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Interactive instructional design

Anne Marie Arbutiski

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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

“Interactive Instructional Magazine”

By

Anne Marie Arbutiski

May 1993

Approvals

Adviser: James VerHague

Date: 6-10-93

Adviser: Bob Keough

Date: 6-3-93

Adviser: Stephanie Maxwell

Date: May 21, 1993

Special Assistant to the Dean
for Graduate Affairs:

Phil Bornarth

Date: 6/14/93

Dean, College of Imaging Arts and Sciences:

Dr. Margaret Lucas

Date: 5-15-93

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May, 1993

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Acknowledgements

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I wish to express my gratitude to my thesis committee members, James VerHague, Bob Keough and Stephanie Maxwell for their generosity with their knowledge and time over the past two years.

Dedication

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I dedicate the thesis to my parents, Dr. Thomas Arbutiski and Mary C. Arbutiski. Thank you for the support and belief in my abilities.

Introduction

1

The purpose of the thesis was to create an instructional magazine about computer graphics for graphic designers. I wanted the magazine to be an interactive computer piece so that the reader of the magazine would be able to view examples in the animation and interactive sections.

Doing a project about computer graphics gave me the chance to experiment in illustration, photography, interactivity and animation. After learning the basics in each of the areas during my first year of the graduate program, I wanted a project where I would have more time to develop my skills.

In my proposal I wrote, "I would like to design a computerized magazine that would be instructional for computer graphic designers, animators and illustrators. The topics of some possible articles I hope to cover are: archetypes in print advertising, the application of film animation techniques to computer animation, interactive design and painterly approaches to computerized photo illustration. Planning to design the magazine in a loose approach, I want each page to have a painterly look."

Some of the objectives were to make a series of greeting cards, to create a set of images using the channels in Photoshop, animating three Russian Folk Tales, designing an interactive calendar and making an archive of the work of David Em.

“The Interactive Magazine”¹ was the most detailed article I could find on the subject. In the article was an evaluation of the few interactive magazines that are on the market, how well the products are selling and what the economic possibilities are for the survival of the magazines. Since the pieces were produced through CD-ROM technology, an evaluation was done to determine where the drives have been sold and what the market for the drives will be in the future.

Even though most of the CD-ROM drives are currently in libraries and corporations, advances are being made with the drives so that they will be available for home use. Since more people own televisions than computers, developers are trying to make the drives work in connection with television. One way they plan to influence people to buy the drives is to sell them with video game packages.

The designers of the magazines must create visuals and animation that will be on the same level as television graphics in order for the medium to flourish. The imagery should not overpower the information. If the users are only asked to read the screen, the industry may not work since it is easier to read text on a page than on a screen. Economic experts cited in the article predict that by 1995, 4.9 million computer based CD-ROM drives will be sold and three-fourths of those drives will be in the United States. Another prediction was that there will be 5 to 10 television based drives for each computer based drive by 1995. The prices of the drives are also expected to drop. If the estimations are to become a reality, there might be a large market for the magazines.

¹John G. Maguire, “Interactive Magazines,” Computer Graphics World, August 1991.

Presently there are magazines that are available for purchase. Most are still on the demonstration level. The three major magazines that were covered in the article were Nautilus, MacWorld Interactive and Verbum Interactive.

Being supported by Apple, a demo copy of Nautilus is given out with each CD-ROM drive. Nautilus is a multi-media magazine that has sections about programming, sound samples, using Hypercard and technical aspects of the Macintosh. It also included software demonstrations and shareware games. Some of the software demonstrated in Nautilus can be purchased through a phone call to the distributor. The customer would be told the release code and would use that code to open the program from the magazine. Getting lost within the magazine was the biggest complaint from the users.

According to the article, only one MacWorld Interactive edition has been released. Based on the June 1990 issue of MacWorld, the magazine's visuals were well done and the user could move through the articles easily. Some interesting features were buttons that would turn off any sounds, change the point size of the text from a small point size to 24 point type. The user could click on colored terms for brief descriptions. When most of the illustrations were clicked, an animation or sound appeared. There were also buttons that brought up advertisements for software and equipment. The magazine was considered to be well designed and easy to navigate.

The article also stated that the most visually stimulating of the three magazines was Verbum Interactive. The creators of the magazine focused on multi-media design as the subject for the magazine. The articles included an introduction section that helped the user to properly maneuver through the magazine, six main multi-media articles, a debate section, a showcase of work, software demos, a music section and advertisements.

