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Fundamental principles of narrative, sequence, and motion

James A. Pannafino

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Fundamental Principles of Narrative, Sequence, and Motion

A thesis submitted to the faculty of the College of Imaging Arts and Sciences in candidacy for the degree of Master of Fine Arts

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Date 5/13/04

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James A. Pannafino

Date 9/11/04

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I would like to thank my committee members: Bruce Ian Meader, R. Roger Remington, and Donald Arday for their guidance and patience.

I would like dedicate this thesis to my family, especially my parents, Andy and Diane Pannafino for always supporting me in my studies over the past two years.
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Project Definition

Introduction

The origin of this thesis was conceived through observations and professional work experience in the design field where an increased need for a comprehensive explanation of the fundamental principles for developing imagery in motion was noticed. While various resources exist on the subject across different disciplines, there has never been an educational tool specifically for graphic design. Using visual communication and problem-solving strategies, a teaching guidebook was developed to explore the fundamental principles of narrative, sequence, and motion.

Overall Goal

To identify principles that govern decision-making in narrative, sequence, and motion for graphic design. Along with the thesis, an application was developed to serve as a guidebook that design educators can use to teach time-based imagery classes. The curriculum will provide graphic design students with a foundation that will guide them to the intelligent use of imagery in motion before they begin using computers in the design process.

Objectives

Intelligent Vocabulary
To better understand basic terminology that defines and explains the principles and function of narrative, sequence, and motion. Designers will have a more informed basis upon which to express creative points of view when dealing with imagery in motion in academic and professional settings.

Basics at the New Level
To better understand visual variables in relation to narrative, sequence, and motion. Designers will explore visual elements that are used in traditional print design formats in new interactive media formats.

Principles over Programs
Because of emerging technologies, designers are being asked to participate in more projects that involve narrative, sequence, and motion. Designers will need a fundamental knowledge base that they will carry with them throughout the ever-changing evolution of software and hardware.
This project (book and CD-ROM) was commissioned from MetaDesign by educational book publisher PWS Publishing of Boston, which owned the rights to the book *Experiences in Visual Thinking*, by Professor Bob McKim. According to *MetaDesign: Design from the Word Up*, “VizAbility was developed to aid students involved in the visual arts, although it had actually been written for engineers. Its basic premise was that engineers tended to focus so hard on the problem in front of them that they missed the bigger picture. This stunted their ability to solve problems creatively. The publisher saw that students’ visual education and skills still could be improved and decided to republished the book, this time adding an interactive CD-ROM.’

**Impact and Significance**

VizAbility is a perfect example of how one discipline’s theories can be applied to another field to aid in the learning process. Much of the research and information for this thesis was acquired from disciplines outside the field of graphic design. For example this thesis took narrative theories from film, literature and music to develop a basic narrative structure for its application.
The great advantage of theoretical education is that it prepares students for the unknown as it pertains to new technologies, e.g. computers, shifting social values, and other changes. User-based education tends to limit graduates to existing demands and conditions. When individuals recognize, understand and apply the principles, they are referred to as being visually sensitive or visually literate. The principles are often identified as visual or formal values or fundamentals. Seeing refers to both the optical sense and also to comprehension.

Impact and Significance
This thesis examines the process of how to understand narrative, sequence, and motion. It also stems from the belief that theoretical design education leans toward a timeless skill set, as opposed to just learning the function of computer programs that will change over time.
The semiotic model visually diagrams the three different dimensions of a graphic design problem, which are the conceptual, formal, and practical considerations. The semiotic model shows the relationship between the three dimensions and explains what each part means in a simple manner.

**Impact and Significance**

The ability to take a complex amount of information and visually organize it into a functional diagram is a key component for this thesis. Both the narrative process and visual teaching structure are highly influenced by the visual understanding of the semiotic model.

---

**Semiotic Model**

Tregay, Sarah. *A Graphic Design Primer: Resources for Educators*, p.3, Self Published, 2000
Precedents

Typographic Hierarchy Project

Karen Moyer, Associate Professor in the Department of Design at Carnegie Mellon University, developed the Typographic Hierarchy Project in 1979.

Moyer uses the term visualogic to describe the ideal synthesis of form (visual) and function (logic) – the marriage of beauty and clarity. If the objective is to resolve conflicts between the eye and the intellect, then the best solutions are in the middle of the spectrum between visual and logic.

Identifying the syntax of message and visually reflecting the linguistic relationships within is central to the graphic designer’s role. Designers must be able to identify and express the relationship between language and typography.

Throughout the exercises, the student will focus on one message. Though fairly short, the message is complex. Without further typographic “signalling,” the message lacks clarity and immediacy. The exercise series identifies specific typographic variables and clarifies their function as visual cues, signaling the hierarchical levels and associations of information. In these exercises, students will discover the power of subtle typographic signals, learn how they effect the transmission, and ultimately adopt a method for approaching all messages.

Impact and Significance
Like typography, the topic of this thesis has many different components and a lot of information. Isolating single variables and examining them one at a time allows for a more in-depth understanding of the parts that make up the whole. The thesis application divides the information into a set of simple educational exercises, which allows for the examination of the parts much like the typographic hierarchy project.

Selected Typographic Hierarchy Exercises

Below, text to a conference is given. To the right are two examples of the given text being explored through the typographic hierarchy project. The first one (top right) using various flush thresholds and the second one (bottom right) uses text weights and rules.

Given Text:
The Peculiarity of Pictures
Seeing and Believing
Monday, November 7, 8 pm
The Intelligent Eye
Wednesday, November 9, 8 pm

The Peculiarity of Pictures
Monday, October 3

The Peculiarity of Pictures
Monday, October 3

The Peculiarity of Pictures
Monday, October 3

The Peculiarity of Pictures
Monday, October 3

The Peculiarity of Pictures
Monday, October 3

Seeimg and Believing
Monday, November 7

8 pm

The Intelligent Eye
Wednesday, November 9

8 pm
### Research

#### Persistence of Vision


The moving pictures of film do not actually move. All one has to do is look at a piece of film to be reminded that, in fact, the medium is made up of a series of still images. It is the human eye and brain that make movies move. More accurately, the illusion of movement on film is created by a physiological phenomenon called the persistence of vision. When a single image is flashed at the eye, the brain retains the image longer than it is actually registered on the retina. When a series of images is flashed in rapid order, as with a movie projector, and when the images themselves are only slightly changed from one to the next, the visual effect is that of continuous motion.

#### Impact and Significance

Everything in motion design depends upon the viewer’s recognition of an image and his or her ability to follow its movement. This thesis uses the theory of persistence of vision to help explain the difference between sequence and motion, which is key for any designer working in the realm of movement to understand.

#### Conceptions of Psychological Activity


Sergei Eisenstein (1898 – 1948) was a Russian filmmaker and theorist. He believed that a theory of aesthetic form and response must be based on conception of the way the mind works. “Only that which proceeds in accordance with laws of nature can affect.” His earlier essays explored laws of nature in reflex-based theories. In the 1930s, he increasingly turned to notions that emphasize mental representations – ideas, feelings, and images. Throughout the decade, he retreated from physiological and psychophysical explanations and moved toward more anthropological and psychological ones.

#### Impact and Significance

When an audience watches a film, it can cause a psychological response such as sadness, happiness or melancholy. It is important to know what images, sounds and movements stimulate what responses. Getting an emotional response from a person through a narrative can also be done in the graphic design field. This research reinforces the importance of understanding how a narrative is structure and why it is examined in this thesis.
### Research

#### Narrative Episode


1. **Setting**
   
   Readers need a sense of place and time in order to envision an episode.

2. **Complication**
   
   Something must happen to upset the equilibrium of the setting. The complication creates a problem or conflict.

3. **Psychological Response**
   
   Readers must be able to empathize with the characters’ response to the complication.

4. **Attempt to Cope**
   
   The characters act (mentally or physically) to solve the problem or end the conflict.

5. **Results**
   
   There must be an outcome to the attempt to cope.

**Impact and Significance**

The first stage of the narrative episode is the setting. The establishment of the setting is very important, but before the narrative can begin, the context of the narrative has to be established. The stages of the narrative episode add to this thesis application, but understanding the context of an narrative adds even more.

#### Short Story Structure


1. **Set-Up**
   
   The purpose of the set-up is to give information. It acquaints the reader or viewer with the mood, setting, and main characters of the narrative, and also gives an idea of the direction of the story.

2. **Catalyst**
   
   The catalyst is the point that ignites the story. It is the first event that changes the status of the story.

3. **Turning Point**
   
   This is the event where the plot intensifies and complication arises. It gives the dramatic action fresh momentum and sends the story in a new direction.

4. **Climax**
   
   This is the culmination of the story. It is a point where events have developed to such a degree and are drawing toward the resolution of issues that occurred in the story. The action or pace tends to accelerate and prompt the characters to act.

5. **Final Confrontation**
   
   The final confrontation is the event that is caused by the climax or the effect of the climax.

6. **Resolution**
   
   The resolution is the final outcome of the story – how the confrontation is resolved.

