Combining Paper Engineering and Storytelling to Promote Childhood Literacy

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In partial fulfillment of the MFA degree requirements
Indiana State University Department of Art and Design
Fall 2013

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Introduction

When I first became a designer, I quickly realized that art and design aren’t created in a vacuum and that everything is related. What I create is a reflection of the world around me. Every day I encounter and observe design trends that include, but aren’t limited to graphic design. Fashion trends of passers by, the style and function of furniture in an office, and the various architecture styles I pass on my way to work; my mind records all of these forms throughout the day. While it is important to stay ahead of technology in the industry, it is equally imperative to stay inspired. For me, this inspiration is directly linked to my everyday observations and general curiosity.

This ever-present inquisitiveness generated my children’s book character, Clara. Throughout her experiences and adventures in everyday life, she discovers the world around her. Children are always discovering and immersing themselves into the world in which they live, and are often amazed by the minute things that adults take for granted. These little things were the inspiration for Clara and her story, which took the form of a pop-up book. The concept of Clara combined my interest of the child’s inquiring mind and the aspiration to create design that educates and communicates.

Prior to developing reading skills, children first build a visual vocabulary that is composed of pictures and shapes that they are introduced to\(^1\). They begin to recognize that these images have meaning, and then they are able to connect pictures with words as they learn to read. Clara and the Red Hat is intended for beginning readers and is also suitable for parents to read to children who are developing a visual vocabulary. Based on the idea that children begin to associate pictures with words early on, the book is a primarily a picture book accompanied with minimal text.

As of 2010, 68% of students in the United States scored below proficient reading level.\(^2\) The ambition to promote reading at an early age is ever-present as schools begin to introduce reading to learn earlier and earlier. Currently, a child should be a proficient reader by the 4th grade. A proficient reader is someone who is able to read to learn; meaning that they not only comprehend the text, but they are able to pinpoint the key information.\(^ 2\)
The Challenge

Clara herself was the initial inspiration for this project. She provided me with the opportunity to create something that was child-oriented and allowed me to expand my fascination with illustration and paper engineering. While the book allowed me to create something that was fun to look at, the further investigation of how children comprehend and begin to build reading skills was necessary to produce a successful book. Researching how children comprehend images and words on paper allowed me to investigate childhood literacy.

After determining that Clara and the Red Hat would be a pop-up book, it was evident that the process of creating pop-ups and paper mechanisms would be essential preliminary research. Pop-up books are entertaining to look at and puzzling at the same time. While these paper illusions come to life in a seemingly seamless manner, behind that magic is a paper engineer who has carefully placed and planned out the pages. Traditionally, the creation of a pop-up book employs a creative writer, an illustrator, and a pop-up engineer. By pursuing Clara as a thesis project, I assumed all of those roles.

Although the pop-up book was the primary component of this endeavor, it was necessary to include other elements to create a well-developed project. Combining the commercialism of branding a children’s book character with my literacy research, I was able to create an educational literacy campaign for both children and adults.

Preliminary Research

Before creating Clara and the pop-up book, I gathered inspiration by reading classic children’s books and evaluating the paper engineering techniques of various pop-up books. For character development, I reviewed illustrations from the early 1980s such as Strawberry Shortcake and Rainbow Brite. I was drawn to the simplistic shapes and styles of these illustrations.

Fig. 1: David Carter, Bugs In A Box
During the preliminary stages of this project, I experimented with several pop-up mechanisms to gain a better understanding of how they functioned with various page-turning styles and pop-up elements. I studied pop-ups by paper-engineers that ranged from the simple designs of David Carter (Fig. 1) to the elaborate designs by Robert Sabuda (Fig. 2). Designing pop-ups and movables involves a sense of play along with trial-and-error problem solving.

There is magic in opening a flat page to reveal a three-dimensional form, and the magicians behind this magic are paper engineers. Their art of mechanizing paper is used to create pop-ups, pull tabs, rotating wheels, and other devices that activate the page surface. Today, pop-ups and movable paper mechanisms are usually associated with children's books, but the genre has its roots in antique scientific texts. As early as the fifteenth century, paper dials and lift-up flaps were used to explain concepts in astronomy, mathematics, and human anatomy.

The Process

The concept of Clara as a character, and the book itself, was developed in several stages. After Clara was developed as a character, the pages were created sequentially. The book took the form of a 7-page story that follows Clara’s search for her beloved hat.

I. Character Development and Identity

The first step was to brand the character of Clara. Creating a brand for a personality is much like branding a product logo; in children's book illustration, this is referred to as character development. I decided to keep the illustration style child-like and simple, using bold colors and simple outlines. I began with her signature item, the red hat, and designed her from head to toe. After her face and hat were developed, her iconic wardrobe was created.

Once finished, Clara became a little girl with short brunette hair, simple facial features and fair skin, wearing a long purple jumper, polka dot leggings, bright green rain boots, and most important, a red hat (Fig. 3).
For Clara, the red hat is equivalent to a child's blanket or any other security item. Clara's overall look is indicative of an adventurous, happy child who loves to dress herself. While I drew inspiration for her identity from myself as a child, she is not me, but an extension of my imagination and observation of a child's tendency to be a unique individual.