Products similar to the electronic magazine are also available. A CD-ROM library is available from Sony. It contains the library, dictionaries, an atlas, a few children's games and a program about mammals that has descriptions, photos and movies of the animals. Magnavox will have 30 to 40 interactive

packages available with the release of their CD-I Compact Disk-Interactive hardware. Video games, animations, interactive courses and tours will be the different categories of the packages.

According to the article there were some suggestions for the kinds of interactive catalogues in the future. One recommendation was a listing of pharmaceutical ads for doctors. The interactive drug ads could give demonstrations, the results of studies and show how the drug was created. Another interactive catalogue could be for software development companies. Any publication directed toward engineers, designers and architects could also be successful. The information about the future of the magazines was thorough and the descriptions of existing articles were helpful.

In the Journal of Computer Based Instruction I found explanations of the different approaches to learning from interactive programs. In an article titled "Relationship of Learning Style to the Effectiveness and Acceptance of Interactive Video Instruction"² a study was done by the NCR Corporation. They designed a computerized instructional program for nursing students. Tests were done to determine how well the students learned from the course and how well the method of instruction was accepted by the students. Since the researchers knew about Kolb's theory of learning styles, they also tried to determine if the instructional program reached all the different learning styles of the students.

In 1984 David A. Kolb discovered how to test the way people process new information. He found that everyone uses one of four separate approaches. The first was learning through the senses, which he called concrete experience. Another method, called reflective observation, meant that some people who were given new material would later repeat it in their minds. The

² Ronald E. Larsen, "Relationship of Learning Style to the Effectiveness and Acceptance of Interactive Video Instruction," Journal of Computer-Based Instruction, Winter 1992.

third approach was abstract conceptualization, which is a method of learning through an intellectual process. Since the final group preferred to learn by doing the new process themselves, Kolb called the approach active experimentation. Kolb also found that people usually use two approaches which resulted into the four learning styles that he called the divergers, the assimilators, the convergers and the accommodators.

Previously it had been considered impossible to attend to each style while presenting new material. Usually a group would be studied to find a common learning style and then to present the material in that style. The study with the nursing students showed that the computer could adapt to the different styles at once. It could also address left brain dominant students through the presentation of facts as well as the right brained students through visuals and sound effects. Since the computer could be used alone or in groups, students who preferred to work alone were also able to receive all the necessary information.

The study was done by giving the students the Learning Style Inventory and the results were sent in for evaluation. The students were then asked to take a pre-test, to go through the course, to take a post-test and finally to fill out an evaluation sheet on how well they liked the instruction. When the learning style results were returned, the researchers found that the smallest of the four groups had only 18 students. After randomly choosing 18 other students from the other three groups, evaluating the results of the post-tests and the course evaluation sheets, the researchers learned that there were not any significant differences between the groups. Each group seemed to do well on the tests and enjoyed the course. The researchers decided that the reason for the consistency was due to the interactive nature of the computer. Some of the advantages to using the computer were giving the students control over how fast and how often the information was covered and by giving them actual experience. Since the students were able to learn through the method in which they needed to process the new information, the students were pleased with the instruction.

In another article called "Effects of Learning Style Preference, Attitude and GPA on Learner Achievement Using Computer Assisted Interactive Videodisc Instruction"³ the Indiana University School of Nursing conducted a similar study with four groups of students. Two groups of students were enrolled in the course; a set of nursing students and a set of general students. The students were evaluated for their learning style preferences, took pre-tests, did the course work, took post-tests and evaluated the course.

The results were many. No significant differences were found between learning styles and effectiveness. Students who had previous computer experience did better on the post-tests than those who did not have computer experiences. Students who scored high in creativity felt they needed to have more mobility within the program and were not as determined as the other students. Needing the least amount of mobility were the students who were comfortable with the computer and found it to be functional. The time of day the students used the computer also affected their effectiveness. Comfort while viewing was another factor that affected achievement. In this study the students preferred to view the information in groups.

There were other findings. One of the things the researchers discovered was that the students found the bookmark feature useful. Secondly, in the part of the course that gave a demonstration in cardiac auscultation, the students were able to learn the section more easily when the heart sounds were played.

The researchers gave the following suggestions when giving a computerized course. When first presenting new material, tell the students to go over the course materials during a time of day they usually study. Students who want to have more movement than the program gives, should be advised to take more breaks from the computer.

³ Karen L. Cobb and Diane M. Billings, "Effects of Learning Style Preference, Attitude and GPA on Learner Instruction," Journal of Computer-Based Instruction, Winter 1992.

