path way for the characters with magnets. I used a MS steel wire to create the path for the children to move their character through the story but this had many limitations

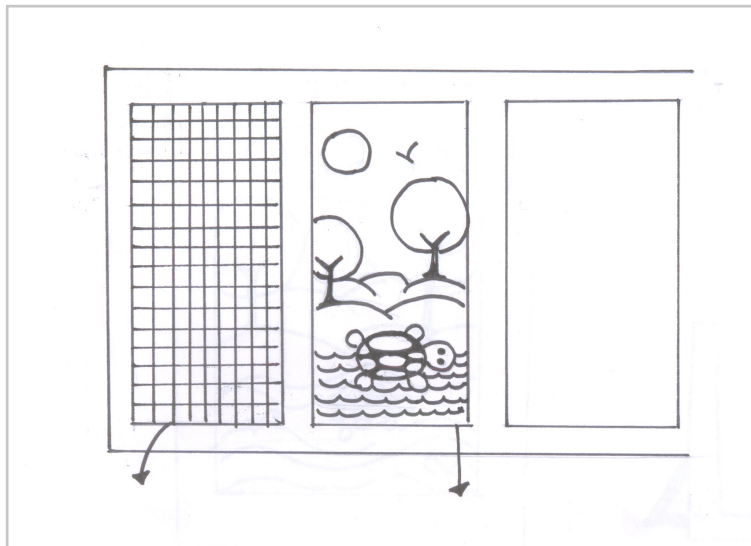
Difficulties

The background illustration was already given and it restricted the use of the whole background.

Also the use of a single wire restricted the movement of the character along the story.

There was a sense of lack of creativity as the child could not fully explore the possibilities of the concept thus binding a child's Imagination.

Also use a metal wire is commonly not allowed in children's products



Stage 2

Using Steel wire mesh and Magnets

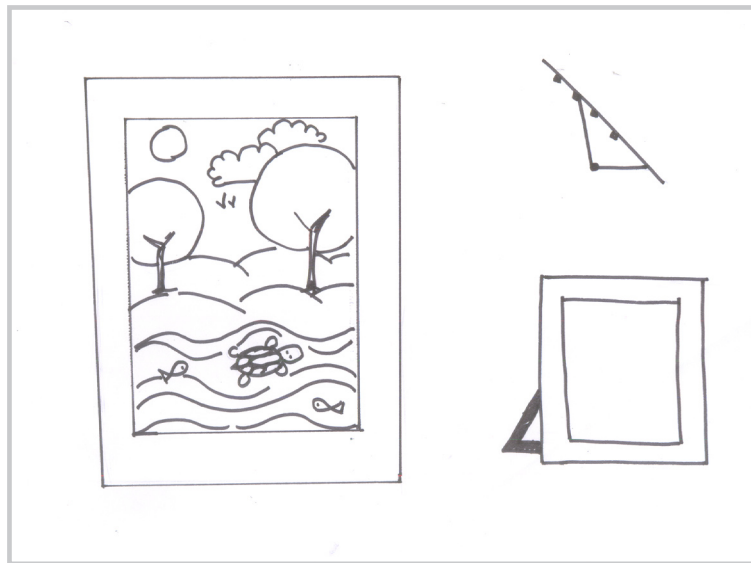
The second concept was to use a wire mesh in replacement of the wire to provide for more movement on the board and within the story.

Difficulties

The magnetic power between the wire mesh and magnets is very strong.

Also the mesh gives a texture of its own.

Again there are the constraint of environment and thus resulting in the lack of creativity in children and hence binding the child's imagination



Stage 3

Using magnetic sheet and magnets

Using magnetic sheets was an alternative to a wire mesh. This sheet is also safe to use in children's products. Also it is plain not having any texture hence acts as a good background.

Difficulties

Most of the difficulties of using a wire and a wire mesh are solved. The only problem could be that the strength of magnetic sheet may reduce over period of time due to extensive use.

The toys cannot be very heavy as they may fall off the board. Thus weight of the toys is critical.

I will be correcting the sizes and proportions of the characters to the backgrounds.

