11-1-2001

An Interactive Journey: Creative development for young children

Nattawan Wanglee

Follow this and additional works at: http://scholarworks.rit.edu/theses

Recommended Citation

This Thesis is brought to you for free and open access by the Thesis/Dissertation Collections at RIT Scholar Works. It has been accepted for inclusion in Theses by an authorized administrator of RIT Scholar Works. For more information, please contact ritscholarworks@rit.edu.
Rochester Institute of technology

A Thesis Submitted to the Faculty of
The College of Imaging Arts and Sciences
in candidacy for the degree of
Master of Fine Arts

An Interactive Journey
Creative development for young children

Nattawan Wanglee
November 2001
I, Nattawan Wanglee, hereby grant permission to the Wallace memorial Library of RIT to reproduce my thesis in whole or in part. Any reproduction will not be for commercial use or profit.

11/15/01
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title page</td>
<td>1</td>
</tr>
<tr>
<td>Approvals</td>
<td>2</td>
</tr>
<tr>
<td>Content</td>
<td>3</td>
</tr>
<tr>
<td>Abstract</td>
<td>4</td>
</tr>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>6</td>
</tr>
<tr>
<td>Research</td>
<td>7</td>
</tr>
<tr>
<td>Process</td>
<td>23</td>
</tr>
<tr>
<td>Production</td>
<td>31</td>
</tr>
<tr>
<td>Summary</td>
<td>34</td>
</tr>
<tr>
<td>Conclusion</td>
<td>35</td>
</tr>
<tr>
<td>Glossary</td>
<td>36</td>
</tr>
<tr>
<td>Bibliography</td>
<td>40</td>
</tr>
<tr>
<td>Appendix</td>
<td>42</td>
</tr>
</tbody>
</table>
Abstract

Creativity begins in infancy and can be developed when children grow up. Young children are at their peak of creative functioning, which declines with age. They are unique individuals and are highly imaginative. Creativity and imagination are strongly related. Even though all children are capable of creativity, the potential to create remains dormant without practice. Creativity requires practice to flourish. Therefore, creativity plays an important role as much as knowledge does. To educate children, creativity also needs to be paid attention too.

Children should be encouraged to represent their world creatively by allowing them to choose what they want to make; how they want to go about making it; what it will end up looking like. It is important to challenge them that there is no one right answer for the question. There are many possibilities. To encourage children to think imaginatively and creatively, it is important not to limit the solution or result of any problem. Many possibilities should be given to children to challenge them to try and to think unconventionally. Everything they could imagine can be real.

Similarly, things in real life can be recognized in many ways. There is more than one aspect of everything and there is more than one way to look at things in life. Children won't really understand the aspect of anything until they learn to see it with more than one possibility. Even though the world of reality sometimes has limits, the world of imagination is boundless.

As a result, being creative and imaginative is important. If they can imagine it, they can create it. If they can dream it, they can become it. They will have a potential to become what they would like to be.
Creativity needs to be paid more attention. Children should be encouraged to think imaginatively and creatively and realize that there are many possibilities for everything in their life.

Since art allows children to express their own creative uniqueness, originality, and individuality similar yet still significantly different from all others, art is the perfect medium for young children, who are so highly imaginative. Their fantasy can be given form through art. Art is an open-ended activity that encourages discovery, exploration, experimentation, and invention. All of these skills are vital to creativity. There is a test called “open-ended drawing” which is one of the exercises to test children creativity. This activity provides children the opportunity to think originally and to be highly imaginative in creating something new. Children will be given some simple shape such as a circle or a square and they will be asked to add anything to that shape to complete the picture. Obviously, there is no one right way to complete this picture, and many possibilities exist. As a result, the concept of this thesis is similar to the concept of the “open-ended drawing” activity.

This thesis project is an interactive animation that provides users many alternative ways of looking and recognizing the objects. Every situation will have more than one alternative way out that they can choose. When they choose their own path, they will experience different information, which leads to unique journeys that have not yet been imagined.
I am very grateful to many supportive people who have contributed to this thesis project.

My thesis committee, Professor Robert Keough, Professor Peter Byrne, and Professor Chris Jackson for very valuable advice, comments and knowledge.

Faculty members in the RIT, School of Design, especially Prof. James Ver Hague, Prof. Heinz Klinkon, for knowledge in design and computer.

Pee Poj for a very helpful technical support, Kyo for a lovely friendship during these few years in Rochester.

Special thanks to Hia Pop for beautiful love and support, for relentless help and advice.

My deep gratitude to my family, Khun Por, Khun Mae, Pee Yod, for their profound love and support.

Above all, thanks to the beauty of the world.
Choosing a Topic

I started considering my thesis topic by trying to gather the idea and my interest. One of my interest was to do something related to children. Also, I wanted to explore the idea about creative thinking and imagination. Therefore, I thought it would be interesting to combine these two topics together. I started thinking of many fairy tales and children books I knew because children stories always bring children to another world or to the land that doesn’t really exist and encourage them to think imaginatively. One of my favorite books was “Alice’s Adventure in Wonderland”. I imagined myself getting lost in a wonderland and every path I followed led me to various kinds of adventures.

After all, I would like to explore a new way of telling story. The story that children can choose their own path. Each way they choose, they will experience a different aspect of the world through my story.

Since I had the idea in my head, it was necessary to have a theory and an information architecture to support my idea. Therefore, to understand creativity and learn about children’s behavior it was important for find an appropriate way to satisfy the thesis goal.

Research & Analysis

My research proceeded through books, the internet, interactive pieces, animations, and movies. I mainly focused on the development of creativity in young children which related to art and design. I also studied about interactive design and information design to meet the goal of designing an interactive piece and to make it efficient for its specific user. I divided the research into 3 parts — CREATIVITY, INTERACTIVITY DESIGN, and INFORMATION DESIGN.

1. CREATIVITY

[1.1] Definition of Creativity

One way to attempt to understand creativity is by defining it.

- Torrance (figure 1), a pioneer in creativity, has chosen to define creativity as the process of sensing problems or gaps in information, forming ideas or hypotheses, and communicating the results.

- There are many ways to define creativity. People have different definitions for the same term.
Some generally accepted definitions include —
- The ability to see things in new ways
- Boundary breaking and going beyond the information given
- Thinking unconventionally
- Making something unique or original
- Combining unrelated things into something new

• Creativity means having the power or quality to express yourself in your own way. Children are naturally creative. They see the world through fresh eyes and then use what they see in original ways (figure 2).

[1.2] Child Development: Creativity in Young Children

Creativity in Young Children

Creativity is more than a product – it’s a process. Even though interesting paintings, thought-provoking writings, unique comments are examples of creative work, the decisions people make as they paint, sculpt, write, speak, play, and think are at the core of the creative process. Creative thought can be appeared in almost all aspects of life from the way a parent quiets a crying child to the methods a scientist uses to discover a cure for a disease.

Because creative thought often goes against the set rules of a strict classroom or home, adults may be irritated by the behavior of a creative child. Adults often do not recognizing the value creative children bring to families and classrooms. All these children will become adults who will make a difference in our world with their creative problem-solving skills.

Encouraging Creativity

One way to help children learn to think and solve problems in creative ways is giving them the freedom to make mistakes and respecting their ideas. To solve a problem creatively, children need to be able to see a variety of perspectives and to generate several solutions. Children can be encouraged to represent their world creatively by allowing them to choose —
- what they want to make (content)
- how they want to go about making it (process)
- what it will end up looking like (product)

There is no one right answer. There will be many possibilities.

Creativity through Art

Art is not the only way that children can express themselves but because it develops before writing, or abstract thinking, adults can easily see creativity expressed in art of young children. Art allows children to express...
their own creative uniqueness, originality, and individuality. Art helps us put our life experiences into symbolic form. Art is an open-ended activity that encourages discovery, exploration, experimentation, and invention.

A brief overview of the developmental stages of children's art.
(the ages given are general guidelines and children will enter and leave each stage at their own pace.)

• **Scribbling stage** (approximately 2 to 4 years)
  In this stage, children —
  - Are amazed at their ability to make marks.
  - Spend much time practicing motor skills.
  - Draw circles first, then squares and other geometric shapes.
  - Begin trying to create (draw) their world.
  - May want to point to and name parts of their drawings.