In the article titled "Artistic Animation",⁴ the authors explained how PC technology had influenced animators who customarily used large workstations to create their work on PCs. Many of the computer animations created today are not being displayed due to the misunderstanding of the advances made in the technology. When told of the medium, some people still think of the heavily jagged images made on computers in the early 1980's. Some existing restrictions are: rendering speed and limited storage capacities. To explain how the technology alone could not make a poor animation better by being on the computer is a quote from the director of computer animation at the National Film Board of Canada, Doris Kochanek. "When we point to [Pixar animator] John Lasseter's work as an example of the high quality of animation [that can be achieved] on the computer, we get two very different things confused: the skill of the animator and the resolution of the output.' Lasseter, director of the Academy Award-winning short feature *Tin Toy*, is Disney-trained... He would be turning out interesting animations regardless of his system platform."⁵

Just as there are computer animators who use the high-end systems at work and the PCs for personal use, there are traditional animators who are beginning to explore PC animation. They choose the PCs because they are more inexpensive than a high-end system and have a shorter learning curve. Some animators do not want the high resolution output of a major computer since their style does not need it. Other animators have found the computer useful in creating the outlines for their cels, printing the cels on acetate and finally hand coloring them. Animators who have chosen to use the PCs "strongly believe that they represent the future."⁶

⁴ Cynthia Baron and Renee LeWinter, "Artistic Animation," Computer Graphics World, July 1991.

⁵ *Ibid.*, 59, 60.

⁶ *Ibid.*, 64

In another article called "Cartoon Animation"⁷ the author Audrey Vasilopoulos wrote about Chris Walker, the president of Mr. Film. In addition to having animation software for a DOS based PC, a real-time flight simulator was used. Walker used the simulator to record accurate character movements. Since most of the work done at Mr. Film was character animation, Walker stated that his main objective was to convey a story. Two examples of the type of work done at Mr. Film were their He-Man toy commercial and Tom Petty video. The goal for the finished He-Man commercial was to make the character's smaller movements, like the lips, look believable. In the Tom Petty video the backgrounds were created on the computer but the characters were done using the traditional cel animation technique. Showing different camera angles for the background was more easily done using the computer than having an artist draw each separate movement. Walker believes the computer can be useful but should not replace traditional animation because computer animation has its own style.

For basic descriptions of the three techniques I planned to use, I referred to The Animation Book.⁸ In the chapter about cutout animations were some suggestions when making the animations. One consideration was to use big movements to express emotion instead of using a detailed movement such as a facial expression. Some of the methods of making knee and elbow joints on the cut-out figures are to use thread and tape, to make metal fasteners or to use gravity. Having busy backgrounds is considered to be potentially harmful to a cutout animation since it could clutter the screen and distract the viewers from the main action. Keeping surrounding actions to a minimum is also suggested. Small objects such as rain and snow could be moved by taking a piece of acetate, drawing the drops or flakes on it and moving the whole acetate sheet under the camera. Silhouette animations could benefit from the same advice.

⁷ Audrey Vasilopoulos, "Cartoon Animation," Computer Graphics World, January 1990.

⁸ Kate Laybourne, The Animation Book (New York: Crown, 1979).

Lotte Reiniger was the first person to creating a silhouette animation. Using characters on a backlit surface, she created a new style of animation. Since the figures were made of jointed pieces of black paper, the audience could not see the hinges. The movements were easily done by slightly pushing the limbs in between each frame. Her film called *The Adventures of Prince Achmed* was the first animated film ever made. In a few of her films, Reiniger used gels and tissue paper to create a layered effect.

While in college, George Pal worked as an animator. He was able to make one animation per day. Pal later moved from his native country, Hungary to Eindhoven, Holland. While working on animations for an electronics company called Philips, Pal became a pioneer for animation in Holland. He also worked in several other countries including Germany and Britain before moving to the United States. While in Hollywood, Pal worked on a group of Puppets. While in Hollywood, he was able to further develop his technique. The movement of the puppets was increased by having additional parts to the puppets. Instead of having one arm throughout the animation, a character may have several. In order for the characters' facial expressions to change, Pal had several heads with differently painted eyes and lips. The same method was used for any part of the body that needed a special movement.

In the book "The Complete Guide to Greeting Card Design and Illustration"¹⁰ was a description of the buying and sending audience of greeting cards. Most cards are bought by and given to women. The reason people send cards is to help the giver say something special to the receiver.

For my thesis I also wanted to explore digital photography. In the article "Digital Photo Labs" the president of Meisel

¹⁰ Eva Szela, The Complete Guide to Greeting Card Design and Illustration (Cincinnati, Ohio: North Light Books, 1987).

