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X10 Comics: Reimagining the Sequential Narrative

Sten E. McKinzie

X 10 COMICS

REIMAGINING THE SEQUENTIAL ART NARRATIVE

STEN E MCKINZIE
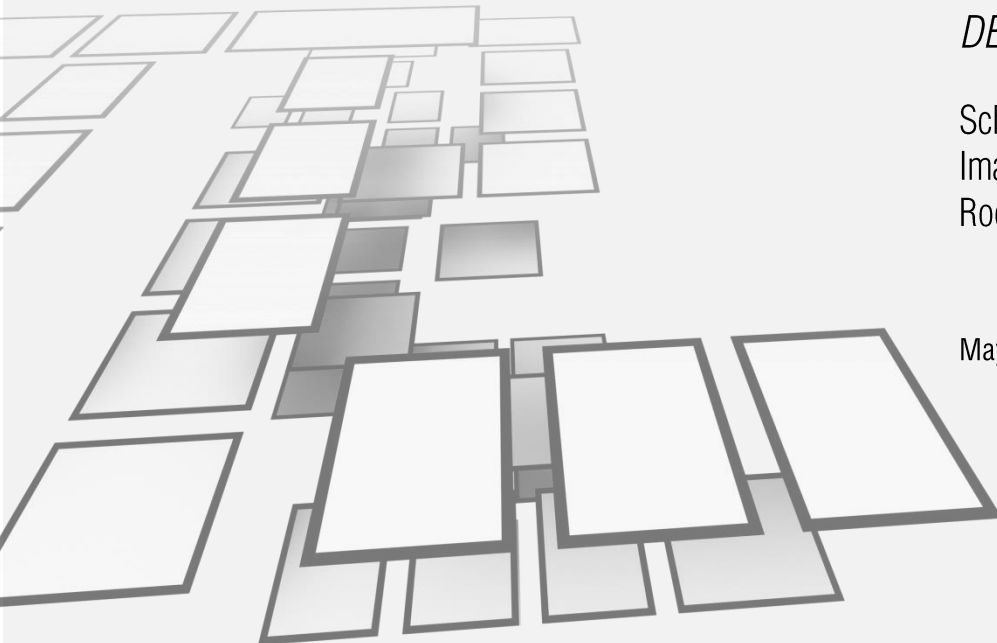
Thesis Documentation for the Degree of Masters of Fine Arts in *Visual Communication Design*

School of Design | College of Imaging Arts and Sciences
Rochester Institute of Technology

Title: X10 Comics: Reimagining the Sequential Narrative

Date: May 15, 2015

Signature Approval

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Abstract

At its core a comic book is a narrative told using a sequence of images or a *sequential art narrative*. There are a number of conventions, established early in the history of comics, which make the comic panel format a powerful tool for visual communication.

My thesis project examines these conventions and attempt to distinguish which ones are results of the unique nature of sequential art and which began as a byproduct of technological limitations. By doing so my goal is to take advantage of current technology by creating a new comic book format that integrates digital media while celebrating the comic book as a sequential art narrative.

Project Overview

History

Before we had written language, humans were communicating with pictures. In fact, most of the letter forms in most of the languages we write today came from some form of pictography.

Prior to the 15th century, examples of sequential art could be found in any number of mediums: stone Egyptian hieroglyphs, Greek friezes and Roman columns of stone, medieval tapestries of cloth, Japanese scrolls of rice paper and many others. When the written word was established, it was considered the purview of the wealthy and clergy. However, Johannes Gutenberg's invention of the printing press brought print media to the masses. The first political comics came in the form of medieval broadsheet that often contained cartoonish renderings of public executions and caricatures of public figures.

By the early years of the 20th century, comic strips were appearing in newspapers. Due to the humorous content, these strips became known as "the comics" or "the funnies." They were packaged and resold as reprinted volumes and represent the first actual comic books. In the late 1930s comic books came *into their own*. New genres like war, western and super hero comics expanded sequential art past political cartoons and the funnies. The Golden Age of Comics started in the late thirties and with every generation and well into the Modern Age, it was clear that sequential art, in its primary form, the comic book, is integrally connected to the technology of printing.

In the late 1990s publishers experimented with new digital technologies. The motion comic, for example, featured limited animation, within and between panels, intended to enhance the narrative. These could only be viewed on a computer. That limited the market and they were never embraced by the wider public.

It is only now that technology has provided new channels of distribution for the sequential narrative. Publishers are looking to tablet devices and the web to expand readership. To offer the same on-the-go convenience of e-books, major publishers now offer their comics both in print and digital versions for mobile devices. Even so, comic books are treated no differently than any other scanned page. Major publishers have not pushed the technology to embrace the unique nature of the sequential narrative. Comic book conventions, established for print over a hundred years ago, remain relatively the same.

Comic Book Conventions

There are a number of conventions used in comic books that contribute to its success as a visual communication tool.

- *Continuity:* This is basically the world the comic book's narrative lives in. It is often shared with a number of titles. Major events that happen in one title generally have an effect on or are at least acknowledged in other titles within the continuity. An example of this would be the Marvel Comics Universe
- *Title or series:* This is the larger narrative. It is usually specific to a person, group of people or location. It is a consistent thematic stream that is broken into smaller chapters through serialization.
- *Serialization:* This breaks the larger story arc of the title or series into smaller chunks that are delivered in to readers in regular intervals (i.e. monthly). A comic book series can be limited or continue indefinitely with many story arcs that progress over a long period of time. Detective Comics is one of the longest running comic book series. It spanned over 700 issues and ran from 1936 until 2011.
- *Page layout:* This is how panels are laid out on a single page. The artist must

consider the amount of page real-estate against the size, number and composition of the panels and how it furthers the narrative in the most effective way

- *Panel composition:* Each panel is like a small movie set in a box. It contains environment, props, lighting, actors and effects. It also contains chunks of text that can represent narration, speech and even sound effects. Finding a balanced composition for this Interplay of words and pictures, that fits with in a series of other panels in the page layout, while effectively furthering the narrative, is a true art form unique to comic books.

Continuity, title and serialization, are all common to other mediums like film, television and books. However, page layout, panel composition and the interplay of words and pictures, all function in ways unique to comics. These aspects are not only used to convey the narrative but also to inform the reader on unconscious levels.

The panel is a container, usually a bordered box that contains the words and pictures that represent a moment in the narrative. Panels are similar to film and television in that they reside in a frame that allows the creator to reveal only what they wish. These frames are composed in ways that lead the viewer (reader) down the specific path of the narrative. Unlike the film frame, comic panels can be any shape or size and this allows the panels to organize and control time and space.

The panel represents a moment in time allowing the reader to not just experience a moment but to examine it. Layout of the panel, for example, the position of a subject in relation to the shape of a panel, can affect the reader's perception of time, within the panel. This makes time within the panel malleable. In *Understanding Comics: The Invisible Art* by Scott McCloud, an example is shown in the comparison of two similar panels. In one the subject is positioned centered in a small panel when he responds to a question. In the next the same subject gives the same response but this time the subject is placed at the right side of a long panel. The long space on left side of the subject communicates a pause in the subjects response as if they are considering their answer.[1]

The gutter is the empty space between panels. In many ways the reader creates the relationship between the two panels. Through a process called closure, according to McCloud, as the reader moves from panel to panel on a comic page, it is over these gutters that the readers mind considers what they've read, build expectation and incorporates their own experience to connect the panels in meaningful way. In another example from *Understanding Comics: The Invisible Art*, McCloud shows this effect. In this example there are two panels. The first shows a man cringing in fear as a maniac swings an axe down on him, yelling "…and now you die!" The next panel shows a scream echoing over a nighttime city skyline. The reader connects the two and assumes, through closure, that the axe has fallen and the scream comes from the victim. McCloud points out the readers involvement when he says, "I may have drawn the axe being raised …, but I am not the one who let it drop or decided how hard the blow, or who screamed or why. That dear reader was your special crime. Each of you committing it in your own style."[2]

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1. McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994, 101.

2. McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994, 66-68.

The page is the organizing structure that holds panels and gutters. It is a predetermined rectangular space, that the creator must consider when he designs the flow of the narrative across panels and between pages. While a page change sometimes depends only on the amount of content that fits on the previous page, an artist tries to use a page change to further the narrative. A transition to a new scene is often signified by a page change. The new page begins with a larger panel that represents an establishing panel to define time and place. Ultimately, to determine the layout, the creator must strike a delicate balance between page size, the size and number of panels, the reading flow and the narrative.

While the page seems to be integral to the experience, it is important to remember that there was sequential art before there was the page. While panels need to have an organization that connects their meanings, the page is a direct result of the printing process and the nature of the page was determined, early on, by the limits of print technology.

Current Technology

Digital technology brings a wealth of possibilities for enhancing the comic reader's experience. There were many things to consider in determining not only what could be done, but what was appropriate to the nature of comics.

My initial thought was to design an app for mobile devices. What I found most interesting about tablet devices was the possibilities of touch interaction. However, after a couple of iterations of the project, I realized it would be more effective to create a prototype that could work in any digital environment. This way I could launch on tablets, consoles or computers. It would also allow me to develop it as a web app accessible to anyone.

Sound and Animation

Adding sound and animation to the panels would allow me to minimize text and open more real estate for imagery. It would also provide more ways to quickly convey more information to the reader. Over all, it could create a dynamic presentation. However, this was an addition that many of the web comics researched had tried. So it was not unique. Also, by minimizing text I drifted away from the picture and word interplay innate to comic books. I wanted this to be a reading experience that could happen anywhere. By adding sound it limited that capability. Most importantly, however, was what it would do to a comic books unique relationship with time. Dialogue, music, sound effects and animation all happen in real time. Adding them would tie the panels to real time as well, effectively discarding the comic panel's ability to mold time.

Gamification

A large part of my goal was to add interaction to the comic reader experience. Adding mini-games to certain panels was an initial consideration. I considered everything from in panel word puzzles, seek n' find and matching games to dream sequences with full platform levels. All of these, once again tied the panels to real time. More importantly, it distracted from the narrative and felt too much like a gaming experience rather than a reading experience. The interaction should support the narrative. It should provide background, context and information specific to the character, locations and story.

Thesis Statement
By reexamining print based comic book conventions and current digital technology, can a user experience be designed that leverages that technology while delivering an engaging narrative and a sense of discovery?

Process

In designing my app, I wanted to preserve the aspects of comic books that made them unique and effective. Of the conventions I chose to focus on, I found the page layout restrictive. My first iterations of the narrative attempted to follow the standard vertical page format. The image below (*Fig. 1*), below is an example of one of my early attempts.

Figure 1: early comic page layout

Panel Arrangement

I struggled to strike the balance needed in the page and panel layout until I realized I didn't need it. The page/panel format readers have become accustomed to is a holdover from the process of printing. It was an analogue restriction that I was struggling to fit into a digital format. I could pull the panels off the page.

This allowed me to base my panel groups on scenes instead of pages. This created larger panel groups that provided a better contextual space for each scene. My original navigation concept used a road or tourist map as the backdrop for each scene panel group. Scene panel group would float above, using the map as a backdrop. The map focused on the location of the current scene, then moved to a new location for each new scene, leaving the previous scene's panels behind. This gave each scene a temporal and spatial relationship to the others to further connect them to the narrative reality.

The panels within the scenes remained as framed boxes and use many of the traditional aspects of panel composition. As the reader progresses through the narrative each panel is display full screen, with the previous and next panel visible. Also, all dialogue, narration and sound would be conveyed as they are in traditional comics, word bubbles, narration boxes, etc. I feel that panels and their function represent what is unique about comics so it is important to keep them consistent.

The arrangement of the panels was different. I felt that it was also limited by what was established early on. Since comics are printed and read, it was only natural that they followed the reading direction of books, left to right, top to bottom. In my research, I had seen many examples of sequential art that spiraled down columns, read many different directions and even followed a zigzag order. I wanted to create *panel vectors*; the readers' path of progression through the panels that followed what best fit the context of the narrative. If a character looks to their right, the next panel was to the right. If something fell, the panels that followed it would follow a downward trajectory, below (*Fig. 2*) is an early test of this new format.
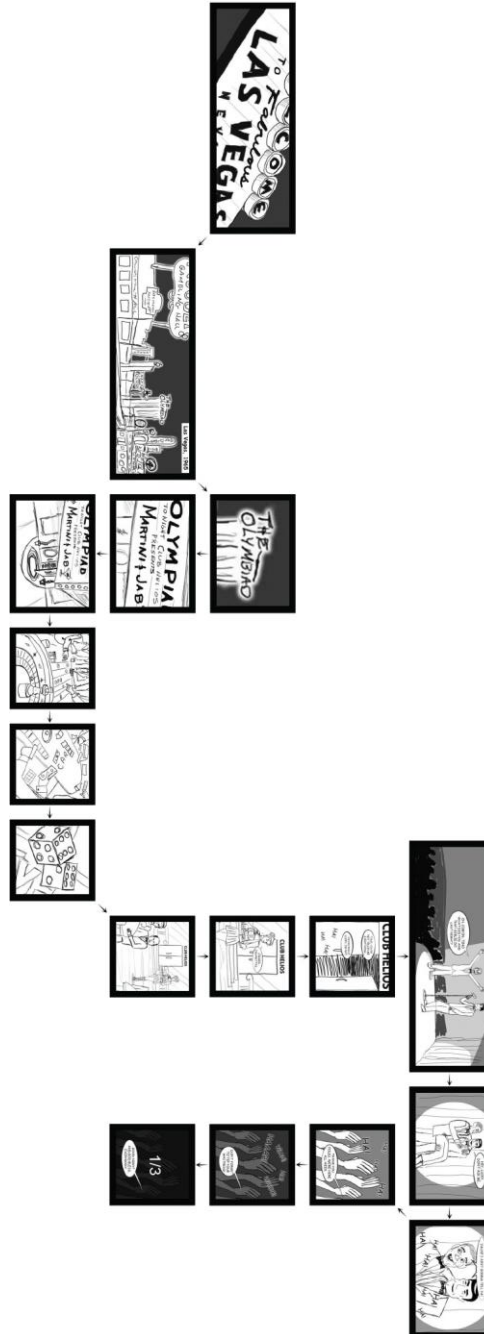

*Figure 2: early panel vector layout*

Interactivity Early in the design process, I decided against in-panel animation and sound. I decided to use only panel interactivity to give the reader contextual information that contributed to the narrative. I developed the following list of possible interactive options:

- *Live Bio:* Access a biography for important characters which updated as the reader progressed through the narrative
- *Character Intros:* Subtle popups that introduce important characters and signals the reader that their live bios are available
- *Word Links:* An embedded link to a pop-up that explained the meaning of obscure words or concepts
- *Mag Glass:* Links that would magnify areas or objects in the panels to reveal more information
- *Parallel Narratives:* A group of panels that tell a subordinate narrative and contribute to the overall context of the main narrative
- *Scene Overview:* A button that shows all of the panels in the current scene. As the story progresses, only viewed panels are revealed. This serves as a quick reference to the content of the scene and as a navigational device to move to specific panels in the scene.