• **Pre-schematic stage** (late preschool to approximately age 7)
  At this stage, children —
  - Make first attempts to represent people or objects. Efforts are recognizable to adults.
  - Are fascinated with the wide variety of colors.
  - Achieve obvious connections between different parts of a drawing.
  - Value signs of approval from teachers and peers.
  - Are easily discouraged and fatigued.
  - Are active, hands on, eager to learn, and self-centered.
  - Are highly imaginative yet tend to focus on one idea at a time.
  - Search for ways to represent their ideas.

• **Schematic stage** (approximately 7 to 9 years)
  Children at this stage —
  - Increase the use of symbols, such as a heart for love or dark colors to represent night.
  - Are less self-centered.
  - Still do not have a realistic understanding of their environment. For example, the sky in a child's picture may not meet the ground at the horizon.
  - Show improved eye-hand coordination and fine motor skills.
  - Have an increased attention span.
  - Begin developing a sense of humor.
  - Divide by gender in play.
  - Represent special characteristics for each person or object in their drawings.

• **Realistic stage** (9 to 12 years)
  Children at this stage —
  - Are gently affected by peer influence.
  - Increase the amount of detail and use of symbols in drawings.
  - Have expanded individual differences.
Research

- Begin to develop a set of values.
- Want to do things “right.”

  • **Pseudo-naturalistic stage (12 - 14 years)**
    At this stage, children —
    - Are highly critical of the product they make.
    - Use a more adult-like mode of expression.
    - Experience a period of great individual differences physically, mentally, emotionally, and socially.
    - Have art class available only as an elective in school. For many children, this will be the last opportunity to have art instruction.
    - Experience a period of heightened self-consciousness. Children in this age group often feel a need to conform to their peers, which can stifle their creativity.

**Barriers to Creativity**

Although all children are capable of creativity, the potential to create remains dormant without practice. Creativity requires practice to flourish. With practice, the potential to create becomes a reality. Therefore, the skill of creativity requires exercise to grow. Without practice, the ability to write, make music, sing, dance, and paint would cease. Creativity as a potential and as a skill requires exercise.

Children reach a peak of creative functioning during the early childhood years. However, Torrance (figure 3) plots the degree of creative functioning versus age, creativity peaks at about 4 to 4 1/2 years of age and is followed by a sharp drop upon entrance into the elementary school. Perhaps the push for conformity, accountability, and academics in the elementary school accounts for this sharp drop. Yet this drop is not inevitable. Environmental conditions and practice can keep the spirit of creativity alive.

**Importance of Creativity**

- The most important function of creativity is self-expression. Self-expression allows children to express ideas and feelings about themselves and the world around them. Children's abilities to imagine and observe also are strengthened through self-expression. Asking children “What if . . .” questions helps develop their imaginations.

- Creativity provides for intellectual growth.

- Creativity also allows children to explore the world. In fantasy, they can pretend to be anything they want. In art, they can show the world as they see it. As children grow, they increase their knowledge of themselves and the world around them. Encouraging their creativity helps them in this process. Encouragement also helps provide children with a sense of mastery and self-worth.
• Creative play often provides exercise for children, which in turn stimulates physical growth. For example, playing “Star Wars” or “Superman” requires lots of running, jumping, and climbing.

• Creative play also can help children grow socially. It gives them a chance to see the world from other children’s perspectives. The more understanding children gain of other points of view, the more respect they will learn for other people’s rights, opinions, and feeling.

• Creativity helps children feel good about themselves. There are hundreds of ways to be creative. Each child will have an individual and unique style.

• Children’s creativity reflects their feelings, emotions, and imagination. Children are not often as concerned with how things “really” are but with how they “think” they are.

When working with young children, it is important to remember that the process of creating is more important than the product.

[1.3] Activities for Creative Thinking

Sample items taken from tests of creativity and modified for use with young children provide suggestions for activities to foster creative thinking.

• Finish My Picture

Ask children to complete one of the pictures in (figure 4). The pattern could be drawn on the board at child level or runoff as a ditto. The advantage of using a ditto is that children may be less prone to copy and that they can share their products with one another. In this way they come to see that there are many, many possible response.

• Picture Possibilities

Draw one of the lines or pattern pictures in (figure 5) on the board or on a transparency for the overhead projector. Allow children time to think about possible meanings. Ask them to give a possible title or interpretation. “What do you see in this picture?” “What else could it be?”

• Your Own Book Ending

Assemble a small group of children for story time, slowly reading a story and stopping just right before the end. Closing the book and asking children to think up a different way to end the story. Encouraging them to come up with their own creative ending even though it will be different from the book ending.
• Picture Guess

The open-ended designs in (figure 6) can be sketched on the board one at a time. Ask children to study the shape carefully. Allow plenty of “think time,” and do not encourage quick shouting out. Have children tell you many different things each of the pictures could be.

• What All

Set a small group of children in a close circle. Ask them to think of many things that
- are round
- make noise
- sink
- are wet
- smell
- have horns
- squeak
- ring

- shine
- roll
- are green
- hurt
- are square
- stick
- fly

• Open-ended Drawing

Children are asked to complete an open-ended drawing similar to the one in (figure 7). It is important to keep in mind that there are many many ways to complete it. On the other hand, the way children complete the drawing will show their capable of originality and creative thinking.

Obviously, there is no one right way to complete this picture, and many possibilities exist. For instance, Carefully examine the finished product in (figure 7.1) and (figure 7.2) and think of the difference.

The completed picture in (figure 7.1) is rather stereotyped, unimaginative, mundane, and not very original. Details are minimal, and the picture lacks elaboration and originality. Conversely, consider a drawing completed by a different six year-old (figure 7.2). This completed drawing evidences a high degree of originality and elaboration. This child had a different way to see thing and can go beyond the information given.

There are many ways to express one’s creativity. Play, the expressive arts (art, music, movement, dance, dramatics, and mime), language, and thought are just a few that are relevant to early childhood. Creativity or divergent production was viewed as a thinking skill or mental operation. Creative thought and production are characterized by fluency, flexibility, originality, and elaboration. The above examples of activities are used to track a progression of creative thinking in young children who demonstrate fluency, flexibility, originality, and elaboration in their creative processing and production.
2. INTERACTIVITY DESIGN

Interactive design is the discipline of designing interaction between human and computer. It involves planning of the user interface and the actions users can take from each node of the interface. It often involves building the interface around a metaphor.

To design interactive piece, planning and thought must be prepared in a design process. A clear idea of a typical user of the project also needs to be concerned. It makes the project more effective. Successful interactive design should have a good balance of technological possibility with the integrity of the content. A good interactive project should have invisible construction and an effective graphical user interface. A designer must integrate interactivity design within a content structure.

[2.1] Graphical User Interface (GUI)

A graphical user interface, or GUI, is where interactivity and interface design intersect. An interface is only a visual manifestation of "inter"activities—only an aspect of interactivity design, not the interactivity design itself. Graphical user interface designers are people who know how to string together a complete set of interactivity and information arts and synthesize them within a context. Interactivity arts and interactivity design are frequently lumped together under the label of GUI design, which seems to have an ever-expanding definition. In the computing and software industries, the term is rather specific and means windows, icons, and menus—purely functional; however, in GUI design, there are as many models to work from as there are real-life situations such as complex organizational structures of rooms and towns in some applications like Myst, Bob, e-world.

[2.2] GUI Principles

There are many ways to create an interactive piece; however, it is not easy to make it successesa. Clement Mok has ruled 10 important things that need to be considered when designing interactive project (figure 8).

Predictability: In every interactive experience, three mental pictures come into play: the designer's model, or what the designer has in mind when creating the system; the user's model, or what the user expects from the system; and the system's image, or the actual appearance of the system itself. A project design should be tested to determine where the three pictures overlap the most; those areas of overlap result in natural mappings between required actions and their effects, and between visible information and the user's interpretation of the system.
CONSISTENCY: It's more important for a system to interpret user behavior consistently than to appear consistent; in other words, it is more important for interactive products to respond to a user's actions in predictable ways than it is for the elements on a screen to have a uniform appearance.