**Impact and Significance**

The set-up, catalyst, turning point, climax, and resolution are generally parts of all stories, not just short stories. These parts function as key components of the narrative process in this thesis.
Research

Paradigm of Dramatic Film Structure


A story is a whole, and the parts that make it – the action, characters, scenes, sequences, incidents, episodes, events, music, locations, etc. – are what make up the story.

Structure is the relationship between these parts, which holds the entire story together.

A paradigm is a model, example, or conceptual scheme. The paradigm of a table, for example, is a top with four legs. Within that paradigm, we can have a low table, a high table, a narrow table, or wide table; a circular table, a square table, or a rectangular table; a glass table, a wood table, a plastic table or wrought iron table, and the paradigm doesn't change. It remains firm, a top with four legs.

Below is a breakdown of paradigm of a dramatic film structure:

<table>
<thead>
<tr>
<th>beginning</th>
<th>middle</th>
<th>end</th>
</tr>
</thead>
<tbody>
<tr>
<td>set-up</td>
<td>confrontation</td>
<td>resolution</td>
</tr>
<tr>
<td>pp. 1-30</td>
<td>pp. 30-90</td>
<td>pp. 90-120</td>
</tr>
<tr>
<td>plot point I</td>
<td></td>
<td>plot point II</td>
</tr>
<tr>
<td>pp. 25-27</td>
<td></td>
<td>pp. 85-90</td>
</tr>
</tbody>
</table>

Impact and Significance
The ability to fit a film narrative within a paradigm structure leads to a better understanding of the narrative itself. The paradigm structure (more importantly the visual paradigm structure), above lends to this thesis the ability to develop a structure that can stand and on it's own.

Structure of Musical Story

*Exposition (A)*
The main theme.

*Development (B)*
The new contrasting section. Very different than A, otherwise it would be repetitive and dull.

*Recapitulation (A')* slightly different
The return to the main theme. Most frequently, it is shorter than the exposition, however is based on the same musical theme.

Impact and Significance
Of the many narrative methodologies and structures researched in this thesis, the musical structure is the only one that works in a repetitive mode. At the end of a musical story structure, the beginning is reexamined. The repetitive aspect is used in both the narrative structure and visual teaching process.

2004 James A. Pannafino
The Path of a Visual Idea


1 Idea/Purpose
The impulses, concepts, emotions, philosophies, and purposes of the work... The work’s “content.”

2 Form

3 Idiom
The “school” of vocabulary of styles or gestures, or subject matter; the genre that the work belongs to, possibly a genre of its own.

4 Structure
Putting it all together... What to include, what to leave out. How to compose the work.

5 Craft
Constructing the work, applying skills, practical knowledge, invention, problem-solving, getting the job done.

6 Surface
Production values, finishing... the aspects most apparent on initial superficial exposure to the work.

Impact and Significance
A path of a visual idea is a rough process outlining how a creative idea is developed. This path also allows an artist (or designer) to see the value in understanding the process. Dividing sections into titles, visually diagramming stages, or both, helps develop a clear understanding of the process.
Consider a flying ball. The position the ball assumes successively in the visual field is represented in Figure 1 as though it was photographed on film frames. If we eliminate the time dimension, we can clearly see that the object follows a simple path. We can tentatively conclude that the principle of consistent shape, which groups the elements of motionless patterns, is instrumental in preserving the identity of the moving object in time.

The other familiar principles of grouping will also play their parts. An object in motion is more likely to preserve its identity the less it changes its size, shape, brightness, color, and speed. Identity will be threatened if the object changes the direction of its course, for example, if the ball of Figure 1 suddenly turns backward. In any particular instance, these factors will either enhance or counteract each other, and the result will depend upon their relative strength. If a hunted hare makes a sharp turn, the change of direction may not prevent one from still seeing it as the same animal. If at the moment of the turn the hare changes into a turkey, identity may break down and we may see a second animal taking off from where the first disappeared. But if the transformation of shape and color takes place without a change of course, the consistency of path and speed may be strong enough to make us see one and the same animal transforming itself during the chase.

*Figure 1*

Impact and Significance

The movement experiments isolated visual variables such as size, shape, direction, etc. The experiments also used simple shapes to eliminate the confusion that a complex object might bring to the study. Using simple shapes and isolating the visual variables are both useful means to understand movement that this thesis used in its application.

---

**Wertheimer Group Movement Experiments**

Research

Geons

Holmes, Nigel. Information Design Journal, Volume 10, number 2, 2000/01

Cognitive scientists have tried to explain what is going on in our heads when we look at things. One theory posits that there is set of shapes stored in the brain which we refer to whenever we look at an object. In a flash, we unconsciously compare the overall shape of the seen object with the checklist of smaller component shapes already in our brains. When we put the small shapes together, what we are looking at is recognize. Scientists David Marr and Irv Biederman call these component shapes “geons.” Their theory of how we recognize things corresponds with one way that artists are taught to draw; breaking down the object in front of you (or in your mind) into basic shapes, and building a drawing from those shapes.

Instead of creating an image by drawing a line, you can use building blocks or shapes (geons), and you will start to think about what the object is, rather than what it looks like. You will not be drawing what you see, either in front of you or in your memory, but drawing what you know about an object. A microscope could be thought of as being made of five geons (seen above). When the shapes are assembled, they make a better icon of a microscope than one made by a line wandering around its edges. The result might also give the viewer an idea of how a microscope works, because the shapes break it down into its component parts:

Impact and Significance
The geons study shows that when objects are broken down into their elementary shapes, they are easier to render. This thesis takes the idea of using simple shapes in the learning process to eliminate complex details that might hinder the understanding of the main goal of the educational exercise. For example the thesis application uses a black circle to represent a bouncing ball to explore motion.
Saul Bass was a design pioneer who created vibrant sequences that transformed the function of film titles from pragmatic communication to complete mini-narratives, which use metaphor to establish the mood and visual character of a film. The opening sequence of Anatomy of a Murder presents simple hand-cut shapes of body parts that shift in scale, move, and juxtapose one another to create abstract relationships before they assemble into a complete human body, sprawled as if found at a murder scene.

Impact and Significance
Using abstract shapes that are juxtaposed to create a uniform message is a simple and clear way to communicate a narrative. This thesis application uses simple abstract shapes (stick figure drawings) in its narrative exercises. Not focusing on the detail of the drawings allows a greater understanding of the narrative as a whole.
Research

External Audit

At the beginning stages of research, an external audit was conducted. The audit asked various design education programs throughout the United States what they taught with respect to narrative, sequence, and motion.

Which educational institutions were contacted?
Rochester Institute of Technology
Art Center College of Design
Virginia Commonwealth University
California Institute of the Arts
North Carolina State University
Parsons School of Design
Philadelphia Art Institute
Rhode Island School of Design
School of Visual Arts
Syracuse University
University California at Los Angeles

What classes are already being taught?
Motion Design
Type in Motion
Time Based Imaging
Time, Motion, and Communication
Various introductory courses to Macromedia Flash

Impact and Significance
Not all of the educational institutions contacted responded to the external audit, and some did not have time to give detailed answers. Generally, most thought it was best to keep the scope of the thesis manageable. They questioned how much knowledge designers need to know about motion, what level of expertise is realistic? Currently, college level courses that deal with motion in graphic design are in a state of flux. There was a general opinion that more theories on motion design need to be taught, and that the thesis was a good avenue to pursue.

See Appendix B for detailed external audit interviews
Synthesis

After research into other disciplines was conducted, various terminologies were synthesized into sets of categories, which allowed easy cross-comparison of commonly used terms. The word list also allows for the easy retrieval of information. For example, if a term needs to be better understood, the word list will reveal which discipline it came.

<table>
<thead>
<tr>
<th>Animation</th>
<th>Complex Terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronological Order</td>
<td>Duration</td>
</tr>
<tr>
<td>Character Reactions</td>
<td>Imagery in Motion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Film</th>
<th>Pictorial Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick/Jump Cut</td>
<td>Received/Perceived</td>
</tr>
<tr>
<td>Sequence (Transformation)</td>
<td>Stream of Consciousness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphic Design</th>
<th>Graphic Symbolism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective/Subjective</td>
<td>Placement</td>
</tr>
<tr>
<td>Design Fundamentals</td>
<td>Graphic Symbolism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Narrative (Storytelling)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative Relationship</td>
<td>Visual Storytelling</td>
</tr>
<tr>
<td>Human Perspective</td>
<td>Juxtaposed Pictorial Images</td>
</tr>
<tr>
<td>Sequential Art</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Literature</th>
<th>Universal Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical Order</td>
<td>Mood</td>
</tr>
<tr>
<td>Dominant Impression</td>
<td>Rhetoric</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Web/Interactive Design</th>
<th>Type in Motion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movie Clip</td>
<td>Process</td>
</tr>
<tr>
<td>Delivering a Tangible</td>
<td>Global Visual Language</td>
</tr>
</tbody>
</table>
The research into the various narrative structures was used to create a basic narrative function. The basic narrative function takes the most common storytelling parts/stages and uses them for its own structure. This synthesized information is a key component in the development of the narrative process that is used in the thesis application.