Narrative I developed a short narrative for the app called "Twelve for Marini" (*Fig. 3*). It is based on a story I came up with a number of years ago while at a conference in Las Vegas. The story, set in 1960s Las Vegas, is about Dirk Martini, a lounge singer, who through a series of bizarre events, realizes that he is the reincarnation of the Greek demi-god, Heracles, and that the mob family he works for is actually Zeus and the pantheon of Greek gods. Years before, they took control of the Las Vegas strip and now use the tourists as their personal playthings. Martini is must work through twelve tasks similar to the labors of Heracles, but with a twist of Vegas flavor. The specific story arc for this prototype involves Martinis first encounter with a divine creature, the Nemean Lion.

Figure 3: "Twelve for Martini" original cover
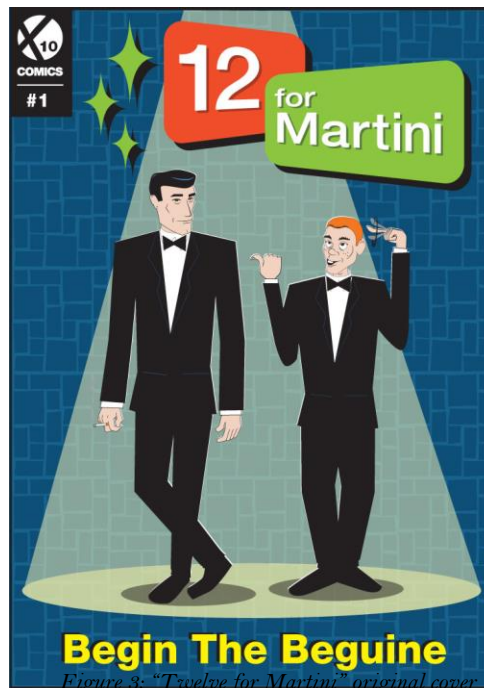
Design Considerations

Interface Design

One of the biggest design considerations was the GUI (graphic user interface). I settled on a placing the entire interface at the bottom of the screen. This freed up the rest of the screen for content, kept all navigation in one organized area similar to a dashboard and also put the navigation in the proper hand position for navigating with the thumbs while holding a tablet device.

Graphically, I considered two options. I could create a minimalist, flat design by working with simple shapes, colors and text. On the other end of the spectrum, I could use a skeuomorphic[3] design that would use styles and elements taken from the comic itself and integrate them into the user interface design.

The first option would keep the GUI design separate from the design of the comic. This could make the UI appropriate for a variety of genres, narratives and art styles. In addition, the UI could potentially support branding. In order to do this, the design had to be simple, clean and could not distract from the sequential narrative. A flat design (*Fig. 4*) similar to what was used for Windows 8 seemed to be the best option for this.

Figure 4: flat design for interface

The second option would integrate the GUI design with the style and content of the comic. This could be another way to pull the reader into the experience. For this I tested a more skeuomorphic[3] GUI design. I made the interface monochromatic. I outline buttons in black ink lines and the scene icons look like stacks of pages. I applied paper texture applied to the interface itself.   This gave the GUI a more comic book style that integrated nicely with the content (*Fig. 5*).

Figure 5: skeuomorphic design for interface

Ultimately, I decided on the skeuomorphic GUI design. I liked the idea of having a unified look and felt it was something else that contributed to the context of the narrative. In addition, to prevent it from distracting away from the content, I had to make the more modern flat UI design so simple that I felt it became bland. It lacked the energy that is such a big part of comics.

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3. The term skeuomorphism is derived from the Greek words "skeuos," which means vessel or tool, and "morphe," which means "shape" and refers to a design principle in which design cues are taken from the physical world. This term is most frequently applied to user interfaces, where much of the design has traditionally aimed to recall objects from the real world. . – *techopedia.com*

I wanted to give the reader some kind of environmental context in which to experience the narrative. The original concept was a flat rectangular road or tourist map (*Fig. 6*) that served as a back drop to the comic panels that would. As I tested each design it became apparent that the straight map edges conflicted with the panel shapes and the simple map graphics were too abstracted to give any real information.
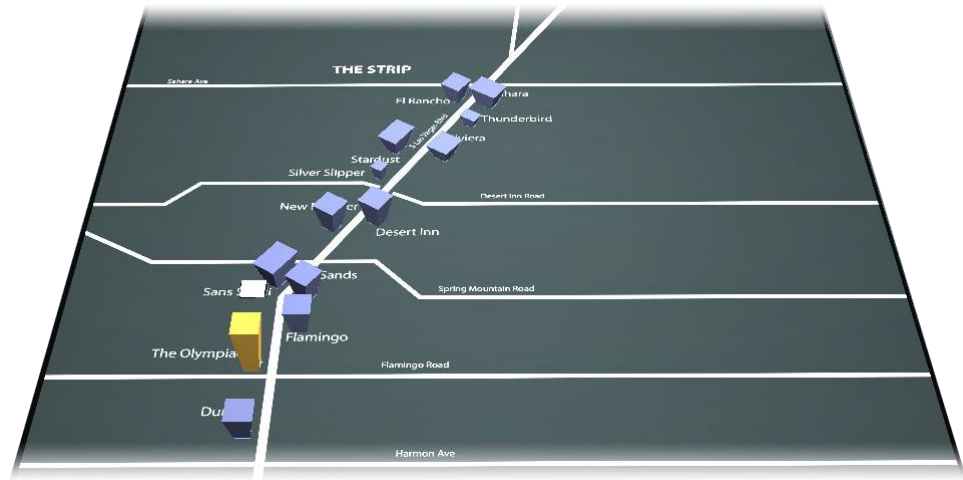
Figure 6: flat rectangular map design

Leveraging my experience with 3D graphics, I reworked the map to be a rounded convex shape with exaggerated versions of the Las Vegas Strip casinos cartoon buildings across the surface of it. I used 3D camera moves that could fly up to display the entire map and then fly down to show a single bar or casino in full frame. The map took a form that was somewhere between a stylized tourist map and an actual game environment (*Fig. 7*). This gave me additional options such as moving across the map between scenes and using each location to replace the establishing shot panel at the beginning of each scene. This established the setting and since the panels played over this 3d representation of the scene location, it help to place the reader inside the narrative.
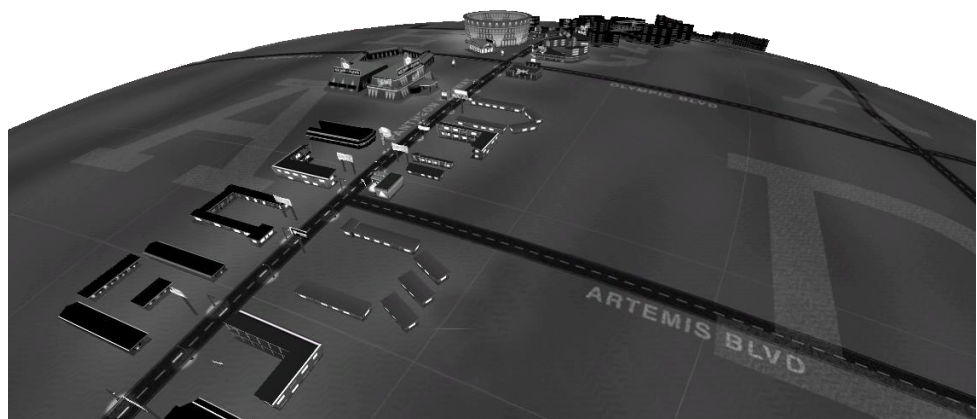
Figure 7: flat rectangular map design

In addition the contrast between the 2D panels and the 3D map worked really well. Overall, it was much more effective than the original flat map.

Panel Layout   Over various iterations the nature of the *panel vectors*, the path of progression through the panels, changed significantly. At first each scene's panel vector followed the traditional reading direction of left to right, up to down (*Fig. 8*).

Figure 8: original panel vectors

The next iteration, the path through the panels followed the context of the panels themselves. Cues from the content of the panel or the context of the narrative determined the reading direction to the next panel. However, the panel vector still existed on a flat plane (*Fig. 9*).
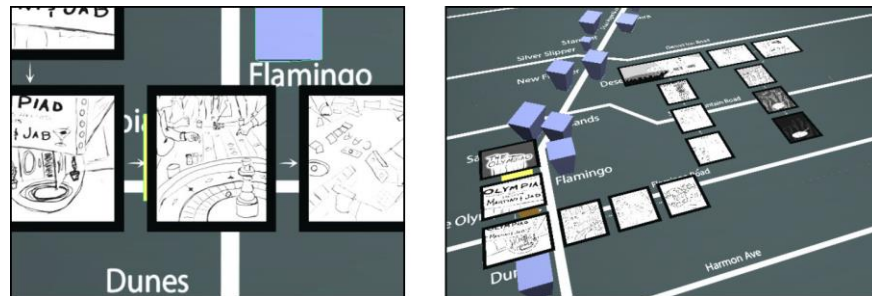

Figure 9: panel vectors on 2D plane

The next iteration expanded the panel vector into 3 dimensions. The panels floated in space in front, behind, above or to the side of each other. The dynamic effect of moving through the panels worked really well with the 3D map (*Fig. 10*).
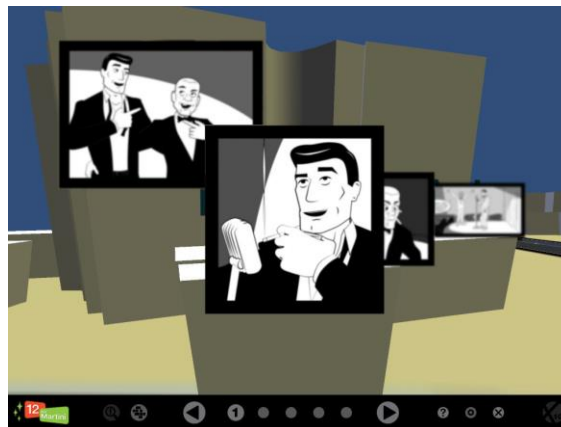

Figure 10: panel vectors in 3D space

Final Touches　　　At this point the project was nearly complete. The interface was finished. Every scene was laid out and functioning. The panel navigation had a nice flow. The map a night scene of the 1960s Las Vegas strip with multicolored neon signs on the streets and casinos (*Fig. 11*).
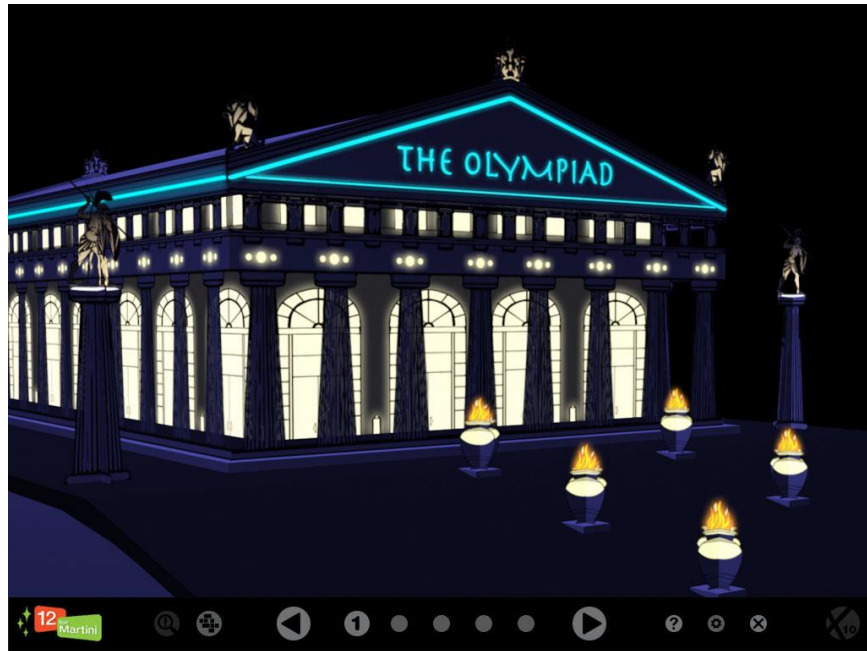

Figure 11: full color version of The Olympiad Casino

Unfortunately, when the panels were layered over the map, the colorful neon drew the eye away from the panels. This is when I made the decision that would pull everything into fully integrated successful design (*Fig. 12*).
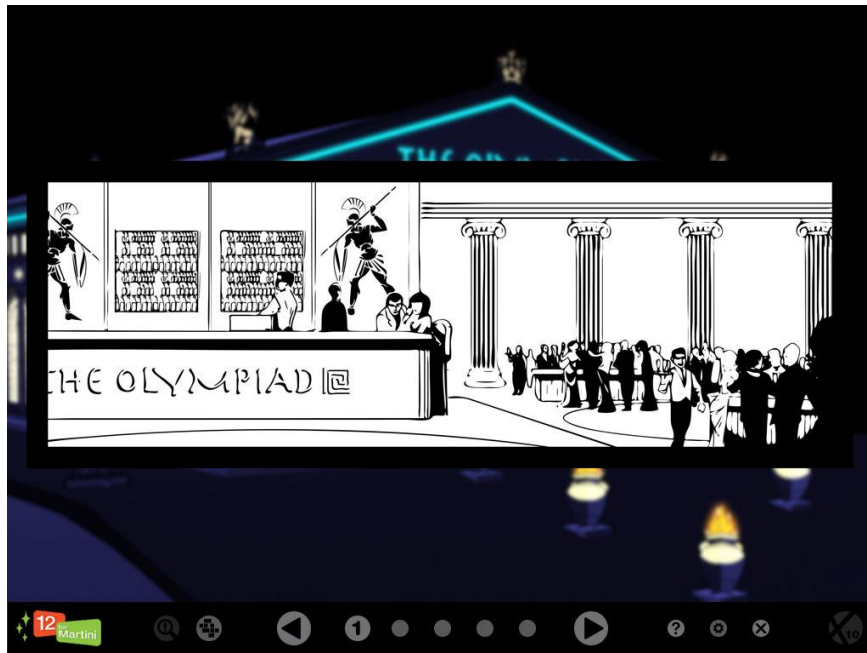