PROGRESSION: Everything in an interactive system should progress from simplicity to complexity. A user should never be confronted with more complexity than necessary; unasked-for complexity diminishes a user's interest and involvement. The default should always be the simplest level of information, with details accessible only at the direction of the user. A user should be able to set the beginning level of information, too avoiding the repeat of the same actions every time he or she logs onto the system.

NATURAL CONSTRAINTS: A user should be prevented from making many mistakes — that is a system should be designed to anticipate error and correct the interface, just as the nozzles of gas hoses are designed so that cars that run only on unleaded gas can't accidentally filled with leaded gas.

VISIBILITY: The correct elements must be visible, and their function must be apparent. Making an element visible doesn't mean showing every possible control all the time, but the function applying to what's on the screen at any given time should be accessible without a user having to search for them. Making a function apparent means that elements in the interface should look like what they are. Controls, such as buttons, should have visual attributes that strongly identify them. Other controls should be available if a user requests them, but users should never have to wonder where they are.

TRANSPARENCY: A user's focus should be on the content of an interactive product, not on format or navigation. An interface should allow users to concentrate on the task at hand, not remind them that they're working on a computer. Designers shouldn't just package information, they should give users a way to get at it.

FEEDBACK: Each action a user takes should have an immediate and obvious effect. People need to know the results of their actions immediately.

MODES OF OPERATION: People use three main modes when they interact with a computer. One is command mode — telling the system to do something, looking up a word, or going to a section or chapter. Another is manipulation mode — accomplishing tasks by manipulating objects, running a simulation, or changing variables. A third is recording mode — entering data, making annotations, or highlighting text.
PACE: A user should be able to control the speed at which he or she moves through material, whether that means scrolling through text or navigating to a different section. For that matter, users shouldn't feel as if they're navigating, or going, anywhere; rather, an interface should give users the impression that they're summoning the information.

APPROPRIATENESS: Most of all, an interface should be designed to accommodate its users. A designer should make no assumptions about what a user can or cannot do, or what a user will want to do; those decisions should be left to the user. A design should be as customized as possible, in as many ways as are reasonable.

[2.3] The four C's makes successful interactivity

There are several rules that can be used to evaluate an interactive project. The four C's—Control, Consistency, Context, and Corroboration are 4 rules that Clement Mok described in the book, "Designing Business", to determine the interactive project whether it is a successful project or not (figure 9).

First, users should have some level of Control over an experience—where they are going, how they get there, and how easily they can stop and start.

Second, the look and feel of behavioral elements—what's on the screen, and audio or music as well—should be consistent.

Third, the interactivity should have a Context. Is it related to the information around it?

Fourth, the interactivity should reflect the nature of the content—that is, it should Corroborate the content. If there's video on a web site or a CD-ROM, is the video conducive to understanding the content? Or should that material be in the form of text?

The best projects have all four C attributes, but the minimum requirement for successful interactivity is Control along with one other attribute. The success of a project's interactivity diminishes as the number of C attributes decreases.

[2.4] Who Is the User?

Who are the users? What are they accustomed to? What do they want? What is the user model? These are the most important questions for designers to ask when they're putting interactivity and interface design into a context (figure 10).
People don't all fit the same mold, which means that their interactivity requirements vary. The standards for interactivity design are still making interactivity appropriate and keeping users' wants and needs in mind. A designer creating a customized interactive piece — that is, a piece with a specific user in mind — should consider the following principles.

**PATH** : The path through information should be self-evident, if not intuitive. “Intuitive” does not mean “GUI for dummies.” An intuitive path implies structure reasoning with logical steps or actions.

**ABSTRUSENESS** : The level of information presented should respect users' knowledge level, not just their intelligence. Just because a user may be a physicist doesn't mean an interface should present highly technical terms about medical information. Choices should be provided so the user can determine the appropriate level of information.

**GUIDANCE** : The controls and tools used to get through information should be scalable in relation to the complexity of the information presented. Relevant controls and support should be presented as they're needed. No one wants personal coach all the time.

**ACTIVITY LEVEL** : How much passive reading or watching is appropriate? How much active participation?

**PREFERRED MEDIA TYPES** : Some users may prefer to browse through text and bring up accompanying graphics, video, and animation at will. Others may want to see graphics with text explanations available on demand.

**SPECIAL CIRCUMSTANCES** : A user may be right- or left-handed, color blind, or vision- or hearing-impaired. A GUI can be designed to accommodate people's needs through large text, controls arranged on one side of the screen or the other, high audio levels, and so on.

**MODE OF EXPRESSION** : A user should find it easy to view whatever is important to him or her.

**LOCALITY** : Material in an interface should be localizable for countries and regions, and easily translated into other languages.

**INTELLIGENCE** : In addition to allowing a user to customize it, a system ideally has the intelligence to customize itself. That is, it should be able to “learn” about its users, “remembering” between sessions where a user has been and where he or she might want to begin next time.

Customizing an interface design adds complexity to the work of designing it, but the reward of that work is a valuable product or service.
3. INFORMATION DESIGN

Information design involves analyzing raw data and organizing it into coherent, meaningful information. Clement Mok described in the book, "Designing Business", that the information design is the arrangement of organization models to provide context and meaning for the information. The design of the information are organized into structures which he divided into 7 types: linear, hierarchical, web, parallel, matrix, overlay, or spatial zoom (figure 11). Each model may be appropriate to a different kind of a project, whether it is shopping site on the internet, or an interactive CD-ROM, or a software tutorial. These organization models are ways for designer to create frameworks for effective processes. A designer needs these visual structures to define navigation and interactivity. The nature of a project's purpose also affects how much influence each organization model has on the content.

- INTENT + ORGANIZATION MODEL + DESIGN = SOLUTION

The process of information mapping helps determine how to integrate organization models into digital format. Information mapping begins with identifying the type and volume of information, and the information's intended use. The designer puts ideas and intended forms and functions down on paper and begins looking for similarities, disparities, and patterns among the various elements.

After I had researched and analyzed the information, I also took a close look in many examples from books, movies, animation, and online resources to study a concept and idea behind each piece.
Case Studies

1. Book

Alice's Adventures in Wonderland
by Lewis Carroll

Alice's Adventures in Wonderland is a story about a curious and questioning little girl traversing a whimsical land where nonsense is the common-sense. For more than 100 years, Alice's Adventures in Wonderland, the story of an imaginative little girl has inspired and delighted children and adults all over the world. Alice bring readers a journey to her imagination.

Alice is a very good example of a very imaginative and curious child. Also, the story is very outstanding. This story can present an unique way of how to look at things. Some common thing can look gorgeous or horrifying. An unexpected journey can happen to us any time and anywhere. It just depends on how we manage to see the world around us — to be boring as it is or to be excited as we dream of.

ZOOM (1995)
by Istvan Banyai

In a wordless book, an imaginary camera pulls back from scene after scene, revealing each as a small part of a larger scene: a girl playing with a toy village is actually the cover of a magazine; the boy holding the magazine on board a ship is actually part of a poster advertising a cruise line; the poster is an ad on a bus seen on television by a cowboy. Both the concept and the book design are distinctive -- the layout, with its glossy black pages opposite the zooming outscenes, reflecting the philosophy of the final page, in which the camera pulls back to reveal a tiny earth surrounded by black space.

The concept of transition from page to page seems so simple but yet so incredibly done. It is also a very advantageous example for this thesis project about how two things or two situations can be connected together.

RE-ZOOM (1995)
by Istvan Banyai

In this wordless companion to Zoom, nothing is what it seems to be. The point of view of each picture pulls back as the pages progress, and each illustration becomes a small detail on the subsequent page. A cave painting becomes the design on a watch; the watch is on the wrist of an archaeologist in an Egyptian pyramid; the pyramid is actually the top of an obelisk; and the obelisk is really part of a drawing on a poster in a movie set. The last three
pages reveal that the entire sequence was in a book being read by a boy in a subway, whose lights fade away into the darkness.

This is another version of Zoom. Zoom and Re-zoom share the same concept of zooming out. Readers never know where they are going. It can be a never ending story. Readers are shown something that turns out to be just a piece of something larger and thus not at all what they saw (or thought they saw) in the first place. With each page, one takes a step back to see the broader context. In other words, each piece is integral, one to another.