<table>
<thead>
<tr>
<th>Narrative Episode</th>
<th>The Basic Narrative Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>1  Context</td>
</tr>
<tr>
<td>Complication</td>
<td>2  Beginning</td>
</tr>
<tr>
<td>Psychological Response</td>
<td>3  Catalyst</td>
</tr>
<tr>
<td>Attempt to Cope</td>
<td>4  Turning Point</td>
</tr>
<tr>
<td>Results</td>
<td>5  Middle</td>
</tr>
<tr>
<td></td>
<td>6  Climax</td>
</tr>
<tr>
<td></td>
<td>7  Closure</td>
</tr>
<tr>
<td></td>
<td>8  End</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short Story Structure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Set-Up</td>
<td></td>
</tr>
<tr>
<td>Catalyst</td>
<td></td>
</tr>
<tr>
<td>First Turning Point</td>
<td></td>
</tr>
<tr>
<td>Climax</td>
<td></td>
</tr>
<tr>
<td>Final Confrontation</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paradigm of Dramatic Film Structure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning</td>
<td></td>
</tr>
<tr>
<td>Set-Up</td>
<td></td>
</tr>
<tr>
<td>Plot Point I</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td></td>
</tr>
<tr>
<td>Confrontation</td>
<td></td>
</tr>
<tr>
<td>Plot Point II</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structure of Musical Story</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposition</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td></td>
</tr>
<tr>
<td>Recapitulation</td>
<td></td>
</tr>
</tbody>
</table>
To understand sequence and motion, going beyond a definition is essential. There must be an understanding of their relationship and the differences between the two. The discipline of film and animation (the process of making a motion picture) was analyzed. The process commonly starts with a storyboard and ends with a motion picture. Through persistence of vision, sequence becomes motion.

The following diagram shows the differences and relationship of sequence and motion:

**Linear Sequence**
The audience can view the content straight from beginning to end, or backwards from end to beginning.

**Single Frame**
The arrangement of content in a single frame format that is shown in a rapid progression to fool the human eye into thinking that it is perceiving kinetic movement.
Synthesis

The diagram continued:

- **Sequence**
- **Persistence of Vision**
- **Motion**

**Non-Linear Sequence**
The audience can view the content simultaneously. Non-linear perception allows the audience to interpret the content in a variety of ways.

**Linear Motion**
Motion can only be perceived in a linear fashion. The audience can view the content straight from beginning to end, or backwards from end to beginning.
Basic Shapes

Researcher Nigel Holmes used simple shapes to build objects in a constructive manner. Understanding sequence and motion can draw upon the same concept of using simple shapes. Exercises using simple shapes allow students to focus on the task and not the details of the object. Removing variables, such as color and excess detail, will lead to a better understanding of the visual elements (motion and sequence). Below are examples of a simple shape (circle) in various narratives:

Bouncing Ball

Sun Setting and Rising
通过研究、合成和，更重要的是，从论文委员会成员的反馈，开发了一个视觉图示来更好地理解叙述、序列和动作为主题的关系。

Ideation started with a series of pencil sketches. The sketches explored models to visually explain the three parts (narrative, sequence, and motion) in overlapping, three-dimensional, and various other visual arrangements.
Based on the visual structure of the semiotic model, a visual diagram was developed using the computer. The intersecting circles, narrative, sequence, and motion, overlap and are on top of the larger circle representing visual elements. The middle intersecting area will ideally function as the place where the principles of imagery in motion are understood.

After further investigation and discussion with the thesis committee, it was decided that narrative and the two visual elements (sequence and motion) should be considered as two different entities. Each should have their own diagram that can be shown separately.
Ideation

Visual Elements Diagram

The visual elements diagram began with a series of pencil sketches that explored how to best understand sequence and motion in relationship to basic visual variables, such as color, orientation, position, shape, size, texture, tone, weight, value, etc. The ideation exploration revealed many different diagrams. For example, a matrix diagram, cross-comparison diagram, and process oriented diagram. These diagrams are explored in further detail in the next ideation stage.
Ideation

Visual Elements Diagram

At the start of the computer stage, the visual elements diagram worked within a matrix format. Narrative, sequence, and motion were compared with the nine basic visual variables. The matrix structure allows different visual variables to be chosen at any given time. It also has four levels of narrative complexity from which to choose. First level *abstract*, second *simple*, third *intermediate* and fourth *complicated*. Visually, this diagram structure lacked a clear understandable function and was replaced with a more process-orientated diagram. A process-orientated diagram allows a series of set actions to be directed toward a particular aim.

<table>
<thead>
<tr>
<th>Visual Variables</th>
<th>Motion</th>
<th>Sequence</th>
<th>Narrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Orientation</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Position</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Shape</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Value</td>
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</tbody>
</table>

During the ideation stage, the label of the visual elements diagram was changed to visual teaching process. This was done to show that any visual element could be explored within the diagram structure. The visual teaching process works in a repetitive progression, which allows the learning process to be continuous. It has eight parts that cycle through the process, with each part gaining focus in the large black circle.

During the ideation stage, the label of the visual elements diagram was changed to visual teaching process. This was done to show that any visual element could be explored within the diagram structure.
Ideation

Various pencil sketches were developed to diagram the basic function of a narrative. The ideation consisted of various outcomes, such as a three-stage model, a pyramid diagram, and a circular process diagram. Each outcome allowed a different visual understanding of how a narrative is structured. Since narrative can be simple or complex, the ideation broke down the different parts so they could be rearranged into a visual narrative diagram that could be easily understood. This led to a better understanding of the parts, which led to a better understanding of the narrative as a whole.
The beginning of the computer stage of development consisted of a three-part structure diagram. The first stage displayed the three main parts of a narrative (beginning, middle, and end). The second stage consisted of sub-levels of a narrative. The third stage are the actual steps in which the narrative would be explored. After further examination, this diagram structure was determined to be too complex and the focus of the ideation switched to a more circular process.

During the ideation development, the label of the narrative diagram was changed to narrative structure. Visually, the narrative process moves in a circular motion and has eight parts. The main parts of this process are labeled in black circles (beginning, middle, and end). This version of the narrative diagram is a closer step toward the final diagram.
During the development of the thesis, various exercises were explored and evaluated. These exercises began with simple shapes, such as squares and circles. For the evaluation of sequence, a series of storyboards were explored using visual variables and the narrative of the nursery rhyme *Jack and Jill*. The evaluation of these exercises revealed that the connection of simple shapes and the *Jack and Jill* nursery rhyme were not strong enough to be fully understood.

Further ideation revealed that a simpler narrative, such as a sun rising and setting, would be a more efficient way to explore the visual element of sequence. Below are ideations of the sun narrative explored through the storyboard format. Both use the supporting visual variables of duration and transition in short and long lengths.
**Intermediate Evaluation**

**Motion Exercise**

The motion exercises were explored through a series of flip-book ideations. These exercises began with simple shapes, such as squares and circles. Much like the sequence evaluation, the motion evaluation revealed that the Jack and Jill nursery rhyme was too complex to visualize using a simple square.

Further ideation revealed that a simpler narrative, such as a ball bouncing would be a more efficient way to explore the visual element of motion. Below are ideations of the ball bouncing narrative explored through the flip-book format. Both use the supporting visual variable of pacing in fast and slow speeds.

**Pacing: Fast**

**Pacing: Slow**
Intermediate Evaluation

Narrative Exercise

The narrative Jack and Jill was explored through both the storyboard and flip-book format. The ideation used stick-figure drawings to communicate the narrative in each format. The evaluation revealed that narrative needs to follow a process of its own in order to be fully understood before exploring within a visual variable. Below are the series of ideations used in this stage of the evaluation.
Implementation

Teaching Guidebook

Through research, synthesis, and ideation, a teaching guidebook was developed to provide graphic design education with an organized set of definitions, principles and lessons to deliver the subject of narrative, sequence, and motion.

The teaching guidebook has two parts: a visual teaching process and a narrative structure. They both help define principles of narrative, sequence, and motion. The teaching guidebook also has a lesson schedule and terminology guide for sequence and motion.

Visual Teaching Process
This is a guide for the exploration of visual elements such as sequence and motion. It has a logical sequence of eight steps that represents the design process. It is expressed in a sequential diagram that moves clockwise, with each of these eight stages in focus for definition and exploration. Once one stage is finished, the next stage is examined (within a black rectangle). The structure allows the learning process to continue, never truly ending. When the cycle has been completed, it can repeated again. The visual teaching process is flexible, so it can be used to investigate almost any visual element (not just sequence and motion).

Narrative Structure
The narrative structure is the second stage (content) in the visual teaching process. It has a logical sequence of eight stages that represents narrative structure. These stages are expressed in a circular diagram that is explored in a clockwise motion. Each of these eight stages has its own focus for definition and exploration. This is where the narrative is chosen and further explored before being applied to a visual element (such as sequence or motion). Based on various storytelling structures studied across disciplines, a narrative structure was developed to help designers better understand the fundamental principles of a narrative. The information was synthesized into eight parts and then positioned into a circular diagram.
The following is a linear description of the eight parts of the visual teaching process:

1 **Objectives**
   Defining the objectives and determining the scope of the specific exercise.