Photographic Corporation gave examples of the capabilities of digital photography: color adjustments, photo retouching, photo collages, restorations of deteriorated photographs, graphic design pieces through the combination of type and photographic imagery and special effects pieces done by manipulating photographs with the software package.

Hoping to achieve a unique effect in the photography section of my thesis project, I researched articles about the use of channels in Photoshop. A short article called "Creative Channeling"¹² was informative. By separating a Photoshop file into its RGB channels or its alpha channels, the file can then be manipulated with the program's tools and filters. An image with a painterly quality can be achieved by starting with a new file, separating the channels, creating blends in each channel and finally merging the channels. Another suggestion was to add a gray scale image to only one channel or to invert one of the channels. Both methods could produce painterly effects.

Simon Dumenco wrote the article called "Digital Collage with Photoshop".¹³ In it he described the processes Louis Fishauf took to complete the illustration for Rolling Stone magazine. Since the piece was to be for a story about the band REM, Fishauf decided to take two photos of the band members and merge them into one face. He also decided to make the image have an obscure quality since the band's lyrics are hard to decipher. After selecting photos given to him of the band and choosing images he captured using a still video camera, Fishauf began using Photoshop to begin the merging process. First he united the faces of the two band members and blurred them using the Gaussian Blur function. Next he took a scanned file of some

¹¹ N.R. Ryan, "Digital Photo Labs," Photo-Electronic Imaging, November 1991.

¹² Russell Sparkman, "Creative Channeling," Step by Step Electronic Design, October 1992.

¹³ Simon Dumenco, "Digital Collage with Photoshop," Step by Step Graphics, January/February 1992.

geometric diagrams, placed them over the face and before deselecting the image, he made the diagrams transparent. By allowing himself to create the illustration in a stream of consciousness manner, he said that he began to choose the scans that had no literal meaning but instead had an archetypal quality.

In her article "Painting Digital Portraits"¹⁴ Janet Ashford described the methods used by Mark Jasin in creating his colorful portrait of Oprah Winfrey. First he scanned the photograph of Oprah, converted it to a bitmap and imported the image into Freehand. He then applied geometric colored shapes behind the bitmapped image and then did a screen capture to convert the image into a PICT format to use in Photoshop. Next he used a program called TextureSynthfor texture. Jasin added the texture by using the paste options dialogue box. The file size was about 25MB and was taken to a service bureau to be output as transparencies so that the color separations could be made.

For the portfolio section, I chose the work of David Em. His work interested me since he had a creative and technical background. Em graduated from the Pennsylvania Academy of the Fine Arts in Philadelphia with a degree in painting. Afterwards he moved to San Francisco and began working with video synthesizers. He later worked with a team of engineers to develop a system that could create images from a blank video screen. Although he was interested in computer manipulation of video imagery through animation, he continued to create still images. He said, "I've always wanted the picture to remain still while the mind moves through it, rather than the opposite. . . It isn't the notion of a still image that fascinates me, but rather the place the viewer occupies within the picture."¹⁵ He wanted complete control over the screen, enough so that he could alter the hue, saturation and brightness of each dot. In 1975 at the Jet Propulsion Laboratory in Los Angeles, Em continued working on the development of

¹⁴ Janet Ashford, "Painting Digital Portraits," Step by Step Graphics, September/October 1992.

the painted electronic screen with Jim Blinn. Having an established reputation for his work in the development of computer graphics software, Blinn offered a strong technical background for the team. After the first program was developed, Em created a few images. He then discovered that he was responsible for what the form of the completed work of art should be. Some possibilities at that time for determining the final state of the piece were: the image on the screen, a photograph of the image, a black and white computer print of the image or the act of creating the image. After working at JPL, David Em continued creating artworks with the computer and with the paintbrush.

I had planned to merge the information about learning styles with the information of what has previously been done in interactive magazines. Having studied the technical aspects of Photoshop, I intended to explore altering images. Even though they are different in style, the animated works of Loddie Reiniger and the still imagery of David Em are my sources of inspiration.

¹⁵ David A. Ross, The Art of David Em: 100 Computer Paintings (New York: H.N. Abrams, 1988), 11.

I thought it would be to my advantage to create an instructional magazine since I hope to teach. It would also be useful when applying to different types of jobs. For example, when applying for an animation position, I would have animations to show from my thesis. I wanted to have the flexibility to work in the different areas of computer graphics.

The project was to have a colored background with loose elements instead of geometric shapes. Many of the design pieces I have made have had a white background since white paper is usually used in print. Geometric shapes are often used in computer graphics because they are easily made. I wanted to make a piece with a colorful and loosely textured background.