2. Movie

**Powers of Ten : Films of Charles and Ray Eames (1968)**  
*Directed by: Charles Eames, Ray Eames*

Presents a linear view of the universe from the human scale, to the sea of galaxies, to the nucleus of a carbon atom. Demonstrates the powers of ten using an image, a narration, and a dashboard to give a clue to the relative size of things and to show what the addition of another zero to any number means. Based on the book Cosmic view, by Kees Boeke

This is an experimental film by Charles and Ray Eames, architects and designers, created in 1968. By the time this film was made, it was quite a new perspective - new idea. This is also a good case study for my thesis because of the concept of transformation.

**Sliding Door (1998)**  
*Directed by: Peter Howitt  
Produced by: Sydney Pollack, William Horberg, Philippa Braithwaite, Guy East  
Written by: Peter Howitt  
Distributor: Miramax*

A story about a beautiful young English woman learns that she has been fired from her PR job. On the way home, the doors of a tube car close on her, opening the "WHAT IF" floodgate. She begins to live out two lives: if she had made the train, and if she hadn’t. An intriguing concept about fate and how simple moments have the ability to change our lives.

The movie goes back and forth between her two lives. This movie is very well shown how different subsequence can occur because of just one moment condition. Different thing can happen by different choice one takes. I learned a very good and simple concept from this film. It might be a thought that we always think about every time we face some situation that we have to make one choice. If we chose this, what would happen? If we chose that,
Missing Page
4. Interactive media

http://www.willing-to-try.com
Agency : Dentsu (Tokyo, Japan)
Designer : Richard McGuire
Production : Funny Garbage (New York, NY)
Animator : Dave Redl
Programmer : Colin Holgate
Programs : Macromedia Shockwave, Macromedia Flash
Client : Try Group

The site, which was created using Shockwave with embedded Flash elements, allows the user to choose from three simple forms: a wavy line, a circle, or a set of three straight lines at angles. Each form has three options, posed as question. Is the circle a moon? A hole? A bubble? Click on one, and a little animated movie unfolds, with a character who is affected by the user's choice. Some options allow the user to interact. The choice of "string" for the wavy line has the character pulling on a kite string; typing letters produces a kite's tail formed of those letters, which follows the kites as it dips and swerves in response to the mouse's movement.
This example is very creative. The designer and animator use the idea of possibilities. There are many possibilities and there are more than one right answer for the question. They posed the question and gave three alternative choices. Each choice will lead the user to experience different information. The style of animation is simple but yet very well done and easy to understand. They don’t need to use much color and the shape, line and character can fit very well with the context.

With the research part done, I had had all the information I needed to start designing my thesis.
Brainstorming

The brainstorming method can be an effective way to generate lots of ideas and then determine which ideas best solve the problem. Brainstorming is the best way to expand an idea.

Mindmapping - This method is a useful brainstorming tool in that it organically generates associations that you may not otherwise have considered. There are no right or wrong entries on a mindmap – it is an intuitive, spontaneous method. Mindmapping can be helpful at any stage of a design project – at the very beginning (to generate preliminary ideas or possibilities) or later on (after the project has been researched and continues to develop).

I started analyzing all the information and mindmapping at the end of my research to get a various idea and many different kind of possibilities for the end product. I wrote down anything or any word that related to a central concept. Once a mindmap had been done, it can be valuable in many different ways. I began identifying internal connections and highlighting useful adjectives that appeared to be influential on my design process. Consequently, I gathered all the information and the ideas to create a design brief to be the center of my idea and to help me think systematically.

Ideation

Following the brainstorming method and the design brief I created, I asked myself a question “WHAT”, “WHY”, “HOW”
- What would it be ?
- Why should it exist ?
- How could it represent the idea and concept ?

WHAT would it be ?

It would be an interactive piece and an animation. In other words, I would create an animation that the user can participate by choosing their own way at the end of some situation in the animation. Then, each choice would bring him/her to another journey

WHY should it exist ?

I chose to create an animation because it would be an interesting way of telling story on digital media. In addition, I decided to combine the animation with an interactive piece because that would allow the user to navigate through the project by him/herself. Therefore, this thesis would be an interactive animation that the user can choose his/her path to finish the story.
How can it represent the idea and concept?

According to the research on ways to encourage children to be creative, they should be encouraged to represent their world creatively by allowing them to "choose". There is no one right answer. There could be many possibilities.

This interactive animation would allow the user to choose their own path at the end of some situation. A different choice would lead him/her to explore different journey. I tried to respond to all these definition —
- The ability to see things in new ways
- Boundary breaking and going beyond the information given
- Thinking unconventionally
- Making something unique or original
- Combining unrelated things into something new

Additionally, children would be inspired to look around the world and discover a variety of things, a different aspect of things in life and learn to see things in new ways.

Design Brief

Title: An Interactive Journey: Creative Development for Young Children

Problem statement: Creativity begins in infancy and can be developed as children grow. Young children are at their peak of creative functioning, which declines with ages. Young children are unique individuals and are highly imaginative. Imagination is strongly related to creativity. In addition, creativity plays an important role as much as knowledge does. Therefore, to educate children, creativity needs to be paid more attention too.

Design objective: Children should be encouraged to be imaginative and to see that they can have more than one answer for each question. In their life, there is more than one aspect of everything and there is more than one way to look at things in life.
Process

Target Audience :

Demographic
- Gender : Male - Female
- Age : 7 - 11
- Occupation : Student
- Education Level : Grade School
- Computer Experience : Intermediate

Psychographic
- Eager to learn and see things in new ways
- Be curious to break and go beyond the information given
- Think unconventionally
- Think Imaginatively

Keyword :
Innovative
Imaginative
Creative
Playful
Flexible
Possibilities

Concept :
“A never ending journey ”

Support :
There is no one right answer. There are many possibilities. To encourage children to be more imaginative and creative, it's important not to limit the solution or result of any problems. Creativity fosters success and mastery, since there is no one right way involved. Many possibilities should be given to children to foster them to think unconventionally. The impossibility is often the untried. Everything they can imagine can be real. In the same way, things in real life can be recognized more than just only one way. Children won't really understand the aspect of everything until they learn to see it in more than one way. Even though the world of reality sometimes has limits, the world of imagination is boundless. It's has no ending. If they learn to see by their heart, from inside, they will know there is no end to the new worlds of their vision. Imagination is sweet. The world will be more beautiful and more adventurous. Life is a journey, not just a destination. A never ending journey . . . . .

As a result, being imaginative is significant. If they can imagine it, they can create it. If they can dream it, they can become it. They can become anything they would like to be.
End product:
An interactive animation that provides the user many alternative ways of looking and recognizing the objects. Every situation will have more than one alternative way out that the user can choose. When the user chooses his/her own path, he/she will experience different information, which leads to unique journeys that have not yet been imagined.

Mood & Tone:
- Amusing
- Colorful
- Lively
- Neat
- Youthful

Desired response:
- Understand that imagination is as important as any knowledge that we should offer to children.
- Look around and learn to see thing in new ways.

After I had a main concept for this project, I stepped to the next part. The next step was very necessary for the interactive piece. It was helpful to set up the architectural information before starting the production part.

Interactive Part

Architectural information

First, I started breaking down the information I had and everything I would put in my project into appropriate sections (see the content structure in page 27). Next, I continued working on a navigation system for the entire project (see the navigation structure in page 28). I needed to decide how each section would be connected to each other and how they were linked together or separated from each other. Two main sections were the animation and concept part (about the project). The thesis was to be an interactive animation so I also needed to pay a lot of attention to the animation part which I decided to be a 2D animation. Therefore, the flowchart for the animation part (see the flowchart for the animation part in page 30) shows how each story would be linked to others was needed as well. I had to be concerned about how the end of one story could connect to the beginning of the next story which was very unpredictable in the first stage of designing this project. It was hard to see how the story would end since I hadn't gone
Process

depth in any story yet. However, it was very important to make it as clear as possible at the beginning. Otherwise, it would be hard to control the scope of these animations because it started from one story and at the end of the first story, the user would have three choices. Then, the number of stories would increase three times by the end of each story.