2 **Content (Narrative Structure)**
   The narrative is chosen (story – what to convey) and the content is established.

3 **Format**
   Select/determine the format (medium, size, composition).
   The format is the vehicle in which the narrative will be explored.

4 **Variables**
   The supporting visual elements will function as variables of control for the chosen visual element being explored.

5 **Ideation**
   Generate solution possibilities. Multiple forms of the variables are applied to the chosen format.

6 **Evaluation (Refinement)**
   Evaluate solutions. Reviewing the content in progress to ensure that the objectives have been meet. The project is refined as necessary to satisfy these objectives.

7 **Results (What was learned)**
   Determine results. Through investigation and ideation, the fundamental principles of the visual element being explored will be discovered, understood, and learned.

8 **End (What follows next)**
   Bridge to the next problem. The next step in the learning process is determined.
Implementation

Visual Teaching Process

The final version takes direct elements used in the ideation stage of the thesis. The visual teaching process uses a black rectangle as the focal stage area. Using the same shape (rectangle, instead of a circle) provides a better connection between the active and non-active parts of the visual teaching process. The visual teaching process cycles through all the stages (1–8) until the visual element is fully examined. The reference key below the visual teaching process reinforces the difference between the focal stage area and reference stage area.

- **Focal Stage Area**: The stage in the process that is being isolated and focused on.
- **Reference Stage Area**: The non-active stage in the process that is not being isolated and focused on.
Implementation

Narrative Structure Stages

A narrative is a story or an account of a sequence of events in the order in which they happened. The common form of narration: novel, short story, fable, anecdote, and fairy tale. But there are also less familiar and factual instances of narration, such as the minutes of a meeting or police report. For the focus of all narratives is on the connection between successive events and actions.

The following is a linear description of the eight parts of the narrative structure:

1 Context
The setting, atmosphere, area, or conditions in which the story is set.

2 Beginning (Introduction of Subject)
The point in time or space at which something starts, comes into existence, or is first encountered. The beginning is where the audience is first introduced to the subject.

3 Catalyst
The point in the narrative where someone or something causes a change to occur, or brings about an event.

4 Turning Point
The point in the narrative where an incident marks the beginning of a new stage or a new development.

5 Middle
The point in the narrative between the early and late stages of development, where the audience evaluates what has taken place and what lies ahead.

6 Climax
The most important or highest point in narrative. Something can be revealed, a mystery can be solved, or a conflict can be resolved.

7 Closure (What was learned)
The point in which a sense of finality and coming to terms with an occurrence is experienced. Also, the audience learns the moral and/or meaning behind the narrative.

8 End (What follows next)
The end is also a new beginning. This is where the next step or a new narrative begins.
The final version of the narrative structure takes direct elements used in the ideation stage of the thesis. One of the major changes from the previous version was the addition of the context stage. The context stage allows the setting of the story to be established. The circular narrative structure can be applied to any narrative of choice and allows the narrative to work as a cycle. It has eight stages that represent the narrative structure. These stages are expressed in a circular diagram that is explored in a clockwise motion. Each of these eight stages has its own focus for definition and exploration.
Dissemination

Thesis Panel Exhibition

The thesis project was exhibited in a graduate thesis show open to the public as a work in progress in RIT's Bevier Gallery from March 12–25, 2004. The panels were developed to share the thesis project goals and findings from the research and analysis stages. The exhibit explained the thesis process and showed the development of the application.

Impact and Significance

Even though the content on the thesis panels was not the final version of information used in the thesis documentation, it was an important step in the development of this thesis project. It allowed the public to comment on the progress of the thesis, which permitted adjustments to be made for the best possible solution.
Dissemination

In addition to the project panels, a series of compositions with dots were organized in three rows and four columns accompanied by a pedestal with a questionnaire. The questionnaire asked which row represented rhythm, transition or duration. Much like Wertheimer’s group movement experiments (see research p.10), the questionnaire was used to gauge the general audience’s knowledge of sequence terminology.

The gray boxes represent the correct row in which the term was present. The results of the questionnaire showed that the majority of the audience knew which visual variables of sequence were represented in which row. It also showed that rhythm and duration were the most understood visual variables out of the three examined. This leads to the conclusion that the term transition may need more exploration in the sequence exercises than the other two visual elements.

At the bottom of the survey, the audience was asked for other comments or suggestions in response to the whole thesis exhibit. Such comments as “loved it—made me think,” “beautiful work... congratulations,” and “great work and presentation” were made. Even though the feedback was not as detailed as anticipated, the response was positive and very encouraging.

See Appendix C for Bevier Gallery Questionnaires
Dissemination

Future Distribution Plans

The most efficient way to make the teaching guidebook available to graphic design educators would be to create a document using a standard letter-sized page (8.5 x 11) in a PDF (portable document format) format and distribute the guidebook electronically. The PDF is the most commonly used format for transferring large numbers of text pages across platforms. The Acrobat Reader program, which is used to open PDF documents, is free through the Adobe Corporation and is standard on most computers.

The content of the teaching guidebook can be formatted into a Web site that can be easily accessed via the World Wide Web. This allows any person with Internet capability to access the information. This would also allow feedback from users, in the form of a message board on the Web site. The pages of the Web site could also be printed if desired.

Another way to disseminate this thesis content would be through the publication of a journal article, inclusion as a chapter or section within a publication, or as its own published book.
Retrospective Evaluation

**Self Evaluation**

The thesis project goals were vague at the beginning and needed to relate more to the graphic design discipline. At first the thesis was meant to help graphic designers better understand how to tell a visual story. Adjustments were made accordingly and a clearer focus was determined. The new focus was on giving design students a set of timeless skills for understanding imagery in motion.

The research process revealed that every discipline has its own narrative structure in which to tell a story. Studying these different structures led to a better understanding of how narrative structure works, which led to the development of the narrative structure diagram.

Ideation provided an opportunity for exploring how to better understand a visual element. Many different diagrams were considered as a visual teaching process developed. The teaching process worked in a circular manner and led to a more process-oriented understanding of the parts.

Discussion with professors outside RIT provided insight into the usefulness of the thesis application (teaching guidebook). Many said that a more in-depth study of principles on imagery in motion was needed for the graphic design discipline and that this thesis was a good start.

**Outside Evaluation**

The teaching guidebook was distributed to various professors at RIT (different departments) and to outside university professors. Attached to the teaching guidebook was a questionnaire. The questionnaire asked specific questions about the teaching guidebooks objectives, visual diagrams and overall efficiency. The outside evaluators were given a two-week deadline. Unfortunately, response was limited. To counter the low return rate, key individuals were contacted and short discussions were conducted to replace the completed questionnaire.

Generally, it was thought that the teaching guidebook would be a positive addition to graphic design education. The objectives and goals and narrative process were thought to be very clear. One area of concern was the visual teaching structure; it was suggested that the arrows made it look like the diagram was moving backwards. To correct that, each stage was numbered and examples of the stages in progression were displayed to the left of the structure. Overall, the evaluators thought the project planning and analysis was done in a well thoughtful, professional manner.

Most of the feedback suggested the teaching guide was most appropriate for junior level design curriculum. It was discussed that the best way to distribute the teaching guidebook to graphic design educators was to use standard letter-sized pages in a PDF format, to be sent electronically.

The feedback from educators who would be likely candidates to use the teaching guidebook was a necessary part in the outside evaluation of this thesis project. Short-term changes will be made accordingly and long-term changes will be noted for further versions of the teaching guidebook.
Conclusion

What was Learned

At first, this thesis set out to understand the basic principles of sequential visual storytelling. The intention was to develop a resource that graphic designers could use to better understand how to develop a visual story. Over time the thesis evolved and the direction changed. The new direction focused on giving designers a set of timeless principles that they could use in the ever changing field of imagery in motion.

With emerging technologies, graphic designers are being asked to explore new variables, such as working with a narrative, dealing with sequence, and using motion in their designs. This thesis project focuses on developing an organized set of exercises to provide design educators with a teaching guidebook to teach narrative, sequence, and motion in an intelligent manner. The resulting teaching guidebook was developed to aid in the further understanding of this subject.

The teaching guidebook is not the final answer on the subject of understanding narrative, sequence and motion. The teaching guidebook collects existing theories and principles and examines their connection to one another. It is meant to be another aid in the graphic design education tool set that could be used in the educational realm. The guidebook has a series of visual diagrams and exercises that give structure from which to base the learning process. At the same time, the guidebook has enough flexibility for the instructor to make adjustments for different levels of classes as needed.

In-depth insight into narrative, sequence and motion was gained through the process of the thesis that was not known before. Understanding different discipline's theories on narrative and how they tell a story was not only educational, but also very interesting. Research into sequence and motion revealed an in-depth understanding of each element and also the relationship between the two.