Figure 11: test panel over full color map

Early on, I had decided to keep my panel artwork monochromatic. To test an idea, I made a few screengrabs of the app and completely de-saturated them. I found that by making everything black and white, including the map, it gave the artwork a retro feel that was appropriate to the time period. This brought the entire design together into one cohesive experience. The panels below are taken from the final design (*Fig. 12*).
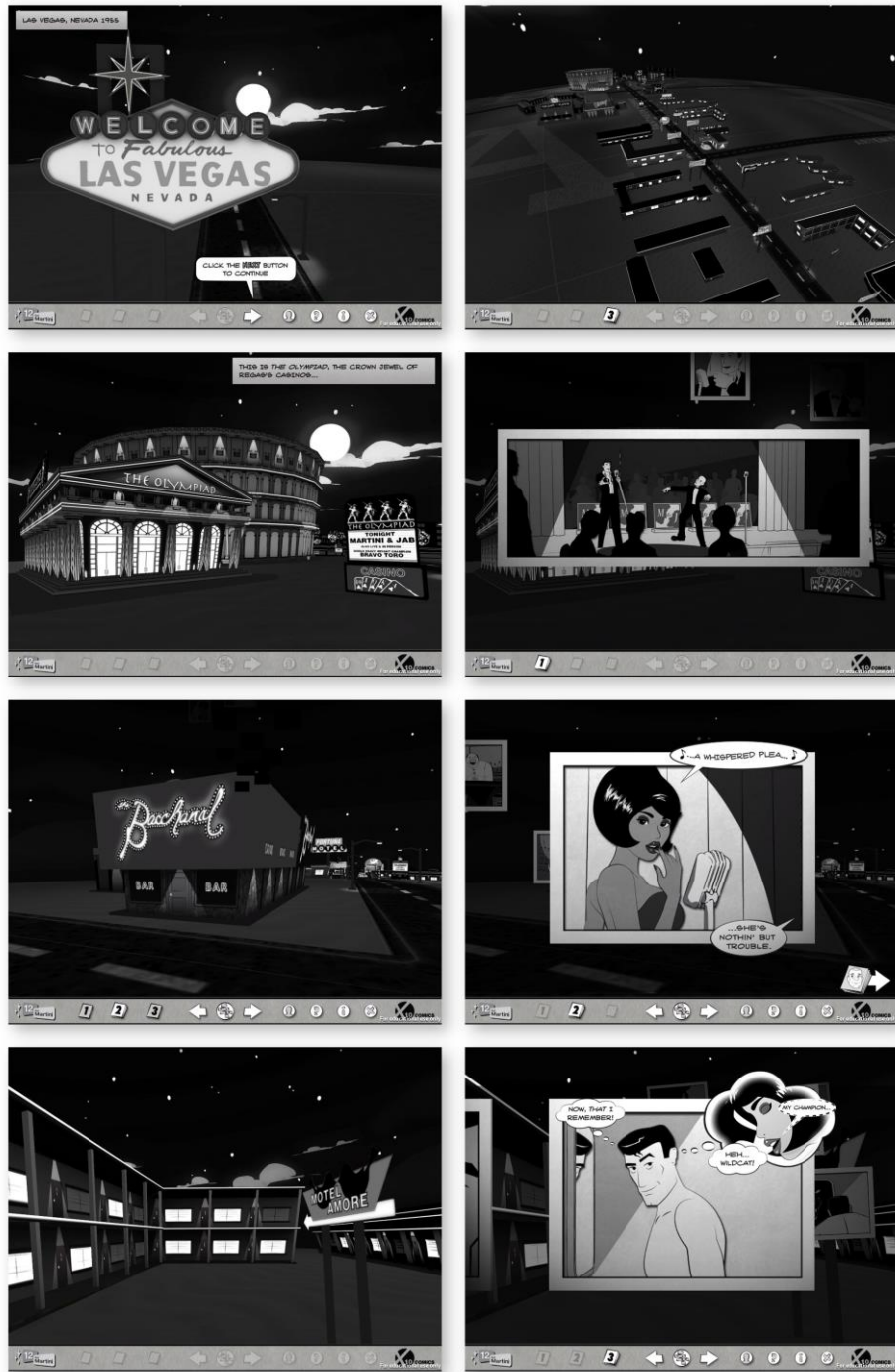

Figure 12: screen grabs from final design

Technical Issues

Programming

Technology became an interesting challenge. My original intention was to develop my app on the Adobe Flash platform. I had done a number of large projects using Adobe Flash and was comfortable with its scripting language, ActionScript3. Unfortunately, soon after I began production, it became increasingly obvious that the developer community at large was losing interest in Adobe Flash. Then Adobe itself made changes to Flash that lead me to believe it was minimizing its support of the product. These factors, coupled with Apple's choice to not support Flash based websites on their mobile device, encouraged me to look for a more viable development option for my application. In researching viable replacements for Adobe Flash I found the *Unity 3D* game engine.

The capabilities of the *Unity 3D* engine far exceeded those of Adobe Flash. This opened up many opportunities to take the design farther than originally anticipated. All of my research for this was in the tutorial pages on the Unity website or the websites for plugins used in conjunction with Unity 3D.

The decision use the Unity 3D engine instead of Adobe Flash created some difficulty. Adobe Flash used ActionScript 3 as a programming language, which I knew fairly well. Unity 3D uses either JavaScript or C sharp (C#) as a language, I was unfamiliar with both. I was able to find a plug-in for Unity 3D called Playmaker, a powerful visual scripting device by Hutong Games.

The Playmaker plugin is ideal for creating quick application prototypes. It allows you to creating almost any interactive functionality by simple creating finite state machines or FSMs[4] and transitioning between them.
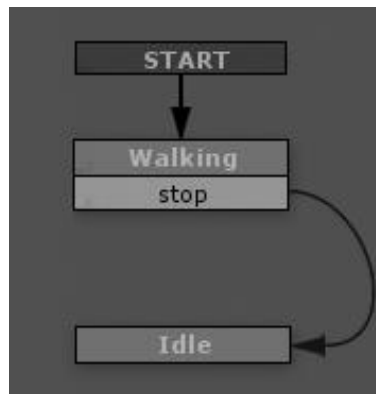

Figure 13: visual scripting using FSMs

Using this tool, I broke my narrative into four scenes. I then created FSMs for each panel and used the transition tool to move between them. I was also able to program the GUI to control them through a series of global FSMs, inside the GUI object. The image on next page shows the network of finite state machines needed to control the interactivity of one of my scenes (*Fig. 14*).

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4. A finite-state machine (FSM) … is a mathematical model of computation used to design both computer programs and sequential logic circuits. It is conceived as an abstract machine that can be in one of a finite number of states. … It can change from one state to another when initiated by a triggering event or condition; this is called a transition. – Wikipedia.com
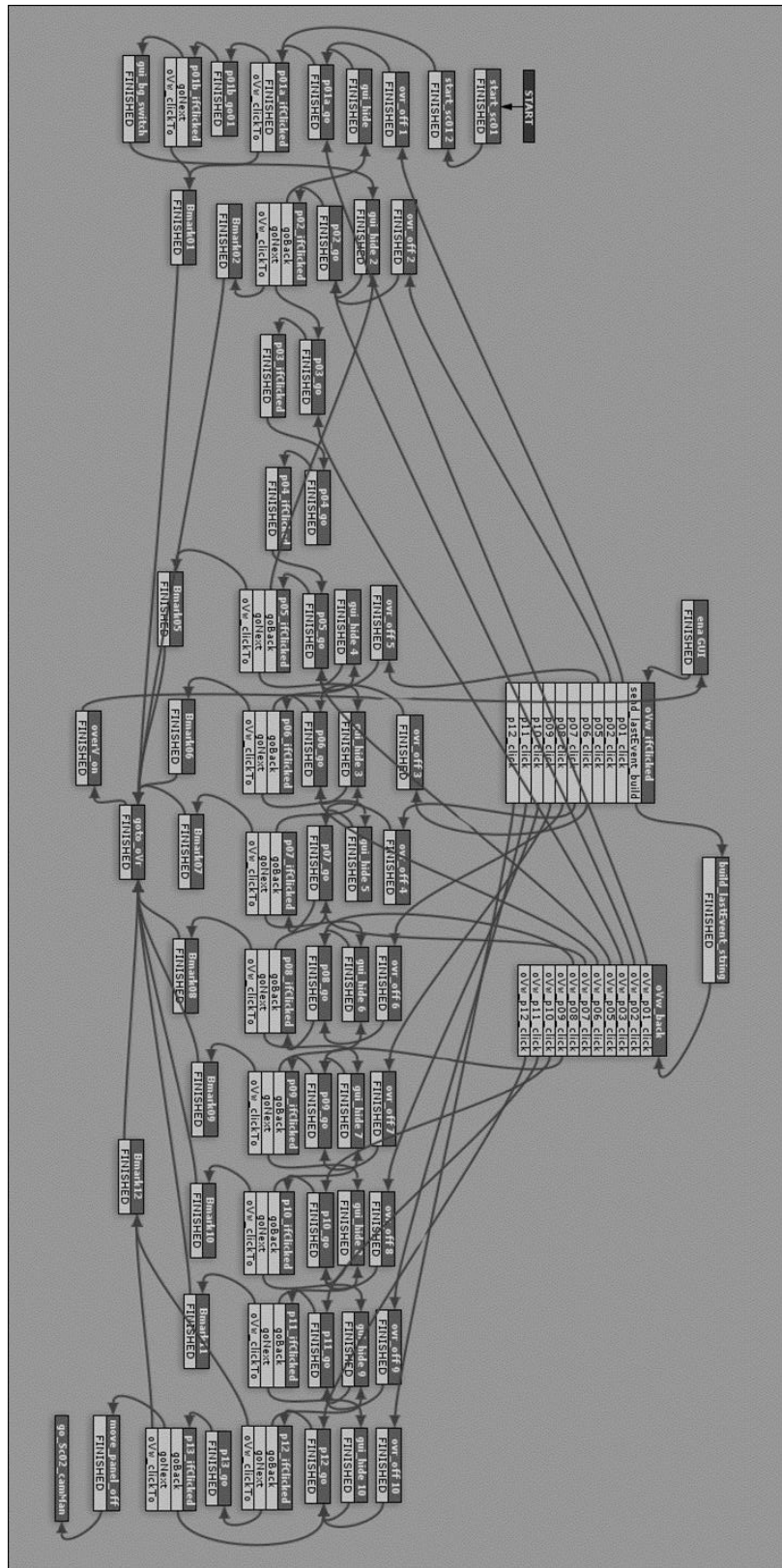
Figure 14: FSM network for scene 1 of Twelve for Martini

Map Textures

Another issue that came up was the size of the map texture. The texture is a bitmap image. This means the texture cannot be stretched and you cannot zoom to close to it without losing resolution (*Fig. 15*).

Figure 15: close up of map texture

The largest pixel dimension (the size of a bitmap image measured by the number of pixels) on a bitmap texture that Unity 3D allows for a texture is 4096 x 4096 pixels. I calculated that I would need a pixel dimension of over 10,000 x 10,000, for the map to stay crisp even when zoomed in. I was able to work around these restrictions by dividing the map into over fifty textures of various sizes (*Fig. 16*).
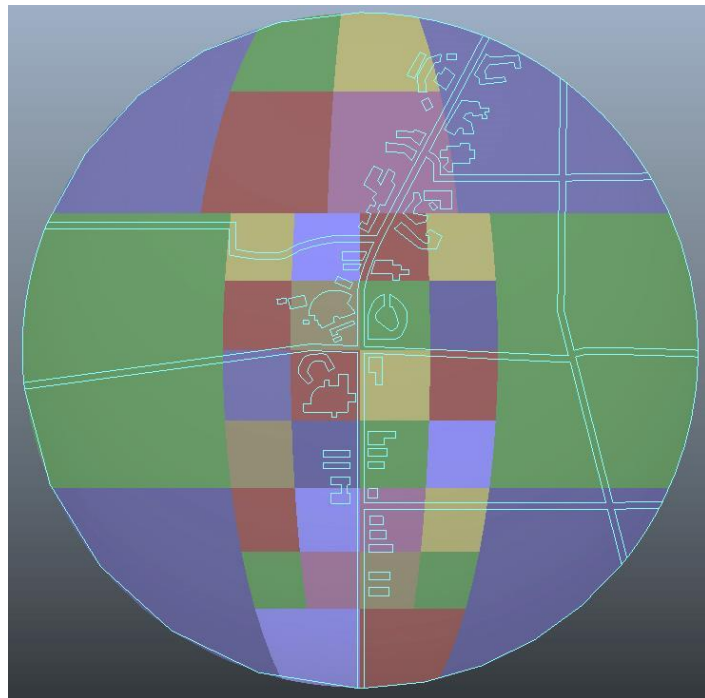

Figure 16: layout of map sections used to generate each of the final textures.

Each texture is 1024 x 1024 pixels. The size of the section varies based on the expected proximity of the camera. Those chunks that will always be at a distance are much larger. Those that the camera will zoom close to are smaller.

By taking this into account I was able to optimize both the size and number of images needed to texture the entire map

Panel Clarity

Using the 3D map as a backdrop for the panels created some issues with readability. The panels didn't pop. Panels in comic books usually don't have an issue standing out. Due to the format, panels don't overlap and backgrounds for panels are generally plain. In addition to having a detailed background, I also had panels floating in 3D space and at times there was overlap (*Fig. 17*).

Figure 17: panel from scene 2 of Twelve for Martini

I tried a number of different solutions including blacking out or darkening panels other than the current one, applying a fog to the scene so farther panels were less visible and creating a larger panel that darkened the background. Each of these had aesthetic issues. Using the blackout panels felt cheap. Using the fog also diminished the background visibility. I even experimented with depth of field. The depth of field effect worked very well on the panels and the background. By changing the focal length of the camera I was able to rack focus as the panels dropped into place. This blurred out the back drop and any recessed panels while keeping the current one crisp. Unfortunately, due to how this filter for Unity 3D calculates it's depth of field, it created strange patterns on the popup word bubbles and proved unusable.

Figure 18: final version of scene 2 panel

As is often the case, there was a very simple and elegant solution, a spot light. By focusing and aiming the cone of a spotlight on to the current panel, it kept the other panels in shadow until they each moved into the light and became the current focus (*Fig. 18*).

Usability Testing and Refinement

I conducted numerous tests throughout the process. The results and comments from these test often guided my direction as I built towards the final app. These where, however, informal tests and while I kept journal notes, I did not use surveys. These test helped me hone down the narrative and the visual design of the application. They were prior to any programming and prior to final art work.

Once I had a fully functional beta version of my prototype I began testing, formally. I went through three rounds of usability testing with five individuals. The participants were male and female, ranging from 22 – 65 years of age. The following chart shows a list of the formal usability tests and the participants.

Usability Test 1	Usability Test 2	Usability Test 3
Participants: 1. Male, age 65, college professor 2. Female, age 22, college junior studying game design	Participants: 1. Male, age 27, Barista at Starbucks, Musician 2. Female from test 2	Participants: 1. Male from test 2 2. Female, age 37, college graduate, stay at home mom 3. Male, age 43, corporate professional, comic book reader

After they viewed "Twelve for Martini", the participants were asked the following questions:

1. Choose the option below that best describes your experience
    a. Loved it
    b. Kinda cool
    c. It was okay…
    d. Not my cup of tea
    e. Did not like it at all

2. Briefly describe what stands out most about the experience.

3. There are a number of interactions made available to you, throughout the experience. Which of these did you find? (circle as many as apply)
    a. Word definitions
    b. In-panel pop-ups
    c. Character bios
    d. Side story
    e. Scene overview

4. Was there any point at which you felt lost and didn't know what to do? If so, describe.

5. Did you experience technical issues? If so, describe. Did you have to restart?

I also asked the test subjects for any additional feedback they felt was important.

Highlights and Results of Usability Test 1

A number of minor bugs were found in the first round of testing. There were two bugs that were very distracting. The first was a timing issue with the state machine transitions. It delayed panel moves and if the next button was clicked too soon the panels would move backwards or disappear altogether. This was fixed by reordering certain FSMs in the script. The second was a collision conflict between clickable panels and the GUI. In this version the panels were navigable by either using the GUI or clicking directly on the panels themselves. When any panels landed behind the GUI, clicking on the GUI became impossible. Initially I fixed this by placing a shape behind the GUI that blocked any interaction with overlapping panels. As it turned out the direct panel navigation was not very useful for full screen panels; therefore, I deleted it from the main navigation and only used it for the overviews.