Content structure
Navigation structure

[ Rectangle represents a PAGE ]
[ Rounded square represents a BUTTON ]
[ The arrow shows the navigation system of the entire project ]

[ Start from the 1st story in the 1st level ]
[ Bring back to the 1st level again after finishing the story in the 3rd level ]

[ Detail of navigation structure in animation page ]
Process

Animation Part

Concept [ for the animation ]

As a result of the difficulty of the unpredictable ending and beginning of each story, I needed to think about a way to solve this problem. After I had talked to my professor, he recommended that I should have a concept for each animated part. It would be a lot easier to visualize the story in my mind if I had a central concept to think about.

According to the main idea of this thesis project, it was an experimental interactive animation that attempted to enhance creative expression in children. The main concept was allowing children to choose and think imaginatively. Even though the world of reality sometimes has limits, the world of imagination is boundless. It has no ending. It is like an never ending journey. We can see and learn something new all the time. Things in the world can be recognized in many ways. There is more than one aspect to everything and there is more than one way to look at things in life.

Apparently, we were talking about how to learn and see things in the WORLD in different ways so that the concept behind the animation was just all about things in our world. Therefore, I would create a simply story about our world.

I would start the very first animation about SPACE. It was like an introduction to our world. At the end of this first story, the user would face three alternative way to go. Then, the idea of animation was divided into three themes which were LAND, SKY and WATER (our world consisted of three parts, land, sky, and water). Next, at the end of every story, the user would have three choices to continue and it would lead him/her to another story about either sky or land or water.
Content and Navigation structure for animation part

After I had had a main idea for the animation part, I first started picturing the story in my head and thought how stories would flow and connect together. After I had gotten some idea in my mind, I began roughly setting up the flowchart for these animation parts.

Flowchart for the animation part

[ Start the first story about SPACE ]

[ At the end of the story, the last scene is cropped into some symbol. ]

[ Start the next story from the symbol from the last scene in the last story ]

[ After the first story about Space, the next following stories will be about the WORLD which consists of Land - Sky - Water. ]

After I had finished the content and navigation structure and also had roughly outlined the animation part, the next step would be the production part.
**Interactive animation**

After I had completed all the organization charts (content structure, navigation structure, and flowchart for animation), I started creating the animations. From the flowchart, there were a total of 13 stories I would have to create. Following the concept, I had the first story about space and about the world which was divided into three themes, - land, sky, and water. I started working on the first story about space and went on from there.

**Creating an animation**

As I mentioned, I decided to create 2D animations. I created a character and every element I would use in my story in Adobe Illustrator and exported each character separately as SWF format (Shockwave Flash). I chose to work in Adobe Illustrator because I would like the characters to be vector graphic elements. Then, I animated all those characters in both Macromedia Flash and Macromedia Director. The last step to complete each story was to export them to be a QuickTime movie file. I actually made each story separately so at the end, I would have 13 individual made stories.

**Connection between two animation**

One of the most important things in this interactive animation project was the connection from one story to another. As mentioned in the process, the last scene of each story would be cropped into a "symbol" such as a quarter of circle, a triangle. Also, there were three alternative choices for the user to choose. After he/she had chosen one of them, the next story started which would start with the symbol from the last story. In other words, the symbol from last scene of the last story would be used as a starting object for the next story and the story would continue. Consequently, the story could keep going in this process forever and ever. However, I limited the scope of the project to have only three levels. After going through three stories, the user would be brought back to the first story again. Therefore, he/she would have another chance to choose another way to view the story.

[ the last scene ]

[ Three alternative choices for choosing ]

[ The symbol is cropped from some object in the last scene. ]

[ After choosing any choice, the same symbol is used as a starting object in the next story ]

[ Continue another story ]
Music and Sound effects

Sound effect and background music were added into each movie after I had finished animating. Sound is very important to animation. Without music or sound effects, the animation wouldn't be completely done. Sound could build a feeling, emotion and communicate to the user as well as another language. It could make the animation more enjoyable and more realistic. It could make the animation exciting, sad, joyful, horrifying; however, the difficulty was choosing appropriate music and adding appropriate sound effects at the appropriate time and situation.

Software used

Adobe Illustrator : for creating a character and an element in the animation
Macromedia Flash : for animating an animation
Macromedia Director : for animating an animation
QuickTime Pro : for compressing an animation and sound
SoundEdit16 : for manipulating sound
Adobe After Effects : for mixing sound

Interactive CD-ROM

After I had completed 13 individual stories which were in QuickTime movie file format (.MOV), I needed to put them together. I chose to worked in Macromedia Director because it was an effective software to create a CD-ROM. I followed the content and navigation chart I did as well as the concept I had in my design brief. A template for each section was rapidly designed. I had 3 main sections to accomplish in this step which were the main pages, concept page and animation part. The most important parts were the animations. I imported all movies into Director and used lingo to control the movie and navigation system. The last step, I added background music and button sound to make the piece more pleasant and more interactive.

I now only needed to test that everything was playing correctly and didn't cause any errors.

Software used

Macromedia Director : for creating and manipulating an interactive project
Adobe Illustrator : for creating an element using in Director
Macromedia Flash : for animating an element using in Director
SoundEdit16 : for manipulating sound
Usability testing provides invaluable information about the future success of the design. After usability testing occurred, all the feedback was reviewed and the implications on the entire design process was considered. After applying the feedback to the designs, a new iteration of the product was built and brought back to the user. Therefore, it is important to test when creating an interactive piece. The usability test would show how effective the project was for the user or the main target audience. In this case, my main target audience was a young children in grade school. However, I didn’t have many tests on real young children because of time. I had to test mostly teenagers and college students. After the usability testing, I found out many ineffective things. For instance, some navigation buttons were hard to recognize, there was too much information in the concept page and it wasn’t so interesting to reach the user’s attention, the opening screen and introduction page were too long. Moreover, I received a lot of comments about the animation. I collected all the feedback I got from the usability test and reviewed my project. I revised some parts to make it more appropriate and more efficient.

Cross platform

Because of a various kind of user, with different types of operating systems, the interactive CD-ROM should be able to be view on both Macintosh and Windows systems. I needed to create a “projector file” which was a stand-alone file that could run on either Macintosh or Windows operating systems without requiring Director software.

A "Projector" file is a file Director can create when complete authoring the movie. Projector files run without requiring Director. They are distributed to the end users.

Director is available for the Macintosh and Windows operating systems which allows authoring movies using either platform. Additionally, Director’s native file format (used when authoring) is cross platform. This means that the same file can be opened on both Macintosh and Windows operating systems while working on the movie.

In order to create a Projector file that runs on Macintosh, I needed to have the Macintosh version of Director running on a Macintosh machine. Also, in order to create a Projector file that runs on Windows, I needed the Windows version of Director running on a Windows machine.

Since there are some differences between platforms, such as displaying graphics and playing sound, it was essential to test often and try on both platforms.
Imagination has brought mankind through the dark ages to its present state of civilization. Imagination led Columbus to discover America. Imagination led Franklin to discover electricity. Imagination has given us the steam engine, the telephone, the talking-machine, and the automobile, for these things had to be dreamed of before they became realities. So I believe that dreams—daydreams, you know, with your eyes wide open and your brain machinery whizzing—are likely to lead to the betterment of the world. The imaginative child will become the imaginative man or woman most apt to invent, and therefore to foster, civilization.

L. Frank Baum

Since I selected the idea of "creativity and imagination" to be my thesis, I have learned to see things differently. I feel like becoming a child again. I learned that there are always many possibilities for everything, to every question, to every way I go. Creativity and imagination will lead me to a better place and become what I dream.

I started this thesis project with the idea of "creativity and imagination" and developed that idea into an experimental interactive animation project. It was however a personal experimentation and it was the way I tried to represent my idea about how to develop a creative thinking in young children. It might or might not be a good solution for the problem of the decreasing of creativity in young children. I only wanted to express my thoughts and give some solutions for this problem. The important key is giving children a chance to think and choose and be themselves.
Conclusion

*Everything has beauty, but not everyone sees it.*

*Confucius*

We are all growing up, having more responsibility, and having more stress. We sometimes forget to look around to see the world and enjoy it. We sometimes don’t realize that we shut ourselves off from the beauty of the world. Even though the world of reality sometimes has limits, the world of imagination is boundless. Even though we are a grown-up, we still have a little child inside ourselves. A young children always see thing differently from us, always have amazing thought about everything they see. Try to listen to your heart and be a child sometimes, the world will change and something unexpected may occur.