This thesis project allowed a thorough exploration into the development of a teaching resource that would benefit the graphic design discipline. The application of a teaching guidebook provides a tangible set of structures and exercises that can function as a resource. The development of the thesis project can be a starting point for the future exploration of the fundamental principles of narrative, sequence, and motion in the field of graphic design education.
Glossary of Terms

Sequence Terminology

Sequence
Sequence is a series of related stationary (static) images used, one after another, in a particular order to communicate the passage of time, the occurrence of change, or the implied action of motion. These static images arranged one after another (top, bottom, left, or right) are viewed either in a linear or a non-linear manner.

In linear viewing, the audience observes the content from beginning to end, or backwards, from end to beginning. A non-linear sequence, the audience sees the content simultaneously. Non-linear perception allows the audience to interpret the content many different ways.

Duration
A period of time in which something lasts or exists.

Pace
The rate or speed at which things happen or develop; such as the rate of rhythm.

Rhythm
A recurrence of one or more compositional elements in a regular, harmonious pattern.

Alternating Rhythm
A kind of rhythm with motifs alternating consistently with one another to produce a regular (and anticipated) sequence.

Progressive Rhythm
This kind of rhythm is most often achieved with a progressive variation of the size of a shape, color, value, or texture.

Additive Sequence
Composed of two- or three-dimensional images that progressively develop additional visual characteristics.

Subtractive Sequence
Composed of two- or three-dimensional imagery that progressively deletes portions of the original image.

Transition
A period in which something undergoes a change and passes from one state, stage, form, or activity to another.
## Glossary of Terms

### Motion Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Motion</strong></td>
<td>Motion is the arrangement of content in a single frame format that is shown in rapid progression to give the human eye the perception of kinetic movement. This way of observing content is sometimes referred to as persistence of vision. Motion can only be perceived in a linear fashion, meaning the audience can view the content straight from beginning to end, or backwards from end to beginning.</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
<td>The way in which somebody or something moves, points, or faces. This can either be horizontal, vertical, diagonal, circular, advancing, or receding.</td>
</tr>
<tr>
<td><strong>Ease In and Ease Out</strong></td>
<td>The steady transition from a static position to constant speed. The adjustment of speed at the beginning and end of movement to enhance the reality of the movement, to create a particular effect, or to allow a smoother motion for the path of an object.</td>
</tr>
<tr>
<td><strong>Kinetics</strong></td>
<td>Involving or relating to energy and forces that produce motion.</td>
</tr>
<tr>
<td><strong>Implied Motion</strong></td>
<td>Motion can be suggested in a single still image by capturing the action at the precise moment the gesture and position of the entire object lies between stillness and movement.</td>
</tr>
<tr>
<td><strong>Anticipated Movement</strong></td>
<td>The unconscious reaction within our own bodies to the actions we observe.</td>
</tr>
<tr>
<td><strong>Orientation</strong></td>
<td>The position or direction of something in relation to other fixed elements.</td>
</tr>
<tr>
<td><strong>Proximity</strong></td>
<td>The spatial arrangement of objects and their relative distance to one another.</td>
</tr>
<tr>
<td><strong>Rotation</strong></td>
<td>A single revolution of something around an axis or a fixed point.</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>The rate of movement, irrespective of direction. The fast or slow rate of distance covered in time.</td>
</tr>
<tr>
<td><strong>Temporal Proximity</strong></td>
<td>The arrangement of events; things that occur close together in time will tend to be grouped together.</td>
</tr>
</tbody>
</table>
Bibliography

**Narrative (Storytelling)**

The text is about the basic anatomy of sequential art, the fundamentals of crafting stories, and how the medium works as a means of expression — a literary form that uses the arrangement of images and words to narrate a story or dramatize an idea.

The book has easily understood guidelines to make film-writing accessible to novices and to help practiced writers improve their scripts.

The text is based on the principle that writing is a purposeful process-involving discovery, precision in thought and language, and sensitivity to audience. The handbook offers succinct guidance in the processes of writing and in the features of edited American English.

This text is a thesis done by a graduate graphic design student at Rochester Institute of Technology. The thesis study researched the elements and concepts from visual storytelling that could be applied toward graphic design problem solving.

**Rhetoric/Terminology**

The text is an academic piece on the work of famed Russian director Sergei Eisenstein, whose silent film Battleship Potemkin (1925) is considered by many to be the best film ever made. The book's title may be taken in its broadest sense, for it examines not only Eisenstein's movies but also his work as theorist and teacher, as well as his place in contemporary cinematic thought.

A comic book about comic books. Understanding Comics explains the details of how comics work: how they're composed, read and understood and gets to the heart of how we deal with visual languages in general.

Rochester Institute of Technology graduate graphic design students developed a book on the collective writings (graphic design education) of Rob Roy Kelly.

Assumed in the text is the combined knowledge of more than a dozen of the industry's top storytellers, covering all aspects of the design of comics, from pacing, story flow, and word balloon placement, to using color to convey emotion, spotting blacks, and how gutters between panels affect the story.
Bibliography

| **Motion/Sequence** | **Furniss, Maureen. Art in Motion: Animation Aesthetics.** Sydney, Australia. John Libbey & Company, 2000. This text overviews the relationship between animation studies and media studies on a larger scale, then focuses on specific aesthetic issues concerning two-dimensional animation, limited and full animation and new technologies. |
| | **Cantine, John. Shot By Shot: A Practical Guide to Film Making.** Pittsburgh, PA. Pittsburgh Filmmakers, 1995. This book is a clear, easy-to-read introductory text designed for the beginning filmmaker working in either the super-8 or 16mm format. The book deals with the basic language, processes and techniques of filmmaking. |
| | **Woolman, Matt. Moving Type: Designing for Time and Space.** New York, NY. Rizzoli Publication, 1999. Moving Type provides a technical and aesthetic investigation of the processes inherent to 2D and 3D motion graphics for digital media, from inspiration to process to delivery. This text provides a thorough explanation of the theories behind why type and graphics should move in certain ways. |
| | **Woolman, Matt. Type in Motion: Innovation in Digital Graphics.** New York, NY. Rizzoli Publication, 1999. This text features projects in video, film, mixed media, digital and event print that are thematically grouped into five sections by the way the kinetic type is used: its precursors; its narrative function; its message potential; its plastic form; and its possibilities for ambient, interactive environments. |
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Visual Perception

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Arnheim, Rudolf. Art and Visual Perception. LA. University of California Press, 1966. This book is about the relation between psychology and art. Its value will be immediately recognized by artists, as well as by those who are interested in how the mind makes sense of the visual world.


Wallschlaeger, Charles. Basic Visual Concepts and Principles. McGraw Hill, 1992. This book is a resource for art teachers seeking project ideas for students in traditional art/design media, also provides a design refresher for teachers with students in digital media, as the principles apply to web, CD-ROM and new media design.

Zakia, Richard. Perception and Imaging. Woburn, MA. Butterworth – Heinemann, 2002. Provides an introduction to what is known about the visual process as it applies directly to looking at pictures. It gives considerable attention to color, including the different ways it can be measured and specified, color perception, defective color vision, synesthesia, and metamerism.

Appendices

Appendix A – Teaching Guidebook
Through research, synthesis, and ideation, a teaching guidebook was developed to provide graphic design education with an organized set of definitions, principles and lessons to deliver the subject of narrative, sequence, and motion. The teaching guidebook has two parts: a visual teaching process and a narrative structure. They both help define principles of narrative, sequence, and motion. The teaching guidebook also has a lesson schedule and terminology guide for sequence and motion.

Appendix B – External Audit Interviews
Various professors outside RIT were interviewed to solicit their views, experience, concerns, and understanding on the subject of narrative, sequence, and motion in the educational field of graphic design. These are the transcribed notes from those interviews.

Appendix C – Bevier Gallery Questionnaire
The thesis project was exhibited in a graduate thesis show open to the public as a work in progress in RIT’s Bevier Gallery from March 12–25, 2004. The panels were developed to share the thesis project goals and findings from the research and analysis stages. In addition to the project panels, were a series of compositions with dots organized in three rows and four columns accompanied by a pedestal with a questionnaire. The questionnaire asked which row represented rhythm, transition or duration. The questionnaire was used to gauge the general audience’s knowledge of sequence terminology and to response to the whole thesis exhibit.

Appendix D – Thesis Planning Document
The planning document produced during the Thesis Planning course during the fall 2003 quarter has been included to show the initial stages of this thesis project Fundamental Principles of Narrative, Sequence, and Motion.
Fundamental Principles of Narrative, Sequence, and Motion

Graphic Design Teaching Guidebook
Design education is always growing and ever changing. Design educators are being asked to think about human/computer interaction, strategic planning, and new forms of media. With the evolution of the Internet and expansion of technology, designers have many new tools to use and, more importantly, responsibilities to address.

In response to the growing need for the expansion of graphic design skill sets, this teaching guidebook was developed. Its purpose is to provide a structured approach to guide the exploration of narrative, sequence, and motion. Through this study students will learn fundamental principles that underlie the visual communication of stories in sequence and in motion.

This teaching guidebook is not intended to be the definitive word on teaching narrative, sequence, and motion. It is simply a guide to help design education continue to further define these relatively new areas. Much like the way static print design theories were developed over a long period of time, the teaching guidebook will help break new ground in developing principles in the area of narrative, sequence, and motion.
# Introduction

## Teaching Guidebook Goals

While various resources exist on the subject of narrative, sequence, and motion across different disciplines, there is a need for a single resource for graphic design. The function of this teaching guidebook is to give design educators a precursory to time-based imagery classes.