There were many areas I wanted to explore in computer graphics. For the animation sections, I planned to use three Russian folk tales and animate them using three different film animation techniques. I wanted to use Russian folk tales because they were unfamiliar to me. While taking film animation courses for my minor, I became aware of the different types of movement and visual styles and wanted to apply them to the computer. After discovering examples of David Em's work in the library, I wanted a section about him. I found his computer paintings to be inspirational. While working with the FractaSketch program, I decided to create a brochure for a candy company. Since I wanted a section for greeting cards, I found the illustration section to be appropriate. After I saw interactive calendars in some computer stores, I noticed many had graphics that were masculine or designed for children. I decided to make one that would appeal to feminine tastes. For the photography section, I had originally planned to create a set of images that would be abstract. After visiting the Mt. Hope Cemetery, I decided to use photographs of the cemetery statues and give them an upbeat look. I tried to make them into angels for the living. Once I made my final decisions, I could begin.

HARDWARE:

Epson ES 300C - Epson America, Inc.

Macintosh IIci - Apple Computer, Inc.

Macintosh IICx - Apple Computer, Inc.

MacRecorder Sound System - Farallon Computing, Inc.

SOFTWARE:

Adobe Photoshop 2.1 - Adobe System Inc.

Exposure D/A 1.0 - Michael Whittingham

FractaSketch

HyperCard 2.1 - Apple Computer, Inc.

MacroMind Director 3.0 - MacroMind, Inc.

QuickTime 1.5 - Apple Computer, Inc.

ResCopy 2.1 - Apple Computer, Inc.

SoundEdit 2.3 - Farallon Computing, Inc.

SuperCard 1.5 - Silicon Beach Software, Inc.
A subsidiary of Aldus Corp.

Swivel 3D Professional 2.0 - Paracomp, Inc.

Timeline

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The Timeline is a weekly record of accomplishments in completing the thesis project.

September 25

Submitted my proposal.

November 6

Finished collecting the information and began writing the research.

November 20

1. Finished writing the research for the thesis report.
2. The first preliminary "sketches" were done for the digital photography section and the background textures.

January 12

The first committee meeting was held.

January 15

Began working on the fractal layouts for the graphic design section.

January 22

The first set of scans for the David Em archive were completed. Since the images were too small to see, they were scanned a second time.

January 29

Conducted research and found three folk tales that were not too complicated to animate.

February 5

The images for the Em archive were scanned again and imported into SuperCard.

February 12

The brochure for the graphic design section was finished.

February 19

Worked on the photomanipulations for the calendar section. Originally I was going to have photomontages. After spending time trying to find appropriate photographs, I decided to alter the scans using the tools in PhotoShop.

February 26

The winter term ended and break began.

March 5

While at home, I took photographs of cut glass cups, glasses and vases. I also had them developed.

March 12

Using a book of metaphors, Wrote a series of ten greetings for the cards in the illustration section. Made ten sketches for the cards.

March 19

Finished the illustrations for the greeting cards.

March 26

The bear and little girl characters for the "puppet" animation were created using Swivel.

April 2

For the puppet animation a dog, door and trees were created. The fourteen pics files were done.

April 9

1. Redrew the frogs for the cut out animation. They needed to be pulled apart and I drew them as solid shapes. I painted the backgrounds, the bucket and the window. After scanning everything, I imported it into MacroMind and finished the animation.

2. Worked on the images for the calendar section. The theme of a feminist's view of art history is too repetitious, so I scanned a set of photographs I took while at the Pittsburgh Conservatory.

April 16

The seven textures for the backgrounds in SuperCard were created. The four images for the photography section were scanned and manipulated in PhotoShop. I also finished the calendar in SuperCard.

April 23

Changed the spacing of the calendar from setting the days of the week horizontally to vertically since the days of the week would not line up in SuperCard.

April 29

Created the silhouette animation. Since each of the sections were complete, I could begin the navigation of the piece. The scripts for the puppet animation and the thesis project were done. Each sound for the thesis project and the animations were recorded and imported. The title of the magazine and the "cover" were created. All of the text for the explanations of the process of the pieces were written.

April 30

Prepared the computer in the lab for the Thesis Show that night.