The male participant loved the experience, especially liked the 3D map and commented favorably on the story. However, he got stuck at the first interactivity after the open. He did not notice the navigation and was waiting for it to start playing again. He needed to be coached to click on the first button.

The female participant thought it was really cool. She did not identify with the narrative. However, she was drawn in by the 3D movement of the map and panels. Of this she said, "It really made me want to stick with it to see what happened next…"

Both missed the majority of the in-panel links.

As a result of this test, along with many technical tweaks, I also implemented word balloon instructions at appropriate times to make interaction options more apparent.

Highlights and Results of Usability Test 2

For all of the tests I tried to have at least one participant repeat. I knew that they would be looking for issues they had experienced the first time they tested and it would be a good way to check that everything was fixed.

In this round there were still a few minor technical issues but for the most part ran smoothly. Both participants found most of the in-panel links without coaching.

The female participant like the story better the second time. After finding and clicking on the text links, she picked up on the connection to the Greek gods.

The male participant thought the presentation dragged. He had an issue with clicking all the time and felt it slowed the story and diminished the energy. He liked the story but was happy when it finally ended.

As a result of this test I reworked the timing on the panel moves. I tweaked the speed and nature of the moves to follow the narrative, slow at times, but speeding up with the pace of the action. I also added automatic navigation between panels when it was appropriate.

Highlights and Results of Usability Test 3

Usability test 3 went very well technically. There was only a few small bugs found and easily fixed.I specifically asked the male from test 2 to participate in order to see if he noticed a difference in the tempo of the piece. He felt it was an enormous improvement. He especially enjoyed Lucky's side story. He had not seen it the first time. He liked it so much that he cued one of the other participants before I could stop him.

The other male participant spent the most time with the app. He went through it twice and hunted down all of the in-panel links. He noticed the references to Greek mythology on the

different casino marquees and suggested a free roam mode so the reader could actually explore the map.

The female participant felt it wasn't her cup of tea. She liked the overall concept but could not connect with the narrative. She did say that with a "different look and story" she probably would have liked it more.

Dissemination

The goal of this thesis project was to test my concepts in a prototype. I feel I have satisfied that goal and I am prepared to take this idea to the next step. I want to publish but in order to do so I need to generate awareness and capitol for the project.

To generate awareness, my goal is to submit this prototype into a minimum of ten interactive media competitions in the next year. Three of these competitions are listed below. I continue to research other competitions.
- Creativity International Awards (www.creativityawards.com)
- Communication Arts Interactive Competition (www.commarts.com)
- Adobe Design Achievement Awards (www.adobe.com/education/adaa)

Generating capital is not as crucial, although funding would help to offset the cost of self-publishing and marketing. My first idea is crowd funding through Kickstarter (www.kickstarter.com).   I have done some research and found that a Kickstarter campaign will be more successful if there is some awareness of the project and I create an engaging video promo to post on the Kickstarter page.

Another resource I am currently investigating is the MAGIC Center at Rochester Institute of Technology. One of the functions of the MAGIC Center is to help students and faculty to bring industry polish and commercial scale to their projects. I think my project is a good fit because it leverages technology and design in a unique way.

Conclusion

This has to be one of the most challenging projects I have ever done. After twenty years in industry that is saying a lot. One of the first things I learned was the difference between creating for a client and creating for yourself. I have always believed that constraints are vital to creative development. Constraints give you boundaries to work within. They give you challenges to overcome. When you are creating for a client those constraints are budgets and deadlines. When you create for yourself you must find ways to establish constraints. If you don't, constraints will be imposed in ways outside of your control.

This project took me over two years to complete. This isn't to say that I worked for two solid years. My production time was broken between long periods of distraction. There was always something that took precedence. Sometimes it was legitimate like working and providing for my family. Many times it was just procrastination, "I'll work on it tomorrow. I still have ten weeks, plenty of time." Often I was simply did not feel it. I wanted to make progress but I would end up staring blankly at a problem or worse I would try solution after solution that felt forced and didn't fit.

Then there were moments of supreme clarity. Moments when wildly spinning gears suddenly connected and worked in perfect concert. The stars align, something clicks, the clouds break and a beam of light shines on a crystal clear path. Interestingly enough these almost always happened at the eleventh hour, when time was running out and I stood to lose something important. I think that is the key, at least for me. I needed the constraint. It forced me to make a decision and more often than not the solution worked. Thankfully, I had the support and patience of my wife, my family and my thesis committee. I hope these moments clarity rewarded their faith. I know, for me, those moments are what kept me going and made it all worth it.

My core idea was to use the interactive digital environment to enhance the experience of reading a comic book. By not taking the obvious route of adding sound or animation, I was able to retain the unique nature of time within comic book panels. Breaking the panels off of the page and placing them in a 3D virtual setting, places the reader inside the narrative world. Restricting the interactivity to navigation and access to supplemental information about the characters, places and overall story gives the reader an opportunity to further explore the context of the narrative.

However, there are limitations. While, the nostalgic visual style unifies the interface, the setting and the narrative completely, it also contributes so much to the readability and clarity of the imagery that I question whether this presentation could work for any narrative or genre. Could it work as well for an action packed space pirate thriller or a court drama where the entire story is based on twelve strangers in a jury room? Can this version of the sequential art narrative be available to many artist and writers or is the technology required to reproduce this type of presentation, prohibitive? Is this a new medium or just a unique way to present this specific narrative?

What is the potential?

I want to explore going into a limited free roam mode after completing an issue. I think that adding this along with more contextual detail on the map and the ability to access individual scenes at any time could really add to the experience.

I want to explore creating 3D art for the panels as well as the map. Seeing the parallax changes in the panels as they move will make them feel like windows into the narrative. It could give an opportunity to add hidden gems that are revealed by tilting the panels.

I would like to further explore these ideas using touch interaction and motion sensors of mobile devices.

I can even see a future using this in a virtual reality simulation giving the reader the ability to walk through the narrative in the same way they walk through a museum.

I also see strong possibilities in education. I imagine transporting the reader to the time and location of an important historical event and describing that event using comic panels. Giving access to many historical events by presenting timeline and an entire globe on which events wait to be accessed by interested readers. Language could be handled in much the same way. It would provide an alternative learning tool that could engage and interact with the reader.

Before I wrote this conclusion I went back and read my original proposal. It is really long. I am amazed at how overly complicated my concept was in its original form. The long detailed descriptions, predictions and assumptions read more like a desperate search for focus than a real proposal. I am amused by my belief that I had the solution to a problem that the comic book industry didn't even know it had and that I would somehow revolutionize the medium. So what did I do? I figured out that comic books are really hard to make. I gained a new respect for comic book creators, past and present. I also created something really cool. I found a new way to present an old idea, the sequential art narrative and, of that, I am really proud.

References

1. McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994, 101.

2. McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994, 66-68.

3. The term skeuomorphism is derived from the Greek words "skeuos," which means vessel or tool, and "morphe," which means "shape" and refers to a design principle in which design cues are taken from the physical world. This term is most frequently applied to user interfaces, where much of the design has traditionally aimed to recall objects from the real world. . – *techopedia.com*

4. A finite-state machine (FSM) … is a mathematical model of computation used to design both computer programs and sequential logic circuits. It is conceived as an abstract machine that can be in one of a finite number of states. … It can change from one state to another when initiated by a triggering event or condition; this is called a transition. – Wikipedia.com

Appendix

Thesis Proposal
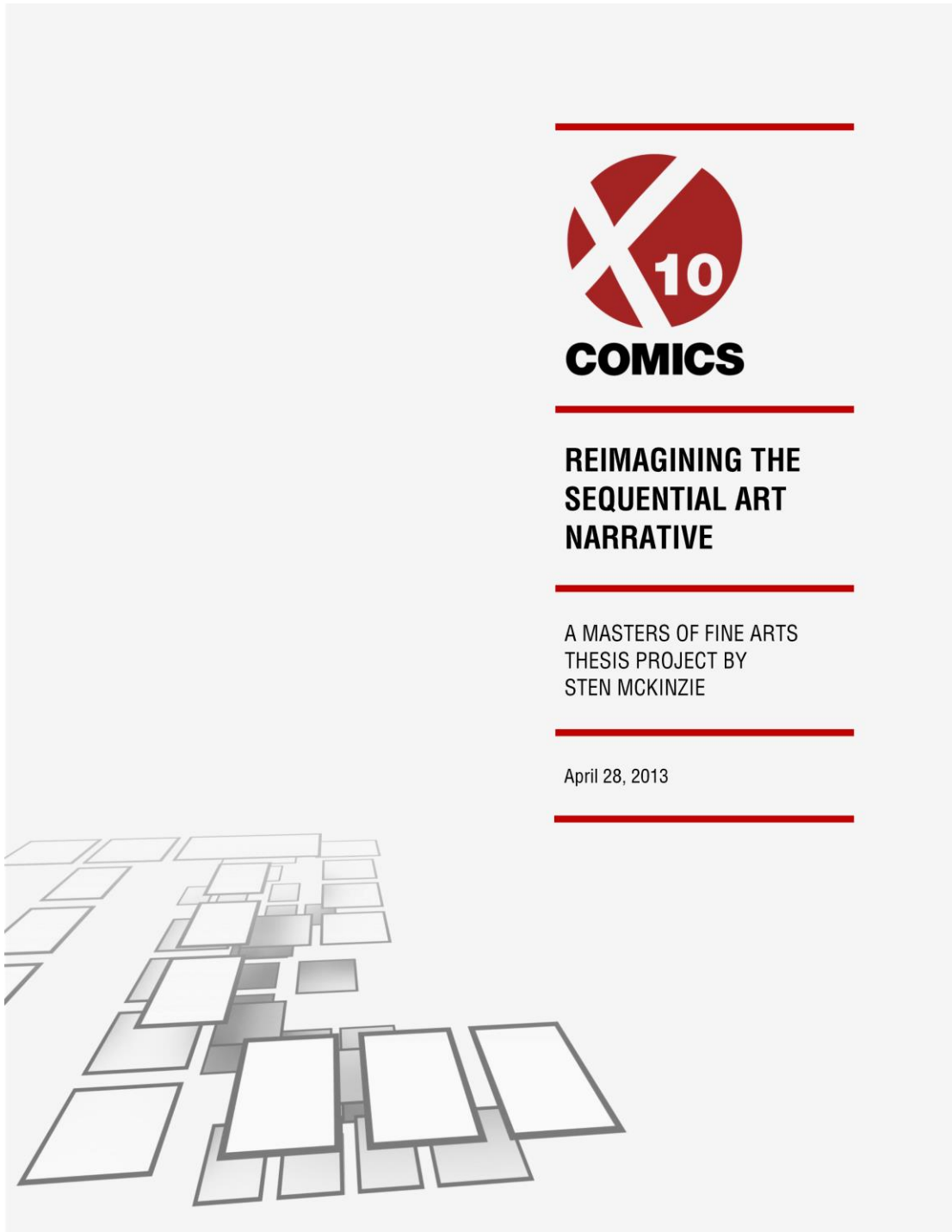
Thesis Proposal for the
Masters of Fine Arts Degree

Rochester Institute of Technology
College of Imaging Arts and Sciences
School of Design, Computer Graphics Design

Title: X10 Comics: Reimagining the Sequential Narrative

Submitted by: Sten McKinzie
Date: April 1, 2013

Thesis Committee Approval

Chief Advisor: Associate Professor Chris Jackson, Computer Graphics Design

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Signature of Chief Advisor   Date

Associate Advisor: Professor Marla Schweppe, Computer Graphics Design

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Signature of Associate Advisor   Date

Associate Advisor: Assistant Professor Shaun Foster, Computer Graphics Design

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Signature of Associate Advisor   Date

Abstract

I have collected comics since I was 10 years old. At one point, I had over thirty long boxes full of comics. That is more than 10,000 comics. As a kid, my favorite Sundays were spent with a bottle of coke, a can of Pringles and a pile of new comics. As an adult, this hasn't really changed other than I don't have as many free Sundays and the stack of comics has been replaced with an iPad.

History

At its core a comic book is a narrative told using a sequence of images or a *sequential art narrative*. Precursors to the sequential art narrative in comic books can be found in ancient art including, Egyptian hieroglyphs, Greek friezes, medieval tapestries, Japanese scrolls and many others. One of the earliest examples of combining sequential images to tell a story is Trajan's Column.

In its ancient form, the sequential art narrative did not follow the left-to-right, top-to-bottom reading convention todays western readers are used to. 3,200 year old paintings found in the tomb of the Egyptian scribe, Menna, use a sequential art to describe the life of farmers in early Egypt. These are read in a zigzag pattern, from bottom to top.

The Printing Press

Prior to the 15th century, only the wealthy and connected had access to art and written language. Johannes Gutenberg's invention of the printing press brought print media to the masses. The medieval broadsheet was a wood block printed sequential art narrative that often contained cartoonish renderings of public executions and caricatures of public figures. The printing press allowed collections of these broadsheets to be compiled and circulated to the masses.

Richard Felton Outcault's The Yellow Kid (fig. 03), which ran from 1895-1898 in The New York World, is usually credited as the first actual comic strip. It was the first comic strip to run as a Sunday supplement and the first comic strip to use word balloons for character's dialog.

By the early years of the 20th century many more comic strips were appearing in newspapers. Due to the humorous content, these strips became known as "the comics" or "the funnies." These were also packaged and resold as reprinted volumes and represent the first actual comic books.

Comic Books

In 1938 Jerome Siegal and Joseph Shuster created Superman, the first superhero and launched the *Golden Age* of comics. During the *Golden Age*, comics took on many genres including superheroes, westerns, war stories and much more. It established itself as a distinct entertainment industry. Most of the current comic book conventions were established during this period.

The *Modern Age* of comics started around 1987. The growing interest in the collectability of comics brought more readers. A high percentage of this new audience was adults, prompting publishers like DC Comics, Marvel Comics and numerous independents to create content for an older audience.

Narratives became more sophisticated. Writers gave the characters more depth as they dealt the more adult issues of war, drugs, relationships and sex. Artists experimented with new styles but most of the conventions for print comics remained unchanged.

Digital Technology

In the late 1990s publishers experimented with new digital technologies. The motion comic, for example, featured limited animation, within and between panels, intended to enhance the narrative. These could only be viewed on a computer. That limited the market and they were never embraced by the wider public.

The convenience and capabilities of today's tablet devices have opened new channels of distribution for comic books. Publishers are looking to these devices as one way to expand readership. All of the major publishers now offer their comics both in print and digital versions for e-reader apps on mobile devices. E-comics offer the same on-the-go convenience as e-books but comic book convention, established over a hundred years ago, remain relatively the same.

With an idea toward creating an interactive mobile app for comic readers, the focus of my research went through several different stages. First I needed to identify the elements of the current, print based comic book convention. Next, truly understand how to design a user experience that takes advantage of the capabilities of tablet devices, in particular the iPad. Finally, I needed to research for the narrative of my first comic UX (user experience).

Problem Statement

Thesis Statement

By reexamining print based comic book conventions with current tablet technology in mind, can a user experience that delivers an engaging narrative as well as a sense of discovery that goes beyond that narrative be designed and developed for the iPad?