Based on the thesis, I believe the key to life is imagination. If you don’t have that, no mater what you have, it’s meaningless. If you do have imagination. Everything can become real. As Albert Einstein said, “Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.”
Glossary

**Animation** The creating of a timed sequence or series of graphic images or frames together to give the appearance of continuous movement.

**Brainstorming** A method for developing creative solutions to problems. It works by focusing on a problem, and then deliberately coming up with as many deliberately unusual solutions as possible and by pushing the ideas as far as possible.

**CD-ROM** Compact Disc-Read only Memory. A format for storing computer data or compressed audio or video data on a compact disc in digital format. One CD has the capacity to store up to 700MB of data.

**Compression** A method of packing data in order to save disk storage space or download time. JPEGs are generally compressed graphics files. Compression is a technique to make a file or a data stream smaller for faster transmission or to take up less storage space.

**Consistency** Agreement among things or parts. Compatibility between related aspects. Continuously similar in certain respects.

**Creativity** The ability or power to create. Productivity with originality and expressive qualities; imagination; newness. Among other activities, both remembering and forgetting are crucial to the creative process.

**Crop** To cut out the extraneous parts of an image, usually a photograph.

**Ergonomics** The study of efficiency of workers and working arrangements. A designer must consider how an item will be used. Something which is ergonomically designed will be very easy to use. For instance, the controls may be designed so the operator can use them without being uncomfortable.

**Export** To save a file in a different format (that of another program). For example, many Adobe Photoshop files are exported to become GIF or JPEG files.
**Flash** Vector graphic animation software from Macromedia that allows Flash graphics to look the same across all browsers, as long as the plug-in is installed. One of the advantages of Flash animations is their relatively fast download time.

**Frame** In animation, a frame is a single graphic image in a sequence of graphic images.

**GUI** Graphic User Interface. The way which users relate to the equipment they operate. A computer's ability to handle data so fast that the user perceives no the measure of how detailed and fine an image is.

**Hierarchy** Representing the sizes of things according to their importance, rather than how they would objectively appear in space. Hierarchical structure is sometime used for organizing an information in web design or information design.

**Ideation** The process of carrying out the mental activity, thought, opinion, conviction, or principles.

**Information design** The organization of the products of information arts, or the arrangement of information structures.

**Information architecture** The construction of a structure or the organization of information

**Interactive design** To create a two-way electronic or communications system in which response is direct and continual

**Interactive multimedia** The generic term for programs and applications that include a variety of media (such as text, images, video, audio and animation), the presentation of which is controlled interactively by the user.

**Interface** The point at which interdependent and often unrelated systems meet

**Integrate** To make into a whole by bringing all parts together

**Lingo** Name given by Macromedia Director's scripting environment or language.
**Mindmapping**  A form of brainstorming that utilizes a distinct form of visualization. It is a chaotic way of data collection. A graphic technique for representing ideas, using words, images, symbols and color.

**Navigation**  The process of finding one's way through non-hierarchical data.

**Open-Ended Drawing**  One of a test of creativity that ask children to complete some drawing.

**Pre-Schematic Stage**  The second of the Stages of Artistic Development named and described by Victor Lowenfeld, it typically occurs in children during the ages of 4 to 6.

**Projector**  A stand alone file that create from Director after completing authoring your movie. Projector files run without requiring Director.

**Pseudo-Naturalistic Stage**  The last Stages of Artistic Development named and described by Victor Lowenfeld, it typically occurs in children during the ages of 12 to 14.

**QuickTime**  An animation format that is compiled by a series of PICTS and audio developed by Apple Computer Inc. A standard data format in which many Macintosh illustrations are encoded.

**Realistic Stage**  The fourth of the Stages of Artistic Development named and described by Victor Lowenfeld, it typically occurs in children during the ages of 9 to 11.

**Schematic Stage**  The third of the Stages of Artistic Development named and described by Victor Lowenfeld, it typically occurs in children during the ages of 7 to 9.

**Scribbling**  The first of the Stages of Artistic Development named and described by Victor Lowenfeld, it typically occurs in children during the ages of 2 to 4.

**Semiotics**  Relating to semantics; a linguistic, or literary study of the meaning of forms—signs and symbols and what they represent. It includes studies of iconography, iconology, and typology. It is strongly associated with postmodernism.
SWF  A shockwave flash file format that generate from Flash software which is a stand alone player

Symbol  A form, image or subject representing a meaning other than the one with which it is usually associated.

Template  A pattern or gauge used to convey a correct shape. Often made of a durable material, so in this sense it retains or perpetuates a shape.

User  One that puts something into action.

Vector graphic  A graphic image drawn in shapes and lines, called paths. Images created in Illustrator and Freehand (graphic design software) are vector graphics. They are usually exported to be bitmap images.
Bibliography

Book


Bibliography


**Online resource**


[http://www.nncc.org/Series/good.time.intro.html]
Appendix

Quotes i
Lingo ix
Idea & Concept Development xii
Storyboard xix
Layout xx
Character Design xxiii
Appendix

Quotes

Creativity is allowing yourself to make mistakes. Art is knowing which ones to keep.
* Scott Adams

Be brave enough to live creatively. The creative is the place where no one else has ever been. You have to leave the city of your comfort and go into the wilderness of your intuition. You can't get there by bus, only by hard work, risk, and by not quite knowing what you're doing. What you'll discover will be wonderful: yourself.
* Alan Alda

Sometimes we think we should be able to know everything. But we can't. We have to allow ourselves to see what there is to see, and we have to imagine.
* David Almond

Imagination is the highest kite one can fly.
* Lauren Bacall

Imagination has brought mankind through the dark ages to its present state of civilization. Imagination led Columbus to discover America. Imagination led Franklin to discover electricity. Imagination has given us the steam engine, the telephone, the talking-machine, and the automobile, for these things had to be dreamed of before they became realities. So I believe that dreams -- daydreams, you know, with your eyes wide open and your brain machinery whizzing -- are likely to lead to the betterment of the world. The imaginative child will become the imaginative man or woman most apt to invent, and therefore to foster, civilization.
* L Frank Baum

There are two ways of being creative. One can sing and dance. Or one can create an environment in which singers and dancers flourish.
* Warren Bennis

Creativity involves breaking out of established patterns in order to look at things in a different way.
* Edward de Bono

Creativity is a great motivator because it makes people interested in what they are doing. Creativity gives hope that there can be a worthwhile idea. Creativity gives the possibility of some sort of achievement to everyone. Creativity makes life more fun and more interesting.
* Edward de Bono (Serious Creativity)
Appendix

Quotes

There is no doubt that creativity is the most important human resource of all. Without creativity, there would be no progress, and we would be forever repeating the same patterns.
* Edward de Bono

We need creativity in order to break free from the temporary structures that have been set up by a particular sequence of experience.
* Edward de Bono (Serious Creativity)

The courage to imagine the otherwise is our greatest resource, adding color and suspense to all our life.
* Daniel Boorstin

The only truly happy people are children and the creative minority.
* Jean Caldwell

The great successful men of the world have used their imagination... they think ahead and create their mental picture in all it details, filling in here, adding a little there, altering this a bit and that a bit, but steadily building steadily building.
* Robert Collier

[The artist] speaks to our capacity for delight and wonder, to the sense of mystery surrounding our lives; to our sense of pity, and beauty, and pain; to the latent feeling of fellowship with all creation -- and to the subtle but invincible conviction of solidarity in dreams, in joy, in sorrow, in aspirations, in illusions, in hope, in fear... which binds together all humanity -- the dead to the living and the living to the unborn.
* Joseph Conrad

When the imagination and will power are in conflict, are antagonistic, it is always the imagination which wins, without any exception.
* Emile Coue

We are what and where we are because we have first imagined it.
* Donald Curtis

Without wonder and insight, acting is just a trade. With it, it becomes creation.
* Bette Davis (The Lonely Life)

Any form of art is a form of power, it has impact, it can affect change -- it can not only move us, it makes us move.
* Ossie Davis
Every great advance in science has issued from a new audacity of imagination.
* John Dewey (The Quest for Certainty)

The whole difference between construction and creation is exactly this: that a thing constructed can only be loved after it is constructed; but a thing created is loved before it exists.
* Charles Dickens