In order to create the instructional part of the project, I needed to have the examples for each of the sections completed. The first part I worked on was the Graphic Design section. While taking a fractal painting course, I discovered a program called FractaSketch. In the program the user is able to create linear patterns. By taking these patterns into Photoshop, I was able to create a grid for the layout of a four page brochure. Since the grids were interesting, I wanted them to be visible in the layout. The idea was to have an imaginary candy company that sold sugar free candy. Originally I named the company Non Bon. I had to change the name to Mon Bon when I realized the direct translation of Non Bon in French means No Good. I also worked on the mood of the brochure. Usually when candy companies sell sugar free or dietetic candy, the color of the packaging is light. I did not want the light feeling since I wanted to show that the candy was rich tasting. Choosing dark colors and heavy textures gave the piece unity and a sumptuous quality. I saved the pages as indexed pict files and imported them into SuperCard.

The next section I did was the archive. I scanned the images and added text using Photoshop. The first set of scans I did were not used because they were too small. I had a layout for the screen design which only left half of the screen for the images to be displayed. I had to do away with the screen design for the archive since the images were too small to see. I rescanned all the images a second time, saved them as indexed pict files and imported them all into SuperCard.

Next I worked on the images for the calendar example in the interactive section. I wanted the calendar to appeal to women since many of the calendars I see on the market have a masculine or childlike visual appeal to them. My first attempt at the visuals of the calendar was to create a series of photomontages of significant pieces through art history.

The theme was to have a feminist view of the works. The first image I worked on was an adaptation of "The Thinker".

I would have the original figure of a man seated beside a figure of a woman who had her head held high. I planned to call the montage "The Knower". Since they took too long to create and the theme began to become repetitive, I decided to use a series of photographs I took while at the Pittsburgh Conservatory.

Next, I decided to do the animation section. The first animation was the Swivel animation called "Masha and The Bear".

Originally I planned to create the pics files and add the backgrounds by importing everything into MacroMind. Since I had fourteen pics files when I was done, I decided to import them in fourteen separate MacroMind files. During the import process, I found there were many pics files that could not import due to a lack of memory. I decided to take the files into Quicktime and work with the design in SuperCard. While in Quicktime MovieConverter, I kept the size of the file at Normal instead of using the smaller screen. When I tried the smaller screen size, the image became bitmapped and it would not display all the frames in the original pics file. Setting the size to normal kept the image quality and consistency. I had some problems importing the Quicktime files into SuperCard. After adding the Quicktime and PlayMovie XCMDs to the project's resources, I wrote the project and button scripts and the movies still did not play. After experimenting and consulting with the faculty, I learned the names of the Quicktime files must end with ".QT" in order for SuperCard to recognize them. For the design of the section, I chose red and yellow to be the dominant colors for the Russian folk tale. Since the animations alone were not enough to tell the story, I added a text option to the SuperCard project.

For the second animation I decided to use a film animation technique called a cut out effect. The characters were created to be broken apart. Since I used frogs, the difference in the movement could easily be seen. By making frogs with disconnected body parts, I was able to spread the pieces apart for their leaps and bring the pieces back together again for the landings.

The final part of the animation section was called "The Story of Zarniyar." The effect I tried to achieve was another film animation technique called silhouette animation. The effect is created by making a set of jointed black characters and a series of transparent backgrounds which are backlit. The movement is similar to the cutout animation in that the characters are cutout pieces and moved across the screen. The difference is that the characters' elbows and joints are connected. To make the transparent items, I used the blend option in the score window.

In the illustration section I decided to make greeting cards. Using the book "Griffin and Sabine" for inspiration, I decided to try to create a collage effect for the first card. By combining images from three photographs, a painting and a scan of money, I used the paste controls option in Photoshop to combine the pieces together. The first attempt was not successful, however, since the card had a Motown feeling to it and I wanted a fantasy look. I switched the body of the main character from a tuxedo to a robe. The second card had a background from a scanned acrylic painting. First I intended to make the cards using Adobe Illustrator because when printing I noticed that Illustrator files look better than PhotoShop files. When I went to import the scan of the painting for the background, the computer ran out of memory and would not complete the import operation. I decided to make the cards using Photoshop. I scanned a drawing of the character for the second and third cards. For the background of the final card, I scanned a print I made from an etching class I took. I had intended to have the files printed but I lost the TIFF files while reformatting my Syquest cartridge.