## Objectives

### Intelligent Vocabulary

To better understand basic terminology that defines and explains the principles and function of narrative, sequence, and motion. Designers will have a more informed basis upon which to express creative points of view when dealing with imagery in motion in academic and professional settings.

### Basics at the New Level

To better understand visual variables in relation to narrative, sequence, and motion. Designers will explore visual elements that are used in traditional print design formats in new interactive media formats.

### Principles over Programs

Because of emerging technologies, designers are being asked to participate in more projects that involve narrative, sequence, and motion. Designers will need a fundamental knowledge base that they will carry with them throughout the ever-changing evolution of software and hardware.
# Schedule

## Teaching Guide: Weekly Outline
This weekly schedule shows how the teaching guide can be used in both semester and quarterly systems.

### Semester Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction of history, objectives and goals of class</td>
</tr>
<tr>
<td>2</td>
<td>Overview of narrative process, narrative demonstration, and homework assigned</td>
</tr>
<tr>
<td>3</td>
<td>Review of narrative homework and introduction to visual teaching module</td>
</tr>
<tr>
<td>4</td>
<td>Sequence demonstration, class assignment, and homework assigned</td>
</tr>
<tr>
<td>5</td>
<td>Individual appointment review and in-class work session</td>
</tr>
<tr>
<td>6</td>
<td>Review of sequence exercise</td>
</tr>
<tr>
<td>7</td>
<td>Motion demonstration, class assignment, and homework assigned</td>
</tr>
<tr>
<td>8</td>
<td>Individual appointment review and in-class work session</td>
</tr>
<tr>
<td>9</td>
<td>Review of motion exercise</td>
</tr>
<tr>
<td>10</td>
<td>Final project assigned (either a new visual element or a more complex narrative)</td>
</tr>
<tr>
<td>11</td>
<td>Individual appointment review and in-class work session</td>
</tr>
<tr>
<td>12</td>
<td>Full class review of final project in progress and class work session</td>
</tr>
<tr>
<td>13</td>
<td>Individual appointment review and in-class work session</td>
</tr>
<tr>
<td>14</td>
<td>Class review of the final project</td>
</tr>
</tbody>
</table>

### Quarterly Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction of history, objectives and goals of class</td>
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<td>Review of sequence exercise</td>
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<tr>
<td>6</td>
<td>Motion demonstration, class assignment, and homework assigned</td>
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<tr>
<td>10</td>
<td>Class review of the final project</td>
</tr>
</tbody>
</table>
Visual Teaching Process

Understanding the Parts

The visual teaching process is a guide for the exploration of sequence and motion. It is essential to understanding the individual eight stages before contemplating the visual teaching process as a whole.

1 Objectives (Visual Element)
This is the predetermined place in the visual teaching structure where the overall goals are determined.

2 Content (Narrative Process)
The content stage is where the narrative of choice is inserted into the narrative process. The narrative process must be worked through before the visual teaching structure can move to the next stage.

3 Format
Format is the vehicle in which the narrative will be explored. In what medium will the narrative be investigated? In this stage the instructor will determine which material, dimension, and/or means will be applied for the format.

4 Variables
Which supporting visual elements will be introduced and applied to the chosen format? These elements will function as variables of control.

5 Ideation
Multiple forms of the variables are applied to the chosen format. This is the primary area where the project is worked through.

6 Evaluation (Refinement)
Evaluation reviewing the content in progress to ensure that the objectives have been meet. The project is refined as necessary to satisfy these objectives.

7 Results (What was learned)
Through investigation and ideation, the fundamental principles will be discovered, understood, and learned.

8 End (What follows next)
The very end is also a new beginning. This is where the next step of the learning process begins.

---

The process is of greater significance than the product.

Rob Roy Kelly
Visual Teaching Process

Visual Flexibility

Example of the first three cycles:

The final version takes direct elements used in the ideation stage of the thesis. The visual teaching process uses a black square as the focal stage area. Using the same shape (rectangle, instead of a circle) provides a better connection between the active and non-active parts of the visual teaching process. The visual teaching process cycles through all the stages (1-8) until the visual element is fully examined. The reference key below the visual teaching process reinforces the difference between the focal stage area and reference stage area.

Visual Element Relationships

The visual elements are related to each other in a variety of ways. It is important to understand that when investigating one visual element, it may be supported by other elements. For example, sequence is often supported by; transition, duration, and rhythm. But the term rhythm can be further distilled into alternating rhythm, progressive rhythm, etc. Even the term sequence can be used as a supporting element of rhythm, if need be. This is a very important relationship to understand before exploring a visual element within the visual teaching process.

2004 James A. Pannafino
Narrative Structure

Overview

The narrative structure (content) is the second stage in the visual teaching process. It is where the narrative is chosen and further explored before being applied to a visual element (such as sequence or motion). Based on various storytelling structures studied across disciplines, a narrative structure was developed to help designers better understand the fundamental principles of a narrative. The information was synthesized into eight parts and then positioned in a circular diagram.

Understanding the Parts

A narrative is a story or an account of a sequence of events in the order in which they happened. The common form of narration: novel, short story, fable, anecdote, and fairy tale. But there are also less familiar and factual instances of narration, such as the minutes of a meeting or police report. For the focus of all narratives is on the connection between successive events and actions.

The following is a linear description of the eight parts of the narrative structure:

1 Objectives
Defining the objectives and determining the scope of the specific exercise.

2 Content (Narrative Structure)
The narrative is chosen (story – what to convey) and the content is established.

3 Format
Select/determine the format (medium, size, composition). The format is the vehicle in which the narrative will be explored.

4 Variables
The supporting visual elements will function as variables of control for the chosen visual element being explored.

5 Ideation
Generate solution possibilities. Multiple forms of the variables are applied to the chosen format.

6 Evaluation (Refinement)
Evaluation solutions. Reviewing the content in progress to ensure that the objectives have been meet. The project is refined as necessary to satisfy these objectives.

7 Results (What was learned)
Determine results. Through investigation and ideation, the fundamental principles of the visual element being explored will be discovered, understood, and learned.

8 End (What follows next)
Bridge to the next problem. The next step in the learning process is determined.

One eye sees and the other feels.

Paul Klee
Circular Process

Once the eight stages of the narrative structure are understood, the circular structure can be applied to the narrative of choice. The narrative structure begins with establishing a context and moves through the eight part cycle until it is complete. At this point, the cycle can repeat with the next step or what follows next.

1 Context

2 Beginning (Intro of subject)

3 Catalyst

4 Turning Point

5 Middle

6 Climax

7 Closure (What was learned)

8 End (What follows next)
Before the visual teaching process is explored, it is important that the narrative structure is first understood. Any narrative can be applied to the narrative structure, but it is suggested that educators begin with a narrative with which they are familiar—one that uses all parts of the narrative structure while at the same time not being too complex.

A good example of a narrative to start with is the nursery rhyme “Jack and Jill,” which uses all eight stages of the narrative structure.

The following example shows how each stage applies to the nursery rhyme. Each stage being examined is emphasized in an enlarged black circle. To the right of the diagram narrative structure, a stick-figure drawing shows the appropriate stage. Below each picture is either a line from the nursery rhyme (italics) or a paraphrased statement of what is happening in the narrative (non-italics).
Narrative Structure Applied

Catalyst

Turning Point

Middle

Jack fell down and broke his crown, and Jill came tumbling after.

Jack lying on the ground after his fall.
Narrative Structure Applied

Climax

Up Jack got and home he ran, as fast as he could caper.

Closure (What was learned)

There his mother bound his head, with vinegar and brown paper.

End (What follows next)

The story could continue with Jack and Jill trying to go up the hill again or possibly some other scenario.
Narrative Structure Applied

Jack and Jill Narrative

The Jack and Jill nursery rhyme is a perfect example of a simple story fitting into the narrative structure. Students may explore this, or any other narrative. Some simpler stories may use only portions of the narrative structure, but the narrative of choice is dependent on the level of complexity the students are best able to comprehend.

It is important to understand that the Jack and Jill narrative is just an example, and that other narratives should also be explored. Students should not be expected to explain the narrative in detail, only to show the general idea of the narrative. Graphic design students are not expected to be storyboard artists, but they should be able to visualize what is happening in the featured stages of the narrative structure through simple drawings.

The previous Jack and Jill example is simply one application of the narrative structure. It is up to the instructor to determine which format students should use to explore the narrative structure. As shown in the example, students can position the narrative structure sequence beside the visual drawing or let the visual stand alone.

Narrative Level of Complexity

Each narrative has a different level of complexity. Some are simple stories with straight-forward messages, and others are more complex, with developed characters and deeper meanings. Students are advised to explore a simple narrative first, then work up to one that is more complex.