As Clara was the signature character, she too required a logo. The logo incorporated Clara's red hat, along with black and red text (Fig. 4). I mixed and matched the hat with various type treatments and hat placements until I felt that the logo and Clara were a cohesive unit.

II. The Pop Up Book

The story of Clara and the Red Hat introduces Clara for the first time to the reader and proclaims her love for her red hat (Fig. 5). Clara then encounters a storm that blows her hat away down the street towards the zoo (Fig. 6 & 7). During her search for her hat, she encounters the zoo animals that attempt to help her on her journey (Fig. 8-10). Throughout the story the hat is present, however the animals are unaware that the hat is near. At the end of the book, the reader discovers that Clara didn't lose her hat, she was simply dreaming (Fig. 11).

The pop up book began with preliminary sketches of all the pages. The sketches were then scanned in and used as a foundation for 2-D digitally illustrated pages. While children's books tend to use primary or muted colors, I chose to use vibrant colors that provided a sensory experience for the viewer. To keep the style consistent, the animals were rendered in a simplistic manner.
Once the illustrations were finished, I then began to assess which elements would pop up. The illustrations were then separated into two pieces: elements that would remain flat and elements that would pop up. All of the pop ups are based on a variation of the floating platform, which is composed of three supports that serve as the load bearing structure for the platforms that contain the pop ups (Fig. 12). All of the pop up components were cut precisely by hand and each page was re-made several times until the mechanisms worked smoothly and seamlessly. Once all of the pages were completed, they were bound back to back with bookbinders glue and then attached to the cover.
III. Using Clara to Promote Literacy Advocacy

While Clara was the center of the story, she also served as the poster child for the integrated literacy campaign. The campaign sought to provide educational opportunities for children and to educate adults about learning strategies and literacy statistics.

1. Clara’s Imagination Station

Clara's Imagination Station was created as an activity kit for children to enhance a child's learning experience by combining both free play and educational activities (Fig 13). The intent was to introduce children to literacy outside of the classroom and to emphasize the importance of learning and reading.

The kit includes:

- **1 set of dry-erase flash cards (Fig. 14)**

  These flash cards allow children to practice writing their letters and associate words with pictures.

- **1 set of word family buildings (Fig. 15)**

  The word family buildings introduce children to different word families, allowing them to expand their vocabulary. As they spin the wheel, a different letter appears in the window to create a new word.

- **3 magnetic story sheets (Fig. 16)**

  The story sheets consist of 3 pages from the book and assorted magnet pieces allow children to create their own story.
• 1 reading activity wheel (Fig. 17)

The reading activity wheel is intended for both parents and children. With help from an adult, kids can discover activities that help them learn in an everyday setting.

2. Clara Speaks

"Clara Speaks" is an interactive poster series designed to educate and inform adults. All of the posters incorporate moving mechanisms. The Five Essential Reading Skills posters include a lever. The front cover of the posters displays a key reading skill; when pulled, the lever device flips open the front cover of the poster to reveal the fundamentals of that reading skill (Fig. 18).

The Literacy Statistics poster utilizes a box pop up and features buildings from the book that serve as a bar graph (Fig. 19). When the cover is opened, the poster pulls out to reveal the buildings. Each building on the graph represents a set of percentage ranges. The ranges of these percentages are broken down by state inside the windows of each building.
IV. Additional Items and Exhibition

To complete the overall look and feel of the exhibition, additional items were added to the display. The goal was to arrange the space to resemble a children’s museum exhibit. The space was divided into sections to direct visitors around the gallery.

1. Book Display (Fig. 20)

The book display featured the pop-up book, a Clara doll, a large build out of the opening book spread, and a point of purchase display. I worked with a local artist to create the doll. This area catered to the commercial aspect of Clara and the Red Hat and served as an example of how the book could be marketed.

![Fig. 20: Gallery display, point of purchase display, and doll](image)

2. Video Reading

While the book was on display, it was not available for visitors to interact with. To provide visitors with the opportunity to experience Clara and the Red Hat, a video reading of the book was created. I collaborated with a narrator and page-turner to create a video that featured the narrator reading the book to the audience. The viewers were able to experience the spectacle of the pop-ups without potentially damaging the handmade book.

3. Informational and Wayfinding Signage (Fig. 21)

While the Clara Speaks posters provided literacy advocacy, additional informational signage was created. Clouds were hung from the ceiling to help create an atmosphere and provided additional information to visitors. The clouds featured quotes about paper
engineering and reading statistics. To help direct visitors through the gallery, adhesive footprints were placed on the floor to lead visitors from the book display area to the video reading.

*Fig. 21: Informational and way-finding signage*

**Conclusion**

The final outcomes of this project produced a cohesive educational and literacy campaign that used paper engineering to enhance learning experiences. Following the exhibition, items were donated to the Linden Public Library in Linden, Tennessee. The next step will be to begin preliminary stages to prepare the book for publishing.

2 Annie E. Casey Foundation, Early Warning! Why Reading by the End of Third Grade Matters. 2010.


Bibliography

Annie E. Casey Foundation, Early Warning! Why Reading by the End of Third Grade Matters. 2010.

Barringer, David. Paper, Paper, Skin and Body. AIGA Inspiration, 2010: 1