For the photography section, I wanted to experiment with the channel modes and the filters. Next, I began to do some preliminary exercises by exploring Photoshop to create files with no scanned imagery. Later I included scans. Using a set of photographs of cut glass bowls and cups, I experimented using the channels in Photoshop to create backgrounds. Although I learned how the channels worked, I was not satisfied with the results and did not resolve the background textures until later in the year. Fit I planned to use photographs of cut glass cups,

glasses and vases but later changed my mind. I became more interested in using a group of photographs I took of the statues in Mt. Hope Cemetery. After scanning the photographs, I opened each file in PhotoShop and deleted the background. Next I would go to the Mode menu and select Red, Green or Blue from the Channels option. Since the background was deleted, I was then able to select the white space around the statues and use the special effects filters for textures and patterns. Usually, I used the add noise filter and the find edges filter. Then I would go to the second channel, select the empty background here and use the gradation tool. For the third channel, I used the selection tools, created geometric shapes and inverted them. Finally, I previewed the photograph by going back to the Mode menu and selecting RGB from the Channels option. I saved the images as indexed pict files and imported them into the thesis project.

After finishing all the sections, I worked on the SuperCard project. I went back to the original files I created for each selection and made screen dumps of some of the processes. When I opened the screen dumps in PhotoShop, I learned that the files could not be reduced. The image would become smaller but the text was so bitmapped, it was no longer readable. I decided to keep the image at the original size and to crop it so that only the key elements were left.

After viewing the MacWorld CD-ROM magazine, I knew I did not want to have an animated introduction. I found it became annoying after starting the program repeatedly. It also made the project run more slowly. So, I created an opening graphic for the "cover". I wanted to use my own textures for the backgrounds, so I made pencil rubbings of different objects in my apartment. I scanned the rubbings, opened them in Photoshop and altered the colors. I changed them by going to the Image menu, choosing the Hue Saturation and Brightness dialog box, selecting Colorize and experimenting with the Hue, Saturation and Brightness controls. I also set the type for the headings in Photoshop. After that, I imported the backgrounds into SuperCard.

When I created the thesis project in SuperCard, I originally had all six sections in one file. I quickly learned that the file was too large to run. I then decided to break the project into seven SuperCard files and link them through scripting.

I had also planned to run all three animations through SuperCard. By using QuickTime, I was able to show the Swivel files without any memory problems. I had hoped to use the MacroMind files as well but could not because they ran too slowly. I tried to convert them into Accelerator files but ran out of memory. I also tried exporting the files from MacroMind as pics files but again ran out of memory.

I also experienced problems running the SuperCard files on the computer in the lab. The files would run but would not quit. When the key commands for quit or the message box were done, nothing would happen. The reason seemed to be when the computer had been changed from 8MB of RAM to 16MB of RAM, the system also needed to be changed from 6.7 to system 7. After I changed the systems, the files worked well.

Conclusion

I chose to use the instructional magazine because it gave me an opportunity to experiment in the different areas of computer graphics. All of the work was original. First I had planned to have some of the sections be from existing articles from How or Step-By-Step magazines. After reading some of the articles, I had learned a few new techniques and wanted to try them. When I did, I felt it was necessary that the photographs or illustrations I used were from my own work. The magazine will continue to be useful to me since I can refer to it later and refresh my memory on how certain effects were achieved.

After watching people use the project during the thesis show, I noticed some possible developments to improve it:

1. I would like to connect the MacroMind Movies to the SuperCard project. It could be done by breaking apart the MacroMind files, exporting them as pics file, importing them into QuickTime and playing them in SuperCard.
2. For each section I could include a test section where the user could test their retention on the computer process.

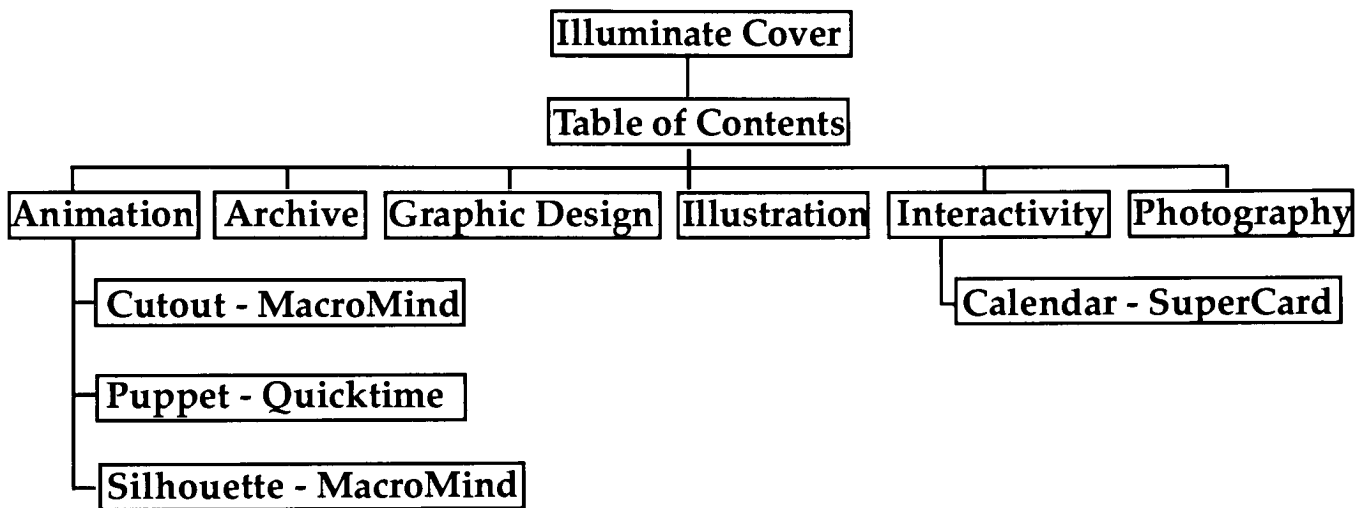
Once the thesis committee members viewed the final project, some of the suggestions for improvement from them were:

1. In the illustration section I need to add a greetings button to show the greetings for the cards.
2. When the user reaches the end of the section, there is a word in the text called More to tell the user to continue. I need to add a button beside the word.
3. The layout of the David Em section needs to be organized better.
4. At the end of the cut-out and silhouette animation sections, there is a dialog box asking if the user wants to quit SuperCard. I need to word the question better.

In conclusion, the magazine has room for improvement but overall, I think I was able to meet my objectives.

Appendix A: Structure

Flowchart of the navigation of the thesis project:



Appendix B: Scripts

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TO CONNECT THE SECTIONS:

```
on mouseUp
  play "Click"
  visual effect "wipe up"
  go to card 1 of window "Section Title" of project "Animation
  Section"
end mouseUp
```

TO QUIT THE PROJECT WITH A DIALOG BOX:

```
on mouseup
  play "Applause"
  answer "Are you sure you want to quit?" with "Yes" or "No" at
  300, 250
  if it is "Yes" then
    editor
    domenu "Quit"
  else
    exit mouseup
  end if
end mouseup
```

TO GO TO A DIFFERENT STEP OF THE SECTION:

```
on mousedown
  set the ink of me to "notSrcXor"
end mousedown
```

```
on mouseup
  play "Click"
  set the ink of me to "SrcCopy"
  visual effect "iris open"
  go to card "Step 1"
end mouseup
```

TO SHOW THE TEXT FIELD IN THE PUPPET ANIMATION:

```
on mousedown
  set the ink of me to "addPin"
end mousedown
on mouseup
  play "Click"
  set the ink of me to "srcCopy"
  show card graphic "Title"
end mouseup
```

TO PLAY QUICKTIME MOVIE - BUTTON SCRIPT

```
on mousedown
  set the ink of me to "addPin"
end mousedown
on mouseUp
  play "Click"
  set the ink of me to "srcCopy"
  global movieID
  QTMovie Openmovie, direct,"Thesis:Animation:Puppet:1
  Title.QT", "64, 45", closeonFinish
  put the result into movieID
  QTMovie direct, movieID, play
end mouseUp
```

PROJECT SCRIPT FOR QUICKTIME MOVIE

```
on startUp
  editor
end startUp

on idle
  global movieID
  if movieID is not empty then
    QTMovie direct, movieID, idle
  end if
end idle
```


PREVIOUS/NEXT BUTTON SCRIPTS ON A CARD THAT HAS
A QUICKTIME MOVIE. THE SCRIPT SAVES MEMORY.

```
on mousedown
  set the ink of me to "subOver"
end mousedown
on mouseup
  play "Click"
  set the ink of me to "srcCopy"
  QTMovie direct, movieID, dispose
  go to next card
end mouseup
```

TO RETURN TO THE CONTENTS CARD OF THE PROJECT

```
on mousedown
  set the ink of me to "addPin"
end mousedown
on mouseup
  play "Click"
  set the ink of me to "srcCopy"
  answer "This will take you back to Illuminate Magazine!" with
  "cancel" or "O.K." at 362, 240
  if it is "O.K." then
    visual venetian blinds
    go to card 2 of window 1 of project "Thesis Project"
  else
    exit mouseup
  end if
end mouseup
```

THE INTERACTIVE CALENDAR - POP UP FIELDS

```
for the field to pop up
on mouseEnter
  show cd fld "february"
end mouseEnter
```

```
for the field to go away
on mouseLeave
  hide cd fld "february"
end mouseLeave
```

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