Simple Narrative

Most commonly uses only portions of the narrative structure sequence

Example: A Sun Rising and Sun Setting

\[
\text{\includegraphics[width=0.5\textwidth]{sunset}}
\]

Short/Intermediate Narrative

Uses the entire narrative structure sequence in a very straight-forward manner

Example: The nursery rhyme Jack and Jill

\[
\text{\includegraphics[width=0.5\textwidth]{jack-and-jill}}
\]

Long/Complex Narrative

Uses the entire narrative structure sequence in great length or in a complex fashion

Example: Anatomy of a Murder: Saul Bass

\[
\text{\includegraphics[width=0.5\textwidth]{anatomy}}
\]
Sequence

For graphic designers, time is now being seen as another visual element. Every person views time differently. It can be perceived in two ways: as sequence and as motion. The function of sequence is defined within the context of this teaching guidebook. Below is a list of visual elements terms that are related to sequence.

**Sequence Defined**

Sequence is a series of related stationary (static) images used, one after another, in a particular order to communicate the passage of time, the occurrence of change, or the implied action of motion. These static images arranged one after another (top, bottom, left, or right) are viewed either in a linear or a non-linear manner.

In linear viewing, the audience observes the content from beginning to end, or backwards, from end to beginning. A non-linear sequence, the audience sees the content simultaneously. Non-linear perception allows the audience to interpret the content many different ways.

**Sequence Terminology**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>A period of time in which something lasts or exists.</td>
</tr>
<tr>
<td>Pace</td>
<td>The rate or speed at which things happen or develop; such as the rate of rhythm.</td>
</tr>
<tr>
<td>Rhythm</td>
<td>A recurrence of one or more compositional elements in a regular, harmonious pattern.</td>
</tr>
<tr>
<td>Alternating Rhythm</td>
<td>A kind of rhythm with motifs alternating consistently with one another to produce a regular (and anticipated) sequence.</td>
</tr>
<tr>
<td>Progressive Rhythm</td>
<td>This kind of rhythm is most often achieved with a progressive variation of the size of a shape, color, value, or texture.</td>
</tr>
<tr>
<td>Additive Sequence</td>
<td>Composed of two- or three-dimensional images that progressively develop additional visual characteristics.</td>
</tr>
<tr>
<td>Subtractive Sequence</td>
<td>Composed of two- or three-dimensional imagery that progressively deletes portions of the original image.</td>
</tr>
<tr>
<td>Transition</td>
<td>A period in which something undergoes a change and passes from one state, stage, form, or activity to another.</td>
</tr>
</tbody>
</table>
Motion

The second way in which time can be perceived as a visual element in graphic design is through motion. The function of motion is defined within the context of this teaching guidebook. Below is a list of visual element terms that are related to within motion.

Motion Defined

Motion
Motion is the arrangement of content in a single frame format that is shown in rapid progression to give the human eye the perception of kinetic movement. This way of observing content is sometimes referred to as persistence of vision. Motion can only be perceived in a linear fashion, meaning the audience can view the content straight from beginning to end, or backwards from end to beginning.

Motion Terminology

Direction
The way in which somebody or something moves, points, or faces. This can either be horizontal, vertical, diagonal, circular, advancing, or receding.

Ease In and Ease Out
The steady transition from a static position to constant speed. The adjustment of speed at the beginning and end of movement to enhance the reality of the movement, to create a particular effect, or to allow a smoother motion for the path of an object.

Kinetics
Involving or relating to energy and forces that produce motion.

Implied Motion
Motion can be suggested in a single still image by capturing the action at the precise moment the gesture and position of the entire object lies between stillness and movement.

Anticipated Movement
The unconscious reaction within our own bodies to the actions we observe.

Orientation
The position or direction of something in relation to other fixed elements.

Proximity
The spatial arrangement of objects and their relative distance to one another.

Rotation
A single revolution of something around an axis or a fixed point.

Speed
The rate of movement, irrespective of direction. The fast or slow rate of distance covered in time.

Temporal Proximity
The arrangement of events; things that occur close together in time will tend to be grouped together.
Persistence of Vision

The moving pictures of film do not actually move. All one has to do is look at a piece of film to be reminded that, in fact, the medium is made of a series of still images. It is the human eye and brain that make movies move. More accurately, the illusion of movement on film or any other kind of media is created by a physiological phenomenon called the *persistence of vision*. When a single image is exposed to the eye, the brain retains that image longer than it is actually registered on the retina. So when a series of images is flashed in rapid order, as in a movie projector, and the images themselves are only slightly changed one after another, the effect is that of continuous motion.

This diagram shows how sequence becomes motion through the *persistence of vision*.

![Diagram showing the relationship between sequence, persistence of vision, and motion]

Linear Sequence
The audience can view content straight from beginning to end, or backwards from end to beginning.

Single Frame
The arrangement of content in a single frame format shown in a rapid progression to fool the human eye into thinking it is perceiving kinetic movement.

*To engage a sequence we keep in mind the photographs on either side of the one in our eye.*

Minor White

2004 James A. Pannafino
Persistence of Vision

Non-Linear Sequence
The audience can view content simultaneously. Non-linear perception allows the audience to interpret content in a variety of ways.

Linear Motion
Motion can only be perceived in a linear fashion. The audience can view content straight from beginning to end, or backwards from end to beginning.

A basic problem in art is how to project action upon an immobile, flat surface.

Rudolf Arnheim
The primary goal of the project is to identify and explain the principles that govern the decision-making (in this case, sequence) when it is applied to a narrative.

The objectives can be written, verbally communicated, or both, and must be understood by the students and the instructor.

It is very important for the instructor to have a clear understanding of sequence and its supporting visual elements. The visual teaching process is a tool to direct students, not a resource to educate instructors.

Which narrative is going to be introduced? Is it going to be a simple one or something complex for more advanced students? It is suggested to begin with a simple narrative and advance to a more complex one. This may vary depending on how familiar the students are with the narrative.

Example
A simple narrative is a sun rising and setting.

As you can see to the right, the narrative of a sun rising and setting uses only five parts of the narrative process (the large black circles).

It is up to the students to determine how many parts of the narrative structure to use and why.
Visual Teaching Process Applied: Sequence

Format

Once the students choose a narrative, which format is the visual element going to be explored? It has to be something that represents the basic function of sequence. The instructor should choose an appropriate format in which the students will work.

Example

A storyboard (sequence of empty squares on a paper) could be used so the narrative can be explored with the chosen visual element.

Example

Example of an blank storyboard

Example of a storyboard with content. The circles represent the sun.

Variables

Before the format can be explored, the variables (or control) must first be chosen. The variables are other supporting visual elements that make up the visual element of choice.

Example

Sequence could use transition and duration as supporting visual elements for the sunrise/sunset narrative in the storyboard format.
Visual Teaching Process Applied: Sequence

**Ideation**

Through ideation of various situations, effective communication of the visual element can be explored. The idea is that the better solutions are in the middle of the spectrum of possible solutions. Thorough exploration will lead to a deeper understanding of the principles.

**Example**

Below are ideations of the sun rise/set narrative explored through the storyboard format. Both use duration and transition in long and short lengths.

**Duration:** Short

**Transition:** Short

**Duration:** Long

**Transition:** Long

**Evaluation**

It is important to evaluate progress, reference the objectives, and make sure the parameters of the teaching structure are accurate.

**Example**

The storyboard format may need to be condensed or expanded, or perhaps more visual variables could be expanded upon.

This is a decision for instructor and students to determine after reviewing the progress of the ideation.
**Visual Teaching Process Applied: Sequence**

**Results**
What was learned

Through exploration, students will learn the principles of sequence. They will gain a better understanding of the basic terminology and intelligent use of variables that support the visual element.

**Example**
There will be more control over the process of developing anything in graphic design using sequence as a visual element. Students can write a formal report or there can be a class discussion. It is up to the instructor to choose how to engage students and evaluate the results.

**End**
What follows next

What comes next? Different options are available following this learning process.

**Example**
Another visual element can be applied to the visual teaching process and the learning process can continue.

A different narrative can be applied to the same teaching process using the same visual element (sequence).
Visual Teaching Process Applied: Motion

The primary goal of the project is to identify and explain the principles that govern the decision-making (in this case, motion) when it is applied to a narrative.

The objectives can be written, verbally communicated, or both, and must be understood by the students and the instructor.

It is very important for the instructor to have a clear understanding of motion and its supporting visual elements. The visual teaching process is a tool to direct students, not a resource to educate instructors.

Which narrative is going to be introduced? Is it going to be a simple one or something complex for more advanced students? It is suggested to begin with a simple narrative and advance to a more complex one. This may vary depending on how familiar the students are with the narrative.

As you can see at the right, the narrative of a ball bouncing only uses five parts of the narrative process (the large black circles).

It is up to the students to determine how many parts of the narrative process to use and why.
Once the students choose a narrative, which format is the visual element going to be explored? It has to be something that represents the basic function of sequence. The instructor should choose an appropriate format in which the students will work.

Example
A flip-book (a pad of paper small enough to fit in the palm of your hand) could be used so the narrative can be explored with the chosen visual element.

Variables
Before the format can be explored, the variables (or control) must first be chosen. The variables are supporting visual elements that make up the visual element of choice.