The possible's slow fuse is lit by the imagination.
* Emily Dickinson

It could be that our faithlessness is a cowering cowardice born of our very smallness, a massive failure of imagination... If we were to judge nature by common sense or likelihood, we wouldn't believe the world existed.
* Annie Dillard

I am enough of an artist to draw freely upon my imagination. Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.
* Albert Einstein

Logic will get you from A to B. Imagination will take you everywhere.
* Albert Einstein

When I examine myself and my methods of thought, I come to the conclusion that the gift of fantasy has meant more to me than my talent for absorbing positive knowledge.
* Albert Einstein

There are no days in life so memorable as those which vibrated to some stroke of the imagination.
* Ralph Waldo Emerson

The greatest discoveries have come from people who have looked at a standard situation and seen it differently.
* Ira Erwin

Uncertainty and mystery are energies of life. Don't let them scare you unduly, for they keep boredom at bay and spark creativity.
* R. L. Fitzhenry
I believe that imagination is stronger than knowledge
That myth is more potent than history
I believe that dreams are more powerful than facts -
That hope always triumphs over experience -
That laughter is the only cure for grief
And I believe that love is stronger than death.
* Robert Fulghum

The capacity to be puzzled is ... the premise of all creation, be it in art or in science.
* Eric Fromm ("The Creative Attitude" in Creativity and It Cultivation ed. by Anderson)

The creative individual has the capacity to free himself from the web of social pressures in which the rest of us are caught. He is capable of questioning the assumptions that the rest of us accept.
* John W. Gardner

When Alexander the Great visited Diogenes and asked whether he could do anything for the famed teacher, Diogenes replied, "Only stand out of my light." Perhaps some day we shall know how to heighten creativity. Until then, one of the best things we can do for creative men and women is to stand out of their light.
* John W. Gardner

Imagination is the one weapon in the war against reality.
* Jules de Gaultier

Discovery consists of seeing what everybody has seen, and thinking what nobody has thought.
* Albert Szent-Gyorgi (in The Scientist Speculates ed. by Good)

Most of what you will create is for your enrichment or is a stepping stone to other better, more insightful work. Maybe once or twice in a lifetime you will be recognized with the kudos of the public, so in the meantime, create for yourself.
* Dan Hahn (Dancing Corn Dogs in the Night: Reawakening Your creative Spirit)

Fantasies are more than substitutes for unpleasant reality; they are also dress rehearsals, plans. All acts performed in the world begin in the imagination.
* Barbara G. Harrison

If all your peers understand what you've done, it's not creative.
* H. Heimlich
Appendix

Quotes

The key to life is imagination. If you don't have that, no matter what you have, it's meaningless. If you do have imagination...you can make feast of straw.

* Jane Stanton Hitchcock

Imagination is not something apart and hermetic, not a way of leaving reality behind; it is a way of engaging reality.

* Irving Howe ("Characters: Are They Like People?" A Critics Notebook)

It's time to start living the life you've imagined.

* Henry James

Genius...means little more than the faculty of perceiving in an unhabitual way.

* William James

The creation of something new is not accomplished by the intellect but by the play instinct acting from inner necessity. The creative mind plays with the objects it loves.

* Carl Jung

The debt we owe to the play of imagination is incalculable.

* Carl Jung

Imagination is the eye of the soul.

* Joseph Joubert

The problems of the world cannot possibly be solved by skeptics or cynics whose horizons are limited by the obvious realities. We need men who can dream of things that never were.

* John F. Kennedy

I think there are two keys to being creatively productive. One is not being daunted by one's fear of failure. the second is sheer perseverance.

* Mary-Claire King

The principle mark of genius is not perfection but originality, the opening of new frontiers.

* Arthur Koestler

Creative people who can't help but explore other mental territories are at greater risk, just as someone who climbs a mountain is more at risk than someone who just walks along a village lane.

* R. D. Laing
Appendix

Quotes

I like the fact that in ancient Chinese art the great painters always included a deliberate flaw in their work; human creation is never perfect.
• Madelein L'Engle (A Circle of Quiet)

It is above all by the imagination that we achieve perception and compassion and hope.
• Ursula K. LeGuin

My imagination makes me human and makes me a fool; it gives me all the world and exiles me from it.
• Ursula K. LeGuin

One of the virtues of the very young is that you don’t let facts get in the way of your imagination.
• Sam Levinson

Even in literature and art, no man who bothers about originality will ever be original; whereas if you simply try to tell the truth (without caring twopence how often it has been told before) you will, nine times out of ten, become original without ever having noticed it.
• C. S. Lewis

Creativity can solve almost any problem. The creative act, the defeat of habit by originality overcomes everything.
• George Lois

It’s hard for corporations to understand that creativity is not just about succeeding. It’s about experimenting and discovering.
• Gordon Mackenzie (Orbiting the Giant Hairball :A Corporate Fool's Guide to Surviving with Grace)

The creative process takes its own course. If it did otherwise, it would not be creative.
• F.W. Martin (Experiment in Depth)

It is better to fail in originality than to succeed in imitation.
• Herman Melville

One of the advantages of being disorderly is that one is constantly making exciting discoveries.
• A.A. Milne

Imagination grows by exercise, and contrary to popular belief, is more powerful in the mature than the young.
• W. Somerset Maugham
Creativity is more than just being different. Anybody can play weird -- that's easy. What's hard is to be as simple as Bach. Making the simple complicated is commonplace -- making the complicated simple, awesomely simple -- that's creativity.
* Charles Mingus

Making the simple complicated is commonplace; making the complicated simple, awesomely simple, that's creativity.
* Charles Mingus

Focus should be to encourage and develop creativity in all children without the ultimate goal begin to make all children inventors, but rather to develop a future generation of critical thinkers.
* Faraa Mousa

The principle goal of education is to create men who are capable of doing new things, not simply of repeating what other generations have done -- men who are creative, inventive and discoverers.
* Jean Piaget

The imagination equips us to perceive reality when it is not fully materialized.
* Mary Caroline Richards

The world of reality has its limits; the world of imagination is boundless.
* Jean Jacques Rousseau

It is in the compelling zest of high adventure and of victory, and in creative action, that man finds his supreme joys.
* Antoine De Saint-Exupery

The ability to relate and to connect, sometimes in odd and yet striking fashion, lies at the very heart of any creative use of the mind, no matter in what field or discipline.
* George J. Seidel

Every creator painfully experiences the chasm between his inner vision and its ultimate expression.
* Isaac Bashevis Singer

What nature delivers to us is never stale. Because what nature creates has eternity in it.
* Isaac Bashevis Singer

Let your imagination release your imprisoned possibilities.
* Robert H. Schuller
To regard the imagination as metaphysics is to think of it as part of life, and to think of it as part of life is to realize the extent of artifice. We live in the mind.

- Wallace Stevens

In the beginner's mind there are many possibilities, in the expert's mind there are few.

- Shunryu Suzuki

Creative power, is that receptive attitude of expectancy which makes a mold into which the plastic and as yet undifferentiated substance can flow and take the desired form.

- Thomas Troward

You can't depend on your judgment when your imagination is out of focus.

- Mark Twain

Storytelling is how we survive, when there's no feed, the story feeds something, it feeds the spirit, the imagination. I can't imagine life without stories, stories from my parents, my culture. Stories from other people's parents, their culture. That's how we learn from each other, it's the best way. That's why literature is so important, it connects us heart to heart.

- Alice Walker

If you can imagine it, you can achieve it; if you can dream it, you can become it.

- William Arthur Ward

Imagination is always the fabric of social life and the dynamic of history. The influence of real needs and compulsions, of real interests and materials, is indirect because the crowd is never conscious of it.

- Simone Weil

Most idealistic people are skint. I have discovered that people with money have no imagination, and people with imagination have no money.

- George Weiss

I believe that none of us ever fails at anything. Every time we create something we are successful at creation. However, we do make some poor choices about what we create.