Research

The first stage of my research was to examine print based comic book conventions. I studied their form and function to decide if they are viable, as is, for my proposed format, if they should be updated or if they can be discarded all together. The following is a list of conventions I chose to focus on.

Comic Book Conventions

Continuity

Continuity is the universe in which the narrative lives. Within the *continuity* there can be many simultaneous narratives happening. Big publishers like Marvel and DC have hundreds of characters over many series at any given time. As a Marvel Comics property, Spider-man exists in the same continuity as the Avengers and Iron Man. The *continuity* really represents the history of that comic's universe. Writers will sometimes reference historical events from the *continuity* to help tell their story. They do this be using a caption box, that contains a reference to a *series* and *issue* number where they can read that event.
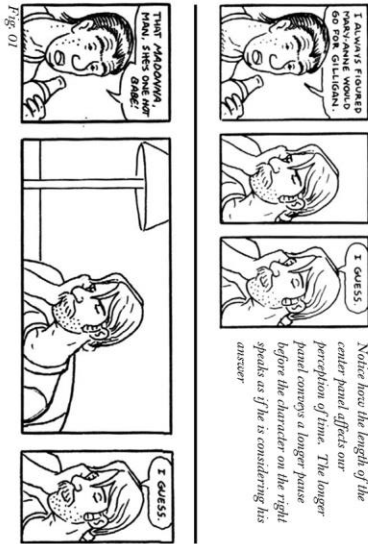
Series or Title

The *series* or *title* is generally the larger narrative of a specific individual (Batman) or group (The Avengers). It really functions as a brand by which the reader knows which characters they will be following by reading that *series*. Numerous writers and artist can contribute to the larger narrative of a long standing, ongoing *series*, over many years. A *series* can last for decades. In April of 2013, Detective Comics celebrated its 900th issue in the series.

Issue

The *issue* is the serialization of the *series*. The larger comic book narratives (*series*) are broken up into episodes that are delivered in regular intervals over time. Ongoing series are most often monthly; they have 12 issues a year. Issues generally focus on a specific event in the characters timeline and often end with a cliffhanger.

Page

The page is a layout of panels, in a defined rectangular space, that delivers a portion of the issues specific narrative to the reader. To determine the layout the artist must strike a delicate balance between the size of the page, the size of the panels, the reading flow and the narrative.

While a page change sometimes depends only on the amount of content that fits on the previous page, an artist tries to use a page change to further the narrative. A transition to a new scene often signified by a page change. The new page begins with a larger panel that represents an establishing shot to define time and place. A single panel can be stretched to an entire page to generate excitement or wonder. These are called *splash pages* and are used to show something big like an expansive space or an extreme emotion.

Panel

The panel is a container, usually a bordered box that contains the words and pictures that represent a *moment* in the narrative. The panels are how comics *chunk out* space. The shape of a panel is also used to convey time. Look at this example from Scott McCloud's "Understanding Comics" (Fig 01).

Notice how the length of the center panel affects our perception of time. The longer panel conveys a longer pause before the character on the right speaks as if he is considering his answer.

Fig. 01

Gutters

Panels capture a frozen piece of time allowing the reader to not just experience a moment but to examine it.

The gutter is the empty space between panels. It is as important as the panel itself. This is where the reader fills in the blanks through a process called closure. Closure is the phenomenon of observing parts but perceiving the whole. As we move from panel to panel on a comic page, as we pass over the gutters our minds consider what we've read, what we expect and our own experience and connects the two panels together in a meaningful way.

Words

In its purest form the sequential art narrative has no words, only images but that can be limiting. In comic books words are used *in moderation* to further narrative to the story. There are several categories of words used in comics.

Word bubbles convey dialogue or thoughts of characters in the panel. Spoken dialogue is generally conveyed in a smooth bubble and a tail that points to the speaker.

Thought bubbles are used for inner dialogue and are represented with a cloud shape and smaller clouds trailing to the speaker.

Captions are usually smaller boxes within the panel that give additional narrative context or information to the reader. These are the words that give the voice of the narrator.

Onomatopoeia is a word formed by the imitation of the sound of the noise or action it defines. These are words like "BANG" or "WHOOSH". They provide the sound

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effects for the action within a panel.

Comic books are a visual medium and while words provide important narrative content they need to be carefully considered and balanced with the picture or they can distract from the readers experience.

UX Design

One of the first road blocks I ran into when I began researching user experience design with my project in mind was the idea of simplicity. Often, when we have *cool concept* rolling around in our heads it is hard to really grasp the reality of its usability.

When we are attempting to engage with an interface, we have very little patience for complexity. It doesn't really matter how many cool features the interface has, if they delay our connection to what we really want it can be a deal breaker. I only had to think about how many iPad apps I have loaded because they sounded like a *cool concept*, only to delete them because it was too hard to figure out.

While I believe that comic books, 100 year old print conventions for need to be updated for new media, I am also asking comic readers to step out of their comfort zone and change a 100 year old habit.

What do I need to keep in mind while designing the X10 Comics user experience?

- *Utility:* How do I give the user more without adding confusing complexity to the interface?
- *Transparency:* How do I bring the user up to speed so they know how to navigate the content as quickly as possible and forget they are inside and interface?
- *Clarity:* How can I make sure the user is never lost and can find their way back, regardless of how deep they go? How do I return them to where they left off?
- *Enchantment:* How do I draw them in, keep them there and leave them wanting more?

My ultimate goal is to give the reader a narrative and a sense of discovery that goes beyond that narrative. To do this I must be the reader, not the designer. I must deliver the content so seamlessly that they forget the interface and instead of trying to *save* them with its novelty.

iPad Capabilities

My initial concept was for a web comic. My research on the Apple iPad was more for compatibility. However, the NUI (natural user interface) employed by the iPad gives a much more personal user experience than a desktop or even a laptop. We hold it like a book and manipulation the content directly, through finger gestures. This echoes how we interact with a magazine or book better than a mouse and keyboard. For these reasons I have moved to developing exclusively for iPad.

Constraints

When developing for the iPad, there are a number of constraints to keep in mind.

- *Screen size:* the iPad has a 9.7" (diagonally) display as compared to the average 15" laptop screen or 24" desktop display. That means less screen real estate for content and navigation
- *Performance:* the iPad is a mobile device, smaller means less powerful

hardware, less HD space and less graphic performance

- *Single window:* iPad does not support running multiple windowed apps simultaneously
- *Direct vs. indirect lighting:* the iPad is backlit which can result in eye fatigue, particularly when reading.
- *No hover:* no mouse pointer or any hover state means one less way to give feedback to your user.
- *NUI (Natural User Interface):* direct manipulation of onscreen content means no mouse and keyboard peripherals and
  o Depending on how it is held, parts of the iPad screen can be difficult to reach
  o Interface design needs to be ambidextrous or be able to flip for left-handed interaction
  o This also means a potential for accidental touch. The heel of the palm or edge of the thumb can trigger unintended interaction

Benefits

The features that can be utilized for this project outweigh the constraints.

- *Mobility:* iPads can be used virtually anywhere. Particularly with an application that is not dependent on live internet access
- *NUI:* direct manipulation of onscreen content means no mouse and keyboard peripherals. It also means less need for menus and buttons. There are, however, considerations with touch interaction
- *Touch gesture interaction:* pinch to zoom out, spread to zoom in or expand, swipe, drag, multi-finger tap to name a few. Each of these can be assigned an action.
- *Accelerometer:* the iPad recognizes orientation (if it is tilted or rotated). How you hold can be used as an interaction.
- *GPS tracking:* the iPad knows where it is, as long as it has internet access.
- *Built in multimedia devices:* camera on each side, built in speakers and microphone.

Narrative Design

I have always enjoyed unlikely pairings, like chocolate and jalapeño peppers. I want to bring that theme to my narrative.

As a kid, when I wasn't reading comic books, I was reading mythology. I was always fascinated by the creatures, the heroes and the pantheons from different cultures, Greece in particular.

One of my current, admittedly guilty, pleasures is the music of The Rat Pack, Frank Sinatra, Dean Martin, Sammy Davis Jr. and the other two guys. I love the whole 60's Vegas swing sensibility. So there was my unlikely pairing.

What if the Greek gods were a somehow displaced from Ancient Greece and became an organized crime family that ran *the strip* in the 1960s Las Vegas?

Research

This was a fun part of my research. Watching old Rat Pack movies, reading mythology. I obtained a vintage Life Magazine that had an article about 1960s Las Vegas. It provides an excellent slice of Americana from the period. I also browsed Joseph Campbell's "The Hero With a Thousand Faces" to help structure my narrative. I was amazed at how many current Hollywood films follow Campbell's

monomyth or "The Hero's Journey", which was written in 1949 and a derivative of Homer's "The Odyssey" which is believed to have been composed near the end of the 8th century BC.

The Coen brothers film "Oh Brother, Where Art Thou" is an excellent example modernizing a myth. For this reason, I decided against using "The Odyssey". I chose *dodekathlon* or the twelve labors of Heracles. Heracles is a drunkard and a thug; perfect for 1960s Las Vegas.

The twelve labors were initially only ten. Heracles was charged with the labors as an act of atonement. Two were not recognized, the cleansing of the Augean stables, because Heracles cheated by redirecting a river to wash away the dung; and the killing of the Lernaean Hydra, because Heracles nephew Iolaus assisted him. Two more tasks were added, fetching the Golden Apples of Hesperidia and capturing Cerberus, bringing the total to twelve.

Twelve for Martini

The launch title for X10 Comics is "Twelve for Martini". It is the story of Dirk Martini, a slick Las Vegas lounge entertainer who starts to unravel when violent dreams of ancient battle begin to invade his waking life. Unbeknownst to him, Martini sits squarely in the middle of the Greek pantheons sadistic playground. The Greek gods have taken over *the strip*. A magical bubble of memory covers Las Vegas allowing the gods to have their way with the human tourists. When the tourists leave Vegas they remember nothing but a good time. Because, "What happens in Vegas, stays in Vegas."

The narrative for my thesis is the first issue of this larger adventure in which Martini is possessed by the spirit of his ancestor, Heracles and is forced into a quest to solve twelve new labors. Each new labor is connected to the original, but has a Vegas spin to it and is more deadly than the last.

Conclusion

In conclusion, I believe my thesis project will introduce a new form of entertainment that comic readers as well as other audiences not familiar with comic books will enjoy. Furthermore, it will offer a new frame work for other comic creators to populate with their narratives and someday have a vast and varied continuity running on the X10 comic UX engine.

Survey of Literature

Comic Book Theory

My initial focus was on comic book theory. I knew I needed to have a deep understanding of how comics worked in order to successful add to the form. Next I researched current examples of interactive web comics to see how the creators addressed the issue of incorporating print media into an interactive space. I researched UX design theory to get a better grasp on how to make my application more engaging.

Comics and Sequential Art: Principles and Practices from the Legendary Cartoonist (Will Eisner Instructional Books)
by Will Eisner
Publisher: W. W. Norton & Company
Publication Date: August 17, 2008
This is the quintessential book for learning the basic building blocks and principles of comics.

Understanding Comics: The Invisible Art (Reprint edition)
by Scott McCloud
Publisher: William Morrow Paperbacks
Publication Date: Reprint edition (1994)
"A comic book about comic books", this book examines what makes comics work. It talks about everything from why we respond to icons to the importance of the space between comics and much more.

Making Comics: Storytelling Secrets of Comics, Manga and Graphic Novels
by Scott McCloud
Publisher: William Morrow Paperbacks
Publication Date: September 5, 2006
This takes the first book farther and expands on the actual design of comic books

Understanding Movies
by Louis Gianetti
Publisher: Pearson/Prentice Hall
Publication Date: 11th edition (2008)
This book discusses visual language in film. It is complimentary to Understanding Comics.

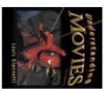**Archetypes, Commercialism, and Hollywood**
A History of the Comic Book
<http://www.randomhistory.com/1-50/033comic.html>
Publishers: RandomHistory.com
Posted: March 18, 2008
An article about the history of comics.

Mobile First
by Luke Wroblewski
Publisher: Jeffrey Zeldman
Publication Date 2011
This is a guidebook for designing for mobile devices. It will help me better understand available mobile technology and how to use it.

Don't Make Me Think! A Common Sense Approach to Web Usability
by Steve Krug
Publisher: Que
Publication Date: 1st edition (October 23, 2000)
Usability design is a huge part of my project. I need make sure that all of the information available to the user is easily accessed and integrated into the experience.

52 Weeks of UX (Web)
by Joshua Porter
<http://52weeksofux.com/>
Publisher: A Josh & Josh Production.
First Posted: January 5, 2010
This is a well-designed blog with weekly insights into better user experience design practices. Josh Porter has great incites on user experience design.

Flash CS6: The Missing Manual
by Chris Grover
Publisher: Pogue Press
Publication Date: 1 edition (June 26, 2012)
I will be using Adobe Flash to develop my project. This is an excellent reference.

Learning ActionScript 3.0
by Rich Shupe
Publisher: O'Reilly Media
Publication Date: Second Edition (October 29, 2010)
I will also be using ActionScript 3 to develop my project. This is also an excellent reference.

The Library of Greek Mythology
by Apollodorus, Translation by Robin Hard
Publisher: Oxford University Press
Publication Date: August 1, 2008
This is a translation of the original text compendium of myth sourced from old Greek epics and plays. It contains the original story of the twelve labors, along with commentary and notes on the meanings.

The Hero with a Thousand Faces (The Collected Works of Joseph Campbell)
By Joseph Campbell
Publisher: New World Library
Publication Date: Third edition (July 28, 2008)
This book details the theories of the monomyth, the basic pattern found in many narratives around the world.

Gambling Town Pushes It's Luck
Life Magazine Vol. 38, No. 25
Publication Date: June 20, 1955
Article about 1955 Las Vegas with many excellent pictures and retro map of the strip. Great for researching the time period and location.

Rat Pack: The True Stories of the Original Kings of Cool (DVD)
Director: Carole Langer
Distributor: A&E Home Video
Release Date: August 28, 2001
This documentary shows the rise and fall of the Rat Pack in 1960s Las Vegas. It is the history of the Rat Pack, provides culture and style from the period.

Ocean's 11 (DVD)
Director: Lewis Milesone
Distributor: Warner Brothers Pictures
Release Date: 1960
This classic film will guide me in the style of early 1960s classical film style. The choice of shots, transition, music and set design will all contribute to the development of a cohesive narrative.

NAWLZ - Season 1 and Season 2
NAWLZ is an interactive comic that combines text, illustration, music, animation and interactivity to create a never before seen panoramic comic format.
<http://www.nawlz.com/>

Never Mind the Bullets
Never Mind the Bullets offers the traditional comic strip experience enriched by the effects of parallax.
<http://www.nevermindthebullets.com/>

Dead on Arrival
Dead on Arrival is a film noir comic that has interactive branching story paths that give the user a choice of experience.
<http://www.dead-on-arrival.co.uk/>

Soul Reaper

Soul Reaper is an HTML5 scroll book. The user scrolls down to each panel and activates sound and narration.

<http://www.soul-reaper.com/>

All of the interactive comic examples have interesting elements. They are mainly unique ways of navigation and incorporating animation and sound. Dead on Arrival is probably the closest to my concept with its branching storylines.