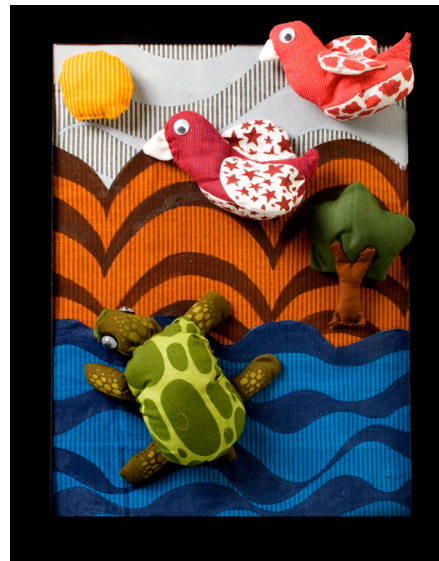


Deliverable

Deliverable

The storytelling kit will contain

The objects (toys)
The Backgrounds
The Story: the Talkative Tortoise,
The Instruction Manual
The stand



The Kit

The kit will contain the following elements

One tortoise
Two birds
Some backgrounds
The sun
Three clouds
Four trees
Extra Elements.

Instruction Manual

The content of the instruction manual will be guidelines of exactly how to use the kit. It will also consist of the possibilities that the child can explore and also possibilities that teachers and parents can explore to explain small children certain concepts such as sunrise, sunset, clouds, trees growing on land etc.

The story book

I will be providing a story book with this kit to introduce the children and their parents and teachers the basic story of the talkative tortoise. Also i will be giving them the starting of some new stories. which will encourage them to create more stories.

Stand

These are the concept sketches for holding up the magnetic objects and backgrounds of the story. One of these sketches will be used to create the final stand for the product. The stand will be mainly designed to make it comfortable for children to hold it and then tell stories.



Testing The Kit

Playing with the Kit

Testing the product

The product was tested on children of various age groups i.e. children from the age group of 2-3, 3-4, and 6 and above. Insights got from the testing were used to make further changes in the product.

I found that children have immense storytelling skills which were enhanced by this kit. Children of the age group of 6 and above were more creative with the product.

One Child during the testing did not end her story at all and kept on going making up things that had no connection to one another. When I asked her why was it that she was extending the story meaninglessly she said *"muzhe yeh toys bahut acche lage is liye meine unse khela chalu kiya."*

I tested this product in a creche which gave me insights on the children's as well as the teachers thoughts. Teachers found it rather innovative to have toys for the characters which the children can actually touch and feel and hold in their hands. They were excited about how the animals stuck on to the backgrounds.

There was a problem with the background, children liked to sit down and keep it on their lap than hold it and tell the story. Also

the backgrounds were not used and this has forced me into changing the idea from having three backgrounds to something more efficient and usable.

The time was limited so there may be several responds that are yet unknown. However it made its acceptability known from these few reactions and potential at things I could do.

Strengths and Limitations

There wasn't enough time to carry out more experiments and testing so these strengths and limitations may not be as accurate but they are as follows.

Strengths

Personality development

This kit may boost the child's confidence and may help him/ her to be more free in expressing their thoughts along with teaching them moral values.

Knowledge

This kit will increase their knowledge about stories and storytelling.

Storytellers

Children are dying to be storytellers and parents are always eager to listen. This kit will boost the child's storytelling ability and also may help him with his articulation skills.

Imagination and creativity

The child may have imagination and creativity which may be hidden and this kit may bring out the creativity with its unique feature of making new stories of the given objects.

Make their own toys

This project may also encourage children to develop their own toys out of rags that they can find at home and create characters for stories that they make up.

Limitations

Strength of the magnet:

Stronger the magnet it is difficult for children to separate the objects once they stick together. An option to this is to use a magnet with less strength or a magnetic sheet with appropriate strength

Stand

The way the children are holding the current product is not very comfortable.

Backgrounds

One insight that I got from one of the testing is that children may not play with the backgrounds hence I may change the concept to giving them a illustration of a scene

Imagination

There is one short come of this project which will be if the child does not use his/ her imagination. In this case the parent may have to encourage the child by prompting him/ her with words or ideas that might trigger the magical imagination skills innate in children.

One child at a time

This kit has not been designed to be played by many children and can be used by only one child at a time hence in a group of children there can be only one storyteller and the others have to be an audience.



Conclusion

Future Use

This kit has other uses than storytelling as well

The kit can be used to explain other concepts in the environment such as sunrise and sunset, etc. This Kit can also be used by children to explore role play. It is very useful for children to boost their confidence, their articulation skills etc. It may help in improving their language skills and vocabulary too. It will hopefully churn their minds to think creatively and imaginatively and give the joy of telling stories.



Conclusion

The process of making this kit has taught me immensely. It has taught me how to interact with children and how to convince the shy ones to come out and speak up.

Most importantly though this process has taught me how to do storytelling myself. Telling a story either through words or through pictures or through tangible objects is very challenging as there is always a audience involved. To convince a large number of people that the imaginative story you are telling is true, is very challenge in itself. Through this project I have over come my fears of storytelling and articulation.

This project has thrown open an option for my future, which will be exploring storytelling or getting into children's publications.

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