- Anonymous
Appendix

Lingo

Movie Script
- On StartMovie

on startMovie
  global startdepth
  global myPath
  set myPath = the moviepath
  startdepth = the colordepth
  if the colordepth <> 32 then set the colordepth = 32
  set the soundlevel = 6
end startMovie

on stopMovie
  global startdepth
  if startdepth <> 32 then set the colordepth = startdepth
end stopMovie

Behavior Script
- Open popup window

property spritenum
on mouseUp me
  cursor -I
  global gHELP
  gHELP = window (" - H E L P - ")
  gHELP.filename = "help.dir"
  hpos = the stageleft
  vpos = the stageTop
  set the rect of gHELP to rect (hpos,vpos,hpos + 600,vpos + 400)
  gHELP.windowtype = 4
  gHELP.visible = true
end

on mouseEnter me
  cursor 280
  puppetsound 3, "cowbell02"
  sprite(spritenum).member = "help-rollover"
end

on mouseLeave me
  cursor -I
  puppetsound 3, 0
  sprite(spritenum).member = "helpbutt2"
end
Lingo

**Behavior Script - Control MovieTime**

```lingo
on exitFrame me
  if sprite(2).movietime = 2300 then
    go next
  else
    go to the frame
  end if
end

on beginsprite me
  cursor -1
  puppetsound 2, 0
end
```

**Behavior Script - Control Sound on-off button**

```lingo
on mouseUp me
  cursor -1
  if sprite(me.spritenum).member.name = "soundon" then
    set the soundlevel = 0
    sprite(25).member = "soundoff"
  else if sprite(me.spritenum).member.name = "soundoff" then
    set the soundlevel = 6
    sprite(25).member = "soundon"
  end if
end

on mouseEnter me
  cursor 280
end
on mouseLeave me
  cursor -1
end
```
Lingo

**Behavior Script**
- **Quit button**

```lingo
property spritenum
on mouseEnter me
    cursor 280
    puppetsound 3,"TAMBO"
    sprite(spritenum).member = "quit-rollover"
end

on mouseLeave me
    cursor -1
    puppetsound 3,0
    sprite(spritenum).member = "quitbutt2"
end

on mouseUp me
    cursor -1
    play "quit"
end
```

- **No Button**

```lingo
property spritenum
on mouseUp me
    cursor -1
    play done
end

on mouseEnter me
    sprite(spritenum).member = "no3"
    cursor 280
    puppetsound 3,"hiconga01"
end

on mouseLeave me
    sprite(spritenum).member = "no"
    cursor -1
    puppetsound 3,0
end
```
Appendix

Idea & concept development

01 Apr

- Creativity
  - Creativity development for young children
    - peak in children form 
    - peak development for young children
    - drop in elementary school
    - drop in academic than individuals
    - more
  - environment / RA
  - parents
    - how young grow up
    - role in society
    - limited of young they need to concern in life
    - stressful
    - opportunity to think, learn, express, think, play, speak
  - experience

- MEDICATION + CREATIVITY
  - sensitivity
  - key words
    - creative
    - imagination
    - flexibility
    - possibility - many possibilities
    - there is no one right answer for a question
    - try to look at same thing in a new way every time
    - there is more than one aspect to feeling in life
    - what it is + what it could be
    - somebody see thing and look what it is
    - same body see thing and think what it could be
    - form / shape / line
    - symbol
      - heart / square
    - something that looks very generic
    - it can be anything
    - it can mean many things
    - can contain many feeling / thought / move / meaning
    - inside it

- experience...make people recognize feeling differently
  - interpret site, different from another person
  - look at thing with different thought / meaning

xii
Appendix

Idea & concept development

- Experience
  - Originally
  - Story that never ended
  - Open-ended dreaming
  - Unexpected
    - Situation
    - Path
    - Being object
  - Variety
    - Print it from different people, different reasons
    - Age, sex, ...

- Plot
  - Story
  - Non-linear
  - Cycle: circle story
  - Can start anywhere and end anywhere...

- Narrative
  - Non-narrative
  - Experimental

> EXPERIMENTAL PROJECT
> EDUCATIONAL
> INFORMATIONAL
> ENTERTAINMENT

- Providing some idea of creativity ... what's the project
  - Based on ???
  - Why? (Why) (What)
  - Interactive journey
  - Example: an age-appropriate
  - Pick your own path

> WHAT IS IT ABOUT
> HOW TO PRESENT IT
> WHAT DOES IT MEAN
> REFERENT
> PRESENT SOME IDEA.
Appendix

Idea & concept development

WHAT --- should it be...

○ zoom in ↔ zoom out
  ... then that image/situation become as part of
  the else → so on and so on...

○ sequence
  from one to another
  seems to relate to each other
  but not...
  have something that link it
together but the story is change

○ Box
  what it is
  what it can be
  what's inside
  what it is...
  depends on who looks / thinks
  how they look / think / see
  experience / if, if interest...
  make they look / think / see
  think differently.

○ sphere
  similar to box idea...
  what could it be / what it is...
  if might tell a story → sequence of situation

○ something happens → another thing
  ← another ← another

○ The way you look / The way you think !
  it can give us many idea / many possibility...
Appendix

Idea & concept development

- Book
  - What story can it tell, or you can tell.
  - If we start with something symbolic.
  - Still image → became → story (movie)...
- Picture
  - What’s going on?
  - What happens in the picture?
  - What do you think about it...
  - What’s going to be

Visual Language

- Run lots of runs → Reference
  - If you start with one situation, then you choose different paths, you might face different journeys.
  - It might end up with same farming or even different farming.

- The way of telling story
  - Can start anywhere and anywhere.
  - It’s kind of a circle.

- The one
  - If you have dot and you connect it whatever you want, it creates dot... some image... then some thing happen... is start some journey....

- Think about you might have many at you in many different time (at the same time) but have your own life path... doing more forward or another step differently when you choose any of your journey...
  - Many possibility of life.
Appendix

Idea & concept development

- One thing can make you feel many feeling removal
  
  But in *this* thing

- If you're blind or
  
  *you cannot see*

  What's in your mind right away
  
  How do you imagine it should be
  
  What is it...
  
  What do you think of the first sense about it...

  If you reach the sharp corner of it
  
  What it's going to be in your thought
  
  What you gonna imagine
  
  Different people with very experience interest
  
  Must have different idea of that same thing.

- Creativity → Originality
  
  It can happen in every person every career
  
  It's in everybody... just... do you know how to use it...
  
  depends on what you expect / concern / interest.

- Combine the shape / form / line into something
  
  If it interest into *this*, it lead you to some path / journey.

- *Harvest* start with some alphabet or ...
  
  What come... choose one thing that begin with @
  
  and then blend thing will lead you for create something
  
  and go to another thing "→ → →

  same process.

- Click on anywhere on the screen and
  
  something happen and lead you to another thing...

Doctor Seuss: children book
Appendix

Idea & concept development

- We might not have a chance to really change the way it is ... school / environment...
- Just offer another option...
  - give some idea / a thought / a concept of how to encourage children to imagine their own work...
  - give an alternative idea to foster / support the possibility of any idea children will have
  - it might be right or wrong, or maybe nobody can say it's right or wrong.
  - it's no or yes
  - having own change

- The animation will be like an example of how we can / should teach children

---

Pr. Seuss
Appendix

Idea & concept development

01/25/91
* FRAGMENT
* NARRATIVE -- OPEN END STORY
* TOWN IN -- OUT
* SYMBOLIC

- OPEN-ENDED STORY (DRAWING).
- PICTURE POSSIBILITIES:
- A TEST / EXERCISE FOR CHILDREN IN SCHOOL.

From Art & Creative Development for Young Children:
* If creativity is an inherent potential, there must be things that can be done to enhance or retard its development.
  Environment conditions include people, places, objects, and experiences. Children do not create out of a vacuum. They need source or inspiration or an experienced base from which to draw.

* Pearson (1967)
  - In creative expression, the greater one's age of experience with people, places, and objects, the greater the range of possibilities to draw from in creative activity.

* Next meeting...
  - Map: to see how all the paths connect together.
  - Storyboard
  - Technical demos: O�King works - Flash
   + Consider using color to indicate grouping the paths/relationships that belong together.

Powers of Ten: by Charles and Ray Eames
Appendix

Storyboard
Appendix

Layout

[Diagram of layout concepts and interactive interfaces, including symbols for concepts like 'A never-ending journey' and 'KEEP GOING."

Diagram also includes icons for 'HELP', 'CLEAN AND CLEAR', 'CREATIVE DEVELOPMENT', and 'RE損害 CHILDREN'.
Character Design