Design Ideation

Updated Comic Book Conventions for UX Design

When I began brainstorming conceptual solutions to update the comic book reading experience, my first thoughts were to enhance the experience with sound, animation and in-panel mini-games. As I expanded on these ideas, I felt that they moved the experience too far from the nature of comic books.

What I feel differentiates a comic book from motion medias is the comic panel. Just like a photograph or a painting, the comic panel is a moment frozen in time. The beauty of it is that allows the reader to not just experience that moment but to examine it. One possibility is to add to this by giving the reader more content to discover.

I have been collecting and reading comics for over thirty years. There have been many occasions when something I've read in a comic prompted me to research. It could be a reference to an earlier issue or different title. Maybe it was a reference to a piece of literature, a song or a current event. Print form comics do not allow easy access to external information. A deeper understanding of these reference meant digging through old issues or encyclopedias, a trip to the library or just hoping to find that gem of knowledge someday. Current technology can instantly link reader's content from any number of resources.

Panel Links

The following list are ideas for in panel links:

- *Continuity Reference*
  - This link is a reference to an event in an earlier issue or different series
  - When tapped it takes the reader directly to the referenced event

- *Live Bio*
  - Character biographies update as the reader progresses through the story
  - This gives the reader a quick, up to date reference for any major character

- *POV*
  - This links the reader to a panel that is a duplicate of the current one but from another characters point of view

- *Info Bubbles*
  - Quick Pop-up of pertinent information (think MTV's "Pop-up Video" in a comic)
  - This comes from Japanese Manga. Authors will often add information or commentary in the gutters between panels

- *Mag Glass*
  - Magnifies a portion of the panel to show more detail
  - Example: A picture on a desk, a poster on a wall

- *Direct Research Reference*
  - This can be a link from a word or an object that takes the reader to a Wikipedia link

- *Narrative Layering*
  - Clicking on a subject in the panel takes you to a new series of panels that represents their timeline
  - I will give more detail on this in the next section

Narrative Vector

Composing the page layout for the first issue of the "Twelve for Martini" comic UX, was taxing. I felt having to strike that delicate balance between the size of the page, the size of the panels, the reading flow and the narrative limited my ability to tell the story the way I wanted to. Page layout is directly related to the print media. The restriction to a rectangular format was put in place to fit the technology of the time. I would like to explore working outside of this restriction, move the panels off the page. This could address the issue of reading flow. Is the western reading convention, left-to-right, top-to-bottom, required to understand the progression of the narrative or can a more natural user interface be effective and embrace all cultures?

One possibility is to create a *narrative vector* by using narrative content to determine the direction of the reading flow. This would use elements like camera direction, character movement, or character focus to determine the reading flow. Take, for example, a scene from "Twelve for Martini", laid out in traditional format (fig 01).
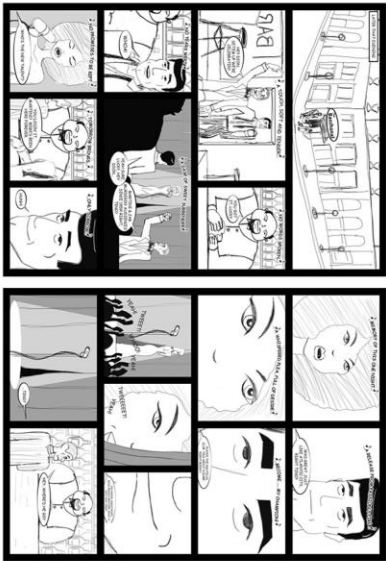

fig.01

On the following page, *Fig 02* is the same scene laid out as a narrative vector.
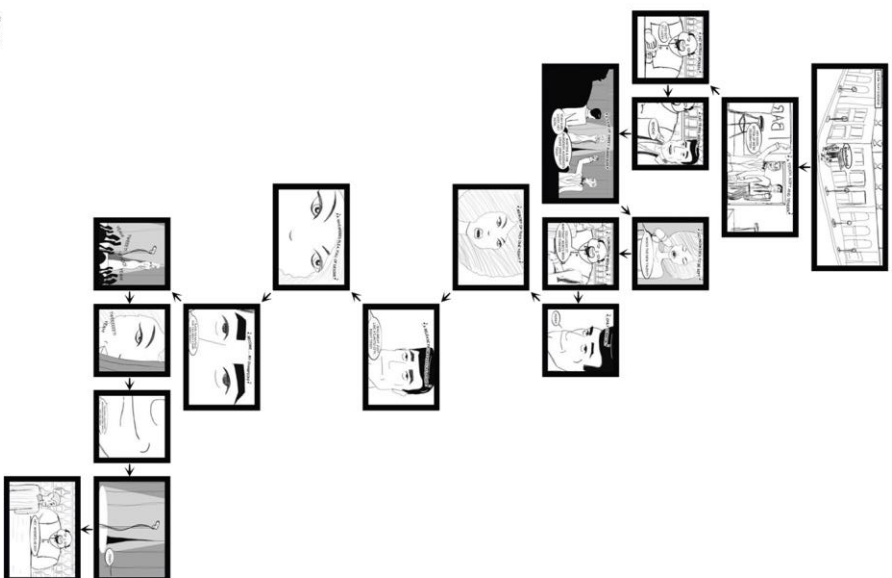
fig.02

With the narrative vector the content can now be organized into scenes instead of being broken up into pages.

Panel Stacks

Just like film, a scene is composed of a series of panels that convey the action in a single location, during a specific period of time, as determined by the greater narrative. These scenes can be minimized into *panel stacks* (fig 03). When the reader moves to a new scene the panel stack would open (possibly with a tap).
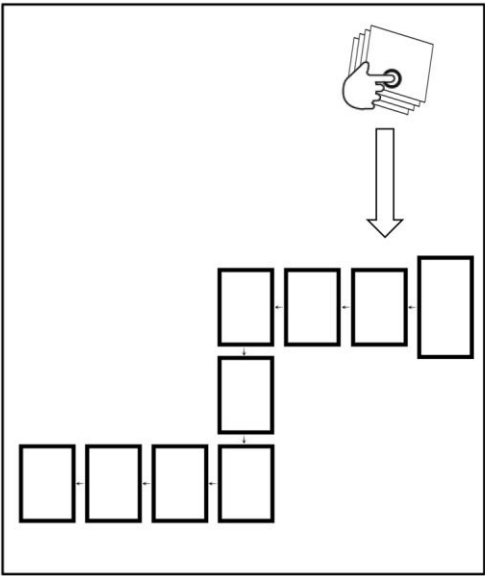
Fig 03

Narrative Layers

This format could potentially allow for branching narratives. New panel stacks could open above current ones to show simultaneous action within a different characters timeline (fig 04).

Fig 04

branched narrative layer / simultaneous action

original narrative layer
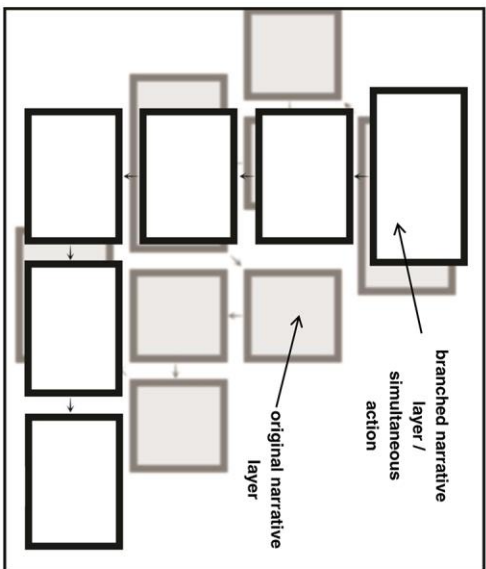
These narrative layers could allow the readers to follow other characters when they leave the main narrative. It allows the writer to build sub-narratives around any characters or object within a panel.

Continuity Map

The main interface of the comic UX would be the *continuity map*. The continuity is the universe in which the narrative resides. The continuity map is designed to provide constant temporal and spatial feedback to the reader as they move through the narrative.

Spatial feedback is achieved with a stylized 3D map of the area in which the narrative takes place. Each scenes setting is represented on the map along with other landmarks that act as a frame of reference for the area of the *continuity map*. The panel stacks would float above specific scene locations.

The map on the following page is a 3D representation of the Las Vegas Strip in 1960. This is a mockup. Locations are identified with markers. The final version will be full color and have stylized 3D buildings that represent the casinos, bars and other important locations. . *Fig 05*, on the next page, is a mock-up of what the 'Twelve for Martini' *continuity map* might look like.
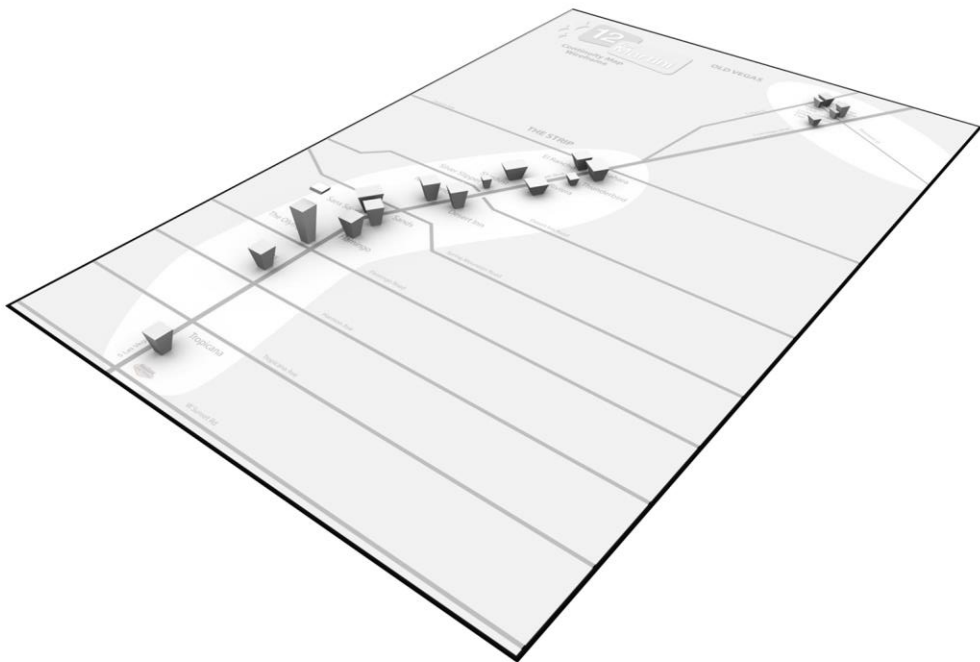
fig 05

20 | X10 COMICS: REIMAGINING THE SEQUENTIAL ART NARRATIVE

Panel stacks would appear in 3D space over the location of the scenes narrative.

fig 06

The first scene of "Twelve for Martini" takes place in Club Helios which is inside The Olympiad Casino. In the example above, the *panel stack* for scene 1 floats above the Olympiad on the continuity map (*fig 06*).

The *continuity map* could be used as an establishing shot for each scene. In *fig 07*, the continuity map is situated at roughly the same location as the photo of Old Las Vegas next to it.

fig 07

When the reader moves to the next scene they would actually travel across the map in 3D space to that scenes location. Upon arrival at the new scene location, the reader would tap on the panel stack to open it (*fig 08*) and begin reading.

fig 08

The *continuity map* would function as a background to the panels as they are being read, giving the reader spatial feedback by conveying the setting (*fig 09*).
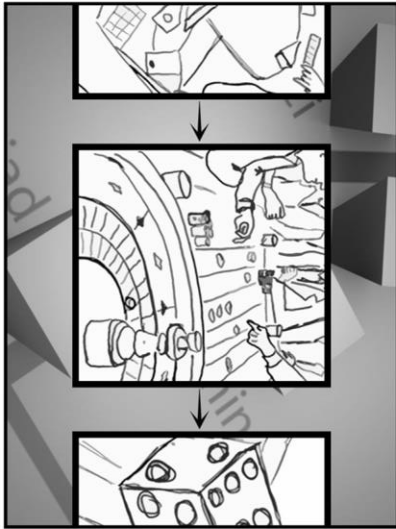
fig 09

To give the reader temporal feedback, the map would change depending on the time of day. This could be done using simple color. Morning would have a bright yellow wash and as the setting moves into the evening the wash could change to a darker blue or purple. It could also be done by changing attributes of the map. As the setting moves into the evening, the map would darken and lights could turn on in buildings and cars.

Finally, a scrolling timeline could be placed in the interface to track time. This could also have icons representing the scenes and a bookmarking function to save the readers progress.

The next page shows a variety of content within a basic wireframe of the interface layout (*fig 11*).
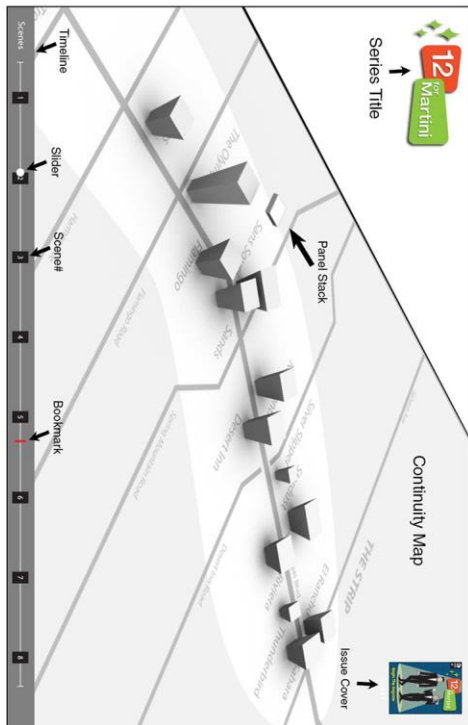
fig 11

The Narrative

"Twelve for Martini" will move away from the typical "super-hero" genre of comics. It is designed to appeal to an adult audience, male or female between the ages of 21 and 40 years old. The art style will be closely related to the graphical style of 60s era ad campaigns and animation styles like UPA. Here are some initial character designs.

Characters
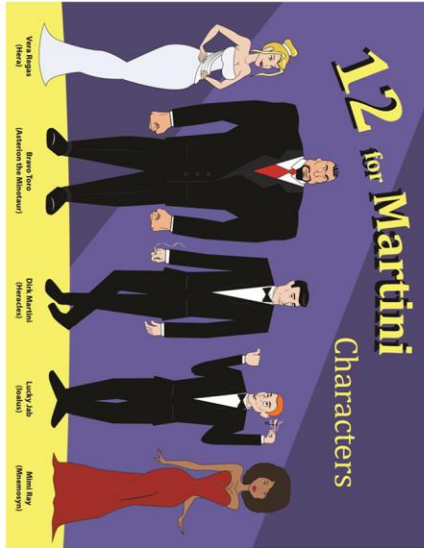
12 for Martini Characters

Vera Regas (Hero)
Bravo Toro (Asterion the Minotaur)
Dirk Martini (Heracles)
Lucky Jab (Iolaus)
Mimi Ray (Mnemosyne)

Dirk Martini
(Heracles)

Dirk Martini

Lucky Jablonski
(Iolaus)
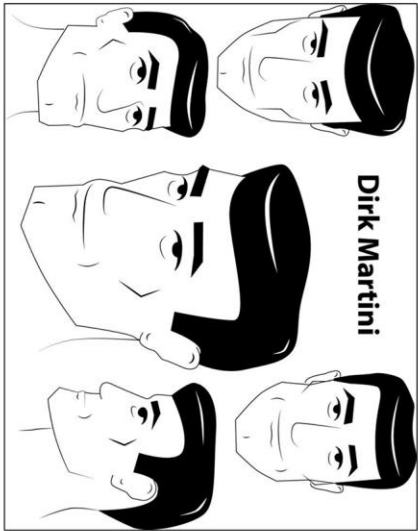
Lucky Jab

Asterio Llamas
"Bravo Toro"
(The Minotaur)
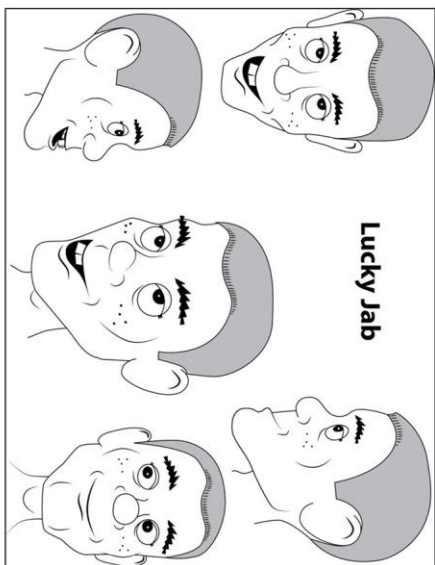
Bravo Toro
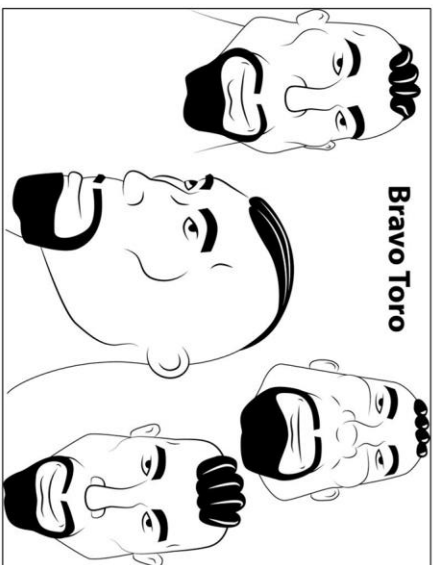
Character Bios

Dirk Martini
(Heracles)

Dirk Martini is a showman. He is a sings, dances, and even does a little sleight of hand. He and his comic sidekick, Lucky began their act, *Martini and Jab*, in Atlantic City at Club Nautilus, nightclub of notorious mobster Uncle Posey. A year ago, Posey sent Martini and Jab to Las Vegas to meet his brother, crime lord, Anthony Regas. Regas took an immediate shine to Martini and, in the last year has helped the duo become the hottest thing in Vegas. Due to his success, Martini has been living the rich playboy bachelor. Money, girls and fame. Of late, Martini's has been suffering from migraines that bring on hallucinations so real that he is questioning his sanity.

Louis Jablonski
"Lucky Jab"
(Iolaus)

Lucky Jablonski is Martini's comedic sidekick. He and Martini have been friends since childhood and come up in show business together. Lucky is fiercely loyal to Martini and never far from his side. Lucky is small and thin but his big mouth continuously gets him into trouble. Martini is extremely protective of him and consequently takes the brunt of this trouble.

Asterio Llamas
"Bravo Toro"
(The Minotaur)

Asterio Llamas is an up and coming, world renowned, heavy weight boxer. Although not related, he is in some way connected to the Regas family. Much of his success he owes to them. He runs with Regas's children and frequents many of the same clubs.

Anthony
"Thunderbolt"
Regas (Zeus)

Anthony Regas is the head of the Regas crime family. As a result of strategic placement of his siblings and children throughout Las Vegas organized crime, Regas owns the city. Regas's calm, calculating demeanor is occasionally broken by terrific flashes of anger and vengeance. This earned him the nickname "Thunderbolt" Regas. Much to the dismay of his wife, Vera, Regas took an immediate liking to Martini and virtually adopted him. No one knows why Regas took Martini under his wing, except maybe Vera Regas.

Vera Regas
(Hera)

Vera Regas is the wife of Anthony Regas. Although Regas is the head of the family, Vera is just as powerful. Some would say even more so. She has her own connections and dealings within the family, many of which, her husband is un aware of.

Mimi Rae
(Mnemosyne,)

Mimi is a singer at The Bacchanal, an off the street beatnik club. She and Martini are from two different worlds but are strangely drawn to each other. Mimi holds a dark secret that could destroy the entire Regas crime family.

What follows is a rough draft of the first "Twelve for Martini" comic UX, "Begin the Beguine".
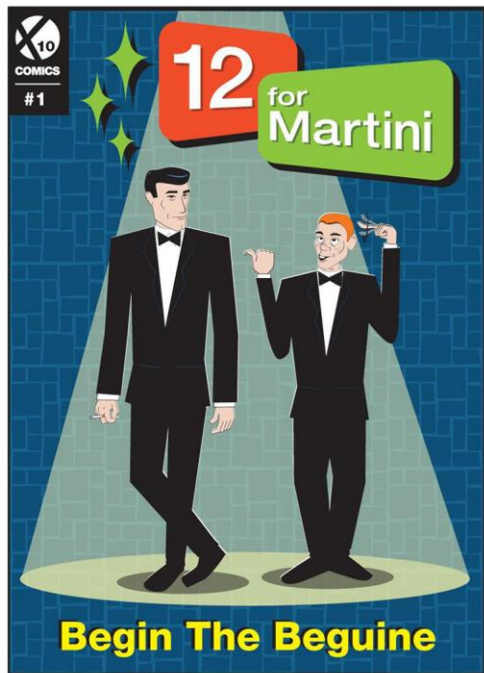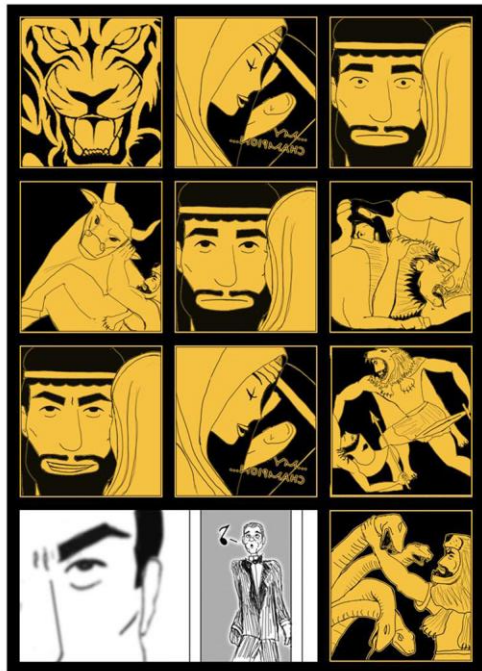
Methodological Design

X10 Comics will be the prototype of an iPad app that delivers a new form of *comic UX* (user experience). "Twelve for Martini" issue #1 will be the launch comic UX for X10 Comics.

Target Audience

Duffy Kent
Age: 27
Duffy is a big data analyst for a Seattle hedge fund. He collects independent comics, follows local music and is a Mac aficionado.

Meg Watson
Age: 35
Meg is a free-lance web designer. She loves fantasy and sci-fi novels which she reads on her iPad. She dresses up for the renaissance fair every year.

Robert Wayne
Age: 53
Robert is a cultural anthropology professor at a local community college. He loves anything hi-tech and is an avid iPad user. His loves being the first to find a cool new app.

Jian Liu
Age: 25
Jian is a grad student from Hong Kong. He is uses his iPad to study English but also likes to read manga and comics on it.

As a comic UX, "Twelve for Martini" will be an interactive presentation that will allow readers to experience the narrative, explore content connected to the narrative and follow branching sub-narratives. This will be a prototype and will show examples of the interactive options discussed in the Design Ideation section of this document.

Here is a list of specific deliverables for my thesis project:

1. A simple, well designed X10 Comics intro interface
   a. Branding
   b. About statement
   c. Cover of "Twelve for Martini" issue #1 with launch interaction
2. Functional, well designed comic UX GUI
   a. Functional *narrative vector* reading mechanism
   b. Functional timeline
   c. Functional bookmark
3. The complete comic book narrative for the first issue
   a. 5 completed scenes
   b. Each scene begins with an establishing shot on the *continuity map*
4. Additional content
   a. At least 2 examples of narrative layering (branching)
   b. At least one example each of the following interactions
      i. *Live Bio*
      ii. *POV*
      iii. *Mag Glass*
      iv. *Direct Research Reference*

Although it is intended for the final launch, *user account management* will not be part of this prototype.

The "Twelve for Martini" comic UX will have 2 levels of design.
1. Interface Design
2. Comic Panel Narrative Design

The interface design is primarily 3D with a few 2D UI elements. 3D elements will be designed in Autodesk Maya, manipulated Adobe Flash CS6 and coded with ActionScript 3 using the Away3D engine. 2D elements will be designed in Adobe Illustrator manipulated Adobe Flash CS6 and coded with ActionScript 3

The comic art for the narrative will be designed in Autodesk Maya. Sets will be modeled, textured in 3D for each scene. Characters will be developed as 3D digital puppets, imported into each scene and positioned for each panel. Each panel will be rendered in Autodesk Maya and enhanced in Adobe Photoshop. They will then be manipulated Adobe Flash CS6 as bitmap files and coded with ActionScript 3.

Software Components for Design and Development:
1. Autodesk Maya
   a. 3D UI Elements
2. Adobe Illustrator CS6
   a. Vector based UI elements

3. Adobe Photoshop CS6
   a. Texturing
4. Adobe Flash CS6
   a. ActionScript 3 development
5. Adobe AIR 3.5
   a. Adobe Integrated Runtime system to convert Flash output to an application that will run in the mobile iOS environment
6. Away3D
   a. Open source, real time 3D engine for the Flash Platform
7. Prefab3D
   a. Application that helps convert and streamline 3D assets (OBJ)for use with the Away3D engine
   b.

Screen Size
- Based on iPad2 screen dimensions (1024x768).
- Usability in both landscape and portrait mode
- Design dimensions 1024x1024 pixels

Touch Interaction
- Interaction using finger instead of mouse pointer
- Interaction points no smaller than 44x44 pixels

Variable Positioning and Reach
- Interaction points placed at the bottom and middle of screen
- Easily navigated with one hand
- Easily navigated with either hand

Performance
- Stylized 3D interface to allow for low poly models
- Bitmap files (jpg) for panels

Application Interruption
- iPad runs one app at a time
- Numerous possibilities for app interruption
  o User switches apps
  o User distraction
  o Power failure
- Bookmark updates with every panel change
- User placed bookmark

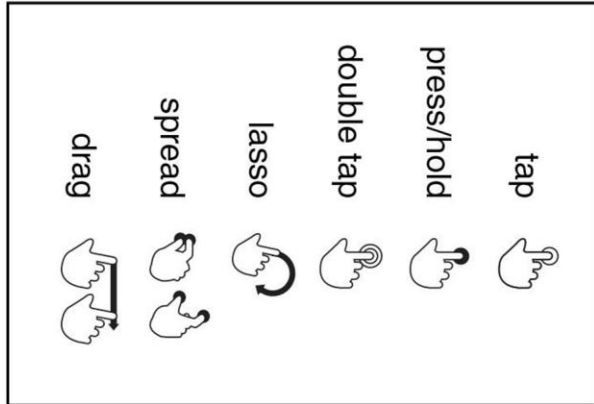**Proposed Typical User Experience Flow**
1. User opens comic on X10 intro screen by tapping cover
2. Animated sequence: cover opens and becomes *continuity map*
3. Animated sequence: *Continuity map* to main establishing shot
   a. "Welcome to Las Vegas" sign
   b. Caption: 1961 Las Vegas, Nevada.
4. Start button appears
   a. First viewing only
   b. Continue button on subsequent viewings

Proposed Touch Gesture Interactions

tap

press/hold

double tap

lasso

spread

drag

5. User taps Start button to begin presentation
6. Animated sequence: *Continuity map* moves to scene location
7. Panel Stack appears over scene location
8. User taps panel stack and opens panels
9. User taps to progress through panels in scene
10. User press/and hold to look for additional links inside the panel
    a. Linked elements highlight
    b. View additional information
    c. Return to panel
11. Move to next panel
12. Continue until comic ends

App Specific Touch Interactions List
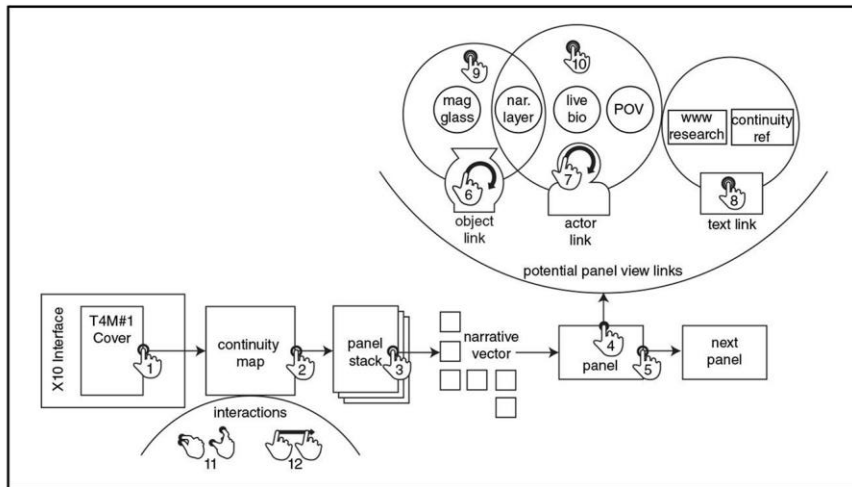
1. tap opens cover	7. lasso on lit character opens link options
2. tap to begin presentation	8. double tap on text link
3. tap opens panel stack	9. double tap on object link
4. press/hold reveals panel view links	10. double tap on actor link
5. tap moves to next panel	11. spread to go to map view
6. lasso on lit object opens link options	12. drag to navigate map view

Implementation Strategy

Development Workflow

Development will move through 11 phases

1. Planning
2. Rough Content Development
3. GUI Wireframing
4. GUI Programing
5. Usability Testing Round 1
6. Changes
7. Final Content Production
8. Usability Testing Round 2
9. Changes
10. Usability Testing Round 3 (if required)
11. Final tweaks
12. Delivery

Planning

As part of the planning phase, I researched the technical, design and narrative components of my topic. Once I settled on the specifics of my project goal I wrote the narrative, character bios and outlined my ideas for the interface. During this phase I developed the concept of in panel links.

Rough Content Development

In the next phase I rough out sketches for character, laid out rough comic panels. It was at this point that I expanded my thesis concept to include the *continuity map, panel stacks, narrative vectors* and *narrative layering.* This moved the project beyond what I consider to be a typical interactive comic to the *comic UX.*

GUI Wireframing

With the new direction I rewrote and expanded on the narrative. Updated the rough sketches and added necessary panels. I then organized the panels into scenes and mapped out the *narrative vectors.*

I also created dummy interface assets. This included the initial designs for the 3D continuity map and markers, as well as the 2D interface elements.

In this phase I broke out the key components of the graphic user interface (GUI) for the *comic UX.* I then organized them into the basic interface layout below.
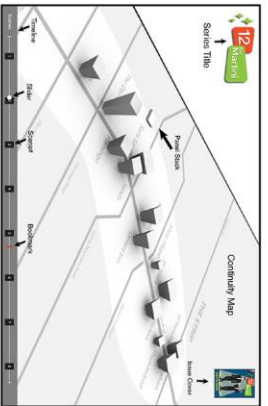
GUI Programing

Ultimate goal is to create a format that is easily updated. This will be the first of many issues in this continuity. With that in mind, the graphic user interface (GUI) programming will be modular.

- Individual panels will be external elements called by scenes
- Scenes will be external elements that will be called by the main program when needed

Since the GUI will be programmed using *dummy* graphic assets, the modularity will make swapping in final graphics more efficient.

General Workflow / Task List Overview: GUI Graphical Asset Preparation
(this is applicable to both dummy assets and final assets)

Graphical Asset Preparation

3D Assets:
1. Map and markers interface assets will be design in Autodesk Maya.
2. Models will be built, textured and lit inside of Maya.
3. Each elements textures and lighting will be baked into its UV space.
4. The objects will then be exported as OBJ files
5. Assets will be converted to AWD format (Away3D engine binary file format) using Prefab3

2D Assets
1. Assets will be design in Adobe Illustrator
2. Assets will be exported as .SWF files

Panel Assets
1. Saved as JPG files

General Workflow / Task List Overview: ActionScript 3 Development

ActionScript 3 Development Workflow

1. Program a single panel (*panel 1*)
2. Program first scene (*narrative vector*) and populate it with multiple iterations of the *panel 1*
3. Program *continuity map* navigation functionality
4. Add first *panel stack* and program to load *narrative vector 1*
5. Add the rest of the panel stacks using *narrative vector 1* as placeholder
6. Swap out all panels and scenes with actuals
7. Program bookmark functionality
8. Program panel links for specific panels
9. Program open animation and interactivity *continuity map*
10. Program X10 Comics intro screen
    a. About section
    b. "Twelve for Martini" issue #1 cover
    c. Launch to open animation

Usability Testing Round 1

Once initial programming is finished the application will move into the first round of usability testing. For this round of testing, I will be using the AIR Debug Launcher, iPad simulator. I will test 3 to 4 individuals. The test will be a hour long session. The first 45 minutes will be observing the users interaction, the last 15 minutes will be short questionnaire for the user about their experience.

Final Content Production

Workflow

I will be looking for qualitative data on two levels. The first level will be usability. Did they get it? Were any major stumbling blocks? Were they able to read the narrative and access additional information? The second level will be on the narrative. Was it engaging? Would they like to see the rest of the story?

Data from this test will be considered and may require changes to the application. Additional production time has been built into the schedule for this contingency.

Final content production will begin once programming is completed. It will entail finalizing 2D and 3D elements for the GUI, designing final comic panels (3D) and final design for the X10 comics launch page.

Comic panels will be designed primarily in Maya 3D. The renders will be tweaked in Adobe Photoshop. As with development, I am taking a modular approach to the comic panel design.

The brunt of the design will be done in Autodesk Maya 2013. Locations, props and characters will be exported separately so they can be imported and used over multiple scenes. A streamlined list of 3D assets will prevent any duplication of effort during the modeling process.

The characters will be design as digital puppets. The character bodies will have basic rigs for posing. Since there will be no animation, there is no need to create shape targets or intricate rigging for the hands. Multiple copies of the characters hands and heads will be created to convey major gestures or emotions. All elements will be hidden until needed.

Also, characters puppets will have segmented joints rather than smooth skins to minimize weight painting. Any seams left over in the render will be painted out in Adobe Photoshop. With the stylized cartoon design of the characters should make this fairly efficient

The continuity map and markers will also be designed in 3D. Since they will need to render in real-time, they will be stylized low res models.

Once the content is finalized it will be integrated with the programming by replacing the placeholder graphics used during development.

For a detailed 3D production workflow and asset list, please refer to the chart on the following page.

3D Production Workflow Chart and Asset List
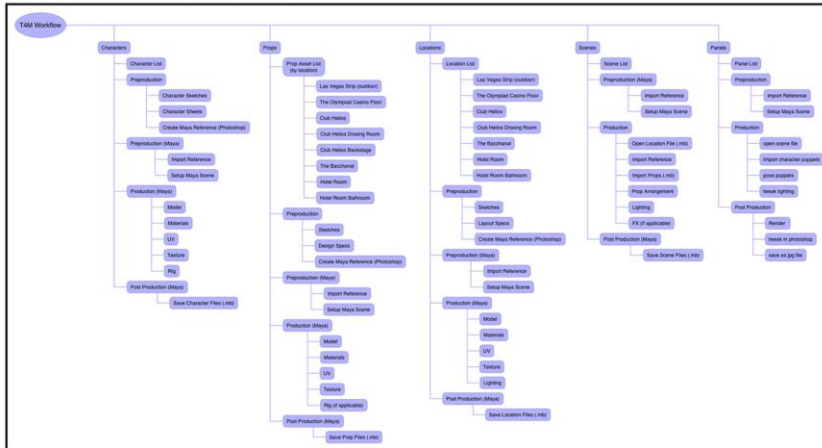
Characters (13)		
Dirk Martini	Lucky Jab	Bravo Toro
Vera Regas	Mimi Ray	Dion
Cigarette Girl	3 Female Extras	3 Male Extras
Locations (7)		
Olympiad Casino Floor	Club Helios	Club Helios Backstage
Dressing Room	The Bacchanal	Hotel Room
	Hotel Bathroom	
Misc.		
Props (41)	Cars (3)	Map Markers (11)

Testing Round 2

Once initial programming is finished the application will move into the first round of usability testing. For this round, I will test directly on the iPad 2 device. I will test 3 to 4 individuals. The test will be a hour long session. The first 45 minutes will be observing the users interaction, the last 15 minutes will be short questionnaire for the user about their experience.

I will be looking for similar qualitative data as in the first round. In addition, I will be looking to see if problems brought up in the first round of testing have been solved.

Data from this test will be considered and may also require changes to the application. Additional production time has been built into the schedule for this contingency.

It is possible that there may one more round of usability testing and tweaks. Time has been allotted for this in the schedule.

Marketing Plan

Social Media

I will be promoting my project by posting videos of prototype on websites like *Vimeo* and *Youtube*. Furthermore, I will be promoting it through social networking websites like *Facebook* and *Twitter*.

Conventions

I will present my work at various comic book conventions.

The Chicago Comic & Entertainment Expo (C2E2)
<http://www.c2e2.com/Exhibitor-Info/Want-To-Exhibit/>

Wizard Cons
<http://www.wizardworld.com/>

San Diego Comic Con
<http://www.comicbookresources.com/?page=article&id=42979>

New York Comic Con
<http://www.newyorkcomicon.com/>

Competitions

I will be submitting my work to various design, web, mobile and comic book competitions.

Will Eisner Comics Industry Awards
<http://www.comicbookresources.com/?page=article&id=42979>

Ignatz Awards
<Http://www.spxpo.com/ignatz.shtml>

Adobe Design Achievement Awards (ADAA)
<http://www.adobeawards.com/us/>

The Horizon Interactive Awards
<https://www.horizoninteractiveawards.com/#sthash.ztumUGGO.dpuf>

The Webby Awards
<http://www.webbyawards.com/about/>

Future, Innovation, Technology, Creativity (FITC)
<http://fitc.ca/>

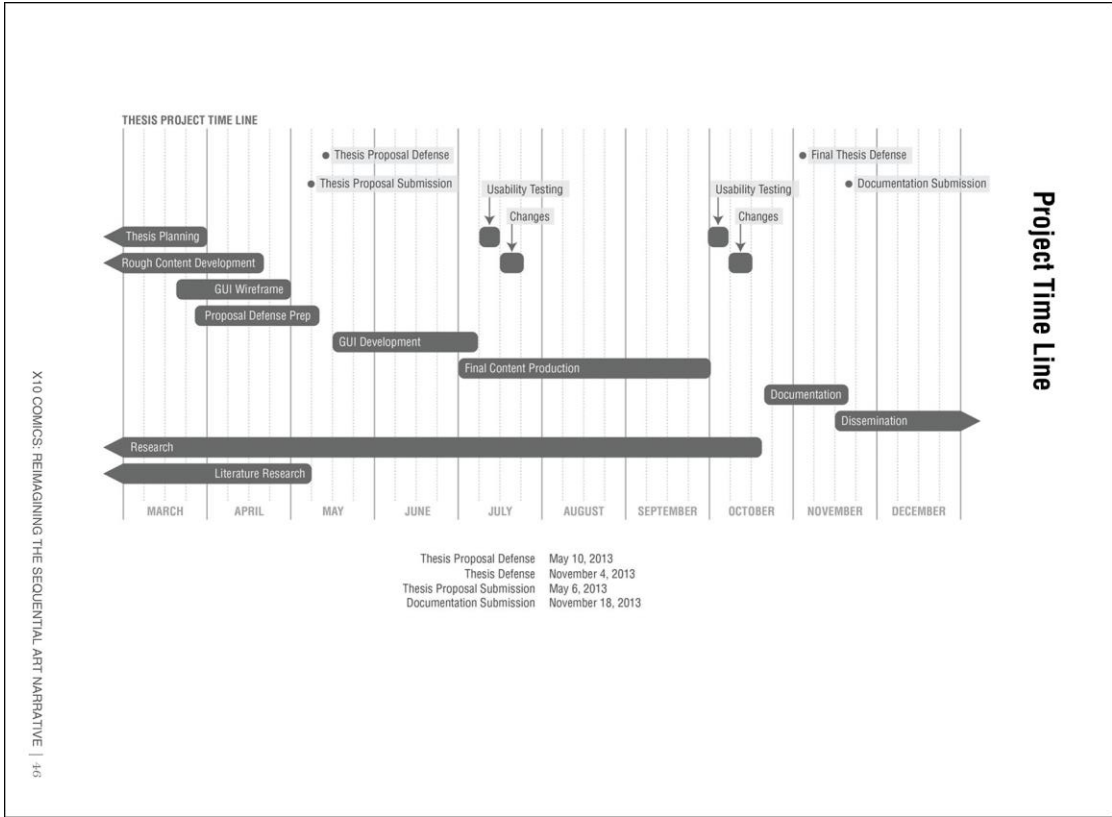**Crowd Source Funding**

In each of these venues I will be promoting a crowd source campaign through *Kickstarter*, a company that provides tools to raise funds for creative projects via crowd funding through its website. It is my hope that with sufficient attention this campaign will raise enough funds to launch the X10 Comics UX mobile app.

Kickstarter
<http://www.kickstarter.com/hello?ref=nav>

Project Time Line

THESIS PROJECT TIME LINE

- Thesis Proposal Defense
- Thesis Proposal Submission
- Final Thesis Defense
- Documentation Submission

Usability Testing
Changes

Usability Testing
Changes

Thesis Planning
Rough Content Development
GUI Wireframe
Proposal Defense Prep
GUI Development
Final Content Production
Documentation
Dissemination
Research
Literature Research

MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

Thesis Proposal Defense	May 10, 2013
Thesis Defense	November 4, 2013
Thesis Proposal Submission	May 6, 2013
Documentation Submission	November 18, 2013

Budget

$250 Printing costs for promotional posters

$200 Entrance fee for submission to various competitions.

$1500 Artist table fee at various conventions

$200 Paper and printing costs for thesis show
Documentation, Business cards, one-page descriptions etc.

$800 Travel and Expenses for attending conventions and competitions

$2950 Total Expenses

Bibliography

Images

Page 7, fig 01
Unknown. "Las Vegas, NV: Old Las Vegas [Strip] 1985 Pioneer Casino" 08 December, 2005. Web. 18 April, 2013.
< http://www.city-data.com/picfilesc/picc6244.php>.

Page 21, fig 07
McCloud, Scott. "Understanding Comics: The Invisible Art [Reprint edition]" page 100-101, Reprint edition (1994), William Morrow Paperbacks

Supporting Documents

Touch Gesture Reference Guide
Wroblewski, Luke. "Touch Reference Guide." 20 April, 2010. Web. 11 Feb 2013.
< http://www.lukew.com/ff/entry.asp?1071>.

Preview Autodesk Maya Workflow for AIR - iOS
The Away 3D team. "Preview Autodesk Maya Workflow for AIR - iOS." Away3d.com
© 2010 The Away Team. Web. 12 April 2013.
< http://away3d.com/tutorials/preview_Autodesk_Maya_Workflow_for_AIR_-_iOS>.

Bibliography

Books

Eisner, Will, and Will Eisner. *Comics and Sequential Art: Principles and Practices from the Legendary Cartoonist*. New York: W.W. Norton, 2008.

McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994.

McCloud, Scott. *Making Comics: Storytelling Secrets of Comics, Manga and Graphic Novels*. New York: Harper, 2006.

Giannetti, Louis D. *Understanding Movies*. Englewood Cliffs, N.J.: Prentice-Hall, 1972.

Wroblewski, Luke. *Mobile First*. New York: Book Apart, 2011.

Krug, Steve. *Don't Make Me Think!: A Common Sense Approach to Web Usability*. 2nd ed. Berkeley, Calif: New Riders Pub., 2006.

Hard, Robin. *The Library of Greek Mythology*. Oxford: Oxford University Press, 1997.

Campbell, Joseph. *The Hero with a Thousand Faces*. 2d ed. Princeton, N.J.: Princeton University Press, 1972.

Wells, Paul. *Scriptwriting*. Lausanne, Switzerland: AVA Pub. ;, 2007.

Periodicals

Watkins, Adam. *Creating Games with Unity and Maya How to Develop Fun and Marketable 3D Games*. Burlington, MA: Focal Press/Elsevier, 2011.

"Gambling Town Pushes It's Luck." *Life Magazine*, June 20, 1955, 20-27.

Video/DVD

Rat Pack: The True Stories of the Original Kings of Cool. A & E Home Video ;, 2001. DVD.

Frank Sinatra, Dean Martin, Sammy Davis, Jr., Peter Lawford, Angie Dickinson in "Ocean's 11" .. Warner Bros., 1960. DVD.

Websites

"Tutorials." Unity. Accessed April 18, 2013. http://unity3d.com/learn/tutorials/modules

"PlayMaker." PlayMaker. Accessed July 6, 2013. http://www.hutonggames.com/tutorials_game_design_with_playmaker.php

"Interactive Comic - NAWLZ - Season 1 and Season 2." Interactive Comic - NAWLZ - Season 1 and Season 2. Accessed April 6, 2015. http://www.nawlz.com

Never Mind the Bullets Interactive Comic Accessed April 6, 2015.
http://www.nevermindthebullets.com

"Dead On Arrival Interactive Comic." Dead On Arrival. Accessed April 6, 2013.
http://www.dead-on-arrival.co.uk

"Soul Reaper - HTML5 Scroll Book." Soul Reaper - HTML5 Scroll Book. Accessed
April 6, 2013. http://www.soul-reaper.com