Example
Motion can use pacing (both fast and slow) as a supporting visual element for the ball bouncing narrative in the flip-book format.
Visual Teaching Process Applied: Motion

**Ideation**

Through ideation of various situations, effective communication of the visual element can be explored. The idea is that the better solutions are in the middle of the spectrum of possible solutions. Thorough exploration will lead to a deeper understanding of the principles.

**Example**

Below are ideations of the bouncing ball narrative explored through the flip book format. Pacing is illustrated/shown at fast and slow speeds.

**Pacing: Fast**

**Pacing: Slow**

**Evaluation**

It is important to evaluate progress, reference the objectives, and make sure the parameters of the teaching structure are accurate.

**Example**

The storyboard format may need to be condensed or expanded, or perhaps more visual variables could be expanded upon.

This is a decision for instructor and students to determine after reviewing the progress of the ideation.
Visual Teaching Process Applied: Motion

Results
What was learned

Through exploration, students will learn the principles of sequence. They will gain a better understanding of the basic terminology and intelligent use of variables that support the visual element.

Example
There will be more control over the process of developing anything in graphic design using sequence as a visual element. Students can write a formal report or there can be a class discussion. It is up to the instructor to choose how to engage students and evaluate the results.

End
What follows next

What comes next? Different options are available following this learning process.

Example
Another visual element can be applied to the visual teaching process and the learning process can continue.

A different narrative can be applied to the same teaching process using the same visual element (motion).
Appendix B

External Audit Interviews

Tony Brock
Associate Professor, North Carolina State University

What do you teach your students?

What stage in their college career do students learn about motion design?
There are two required classes that cover motion design: the first is Imaging 2 (second semester sophomore); the second Image 3 (first semester junior).
Neither class is strictly motion-oriented. Imaging 4 is an elective (second semester juniors, seniors, graduate) that has been taught entirely as motion-based design have a few of our upper-level studio courses (6 credits).

What are your classes called?
Imaging 2 deals with constructed image (montage, collage) within a series or sequence. Students begin to consider transition and narrative constructs.
There is an Intro to After Effects and multiple exercises are conducted.

Image 3 builds on Image II with multiple duration works, inclusion of sound, and an intro to hypertextual environments. Distinctions and similarities between character animation, video/film, and motion graphic design are discussed.

Image 4 considers the range and synthesis of sound with moving image, applied uses / archetypes, theoretical influences, and advanced production techniques.

When I teach these courses, I include discussion of mapping time in scores and the fusion of traditional story boarding with diagramming for continuous transition and complex graphic choreography. Texts change depending on semester, but most faculty require McCloud’s Understanding Comics.

Are there any handouts I may be able to have?
I’ve moved away from any handouts – it is all online in course lockers depending on when I teach it. I will try to pull something into another format for you. There are two other faculty at NC State that teach motion – their materials may be in print form.

Michael Worthington
Associate Professor, California Institute of the Arts

What do you teach your students related to my thesis?
They learn the subjects of your thesis (both in print and motion). Specifically, in motion classes that are structured to be small projects (or modules) focussing on isolated topics.

What stage in their college career do they learn about motion design? bfa2

What are your classes called?
Beginning Motion Graphics
Advanced Motion Graphics

Are there any handouts I may be able to have?
There are no handouts.
Appendix B

External Audit Interviews

Dan Boyarski
Professor/Chair School of Design, Carnegie Mellon University

What classes do you teach graphic designers about narrative, sequence and motion?
Dynamic Typography: sophomore level
Time, Motion and Communication: senior and graduate level students

What do the students learn?
Time is seen as another design element. Time is something that can be added on with other elements such as pacing, movement and XY space.

Do you think a class that taught principles without animation programs would be beneficial?
Yes. Current classes are begun with a short flip-book exercise to warm up the students to working with speed, motion and pacing.

Matt Woolman
Associate Professor/Acting Chair School of Design, Virginia Commonwealth University

What classes do you teach graphic designers about narrative, sequence and motion?
Publication Design (sequence design): junior level
Typography (motion): sophomore level.
Currently developing new sequence design courses

What do the students learn?
Motion graphics, sequence translation, form, and time.

Do you think a class that taught principles without animation programs would be beneficial?
Yes. Storyboarding, working with hands can all be use before the students start to use the program. But the programs cannot be taken away, they only can be delayed.
Appendix C

Bevier Gallery Questionnaires
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☐ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row
☐ Middle Row
☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row
☐ Middle Row
☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row
☐ Middle Row
☐ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☐ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of **Transition**.

☐ Top Row  ☑ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition **Rhythm**.

☐ Top Row  ☑ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of **Duration**.

☐ Top Row  ☐ Middle Row  ☑ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

[Handwritten text: Beautiful]
James Pannafino

Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

[ ] Student  [ ] Faculty  [ ] Other

Top Row

Middle Row

Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

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[ ] Middle Row
[ ] Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

[ ] Top Row
[ ] Middle Row
[ ] Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

[ ] Top Row
[ ] Middle Row
[ ] Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

I never thought I'd see a thesis exhibition involving motion, sequence, and narrative. I enjoy the study you did and hope you have success in the future.
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☑ Student □ Faculty □ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☑ Top Row
□ Middle Row
□ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☑ Top Row
□ Middle Row
□ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

□ Top Row
☑ Middle Row
□ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Very interesting, definitely "A"
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☑ Student  ☐ Faculty  ☐ Other

Top Row
Middle Row
Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row
☐ Middle Row
☑ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row
☐ Middle Row
☑ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☑ Top Row
☐ Middle Row
☐ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Excellent work dude
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☑ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row  ☑ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row  ☐ Middle Row  ☑ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row  ☐ Middle Row  ☑ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Overly interessed
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  X Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row  X Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

X Top Row  ☐ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row  ☐ Middle Row  X Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Very nicely done. Thanks for sharing your work.
Thesis Questionnaire
Fundamental Principles of Motion, Sequence and Narrative

You are a:
☑ Student  ☐ Faculty  ☐ Other

☐ Top Row
☐ Middle Row
☒ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of **Transition**.

☐ Top Row
☐ Middle Row
☒ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition **Rhythm**.

☐ Top Row
☐ Middle Row
☒ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of **Duration**.

☐ Top Row
☒ Middle Row
☐ Bottom Row

Do you have any comments or suggestions in response to my **whole** thesis exhibit?

Yes, I found a deeper understanding after your "Jack & Jill" model.

This questionnaire also helped me thoroughly understand your motives.

---

good job!"
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☑ Student ☐ Faculty ☐ Other

☐ Top Row
☒ Middle Row
☐ Bottom Row

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From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row
☐ Middle Row
☒ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Yes, I found a deeper understanding after your "Jack & Jill" model.

This questionnaire also helped me thoroughly understand your motives.

Well done!
Thesis Questionnaire
Fundamental Principles of Motion, Sequence and Narrative

You are a:
☐ Student  ☐ Faculty  ☐ Other

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

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From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

---

Boring but smart and hard to be both interesting and intelligent.
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☐ Other

Top Row

Middle Row

Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Great Work and presentation
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☑ Other

☐ Top Row
☐ Middle Row
☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

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☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of transition Rhythm.

☐ Top Row
☑ Middle Row
☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row
☐ Middle Row
☑ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

beautiful work... congratulations!
James Pannafino

Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are:

☐ Student  ☐ Faculty  ☐ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

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☐ Top Row  ☐ Middle Row  ☐ Bottom Row

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Duration.

☐ Top Row  ☐ Middle Row  ☐ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

[Signature]

[Handwritten note: 'you could do better']
Thesis Questionnaire

Fundamental Principles of Motion, Sequence and Narrative

You are a:

☐ Student  ☐ Faculty  ☑ Other

From the above sequence of circles in the thesis panel display, which row gives the greatest sense of Transition.

☐ Top Row
☐ Middle Row
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☐ Middle Row
☑ Bottom Row

Do you have any comments or suggestions in response to my whole thesis exhibit?

Loved it - Made me think...
Appendix D

Thesis Planning Document
Basic Principles of Sequential Visual Storytelling

James Pannafino
Thesis Candidate

Thesis Proposal for the Master of Fine Arts Degree
Graduate Graphic Design Program
School of Design
College of Imaging Arts and Sciences
Rochester Institute of Technology
Fall 2003
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Final Thesis Proposal

Basic Principles of Sequential Visual Storytelling

Problem Statement
The origin of this thesis was conceived through observations and professional work experience in the design profession where the lack of intelligent fundamental development of imagery in motion was noticed. While various resources exist on the subject across different disciplines, there has never been a collected resource. Using visual communication and problem-solving strategies, the designer will develop a resource/tool to explain basic principles of illustrative imagery in motion.

Documentation of Need
Sequential visual storytelling is a valuable problem for a thesis topic. Having a universal resource/tool that anyone can access will help promote the proper use of these basic principles throughout the design profession. Currently, graphic designers are being asked to develop Internet animations and most designers do not have access to and the understanding of principles of sequential visual storytelling needed to make informed decisions. Having a resource for them to use will better equip them to produce high quality work.

Situation Analysis
Some literature discusses certain aspects of sequential visual storytelling. This information, however, is sometimes difficult to find and is not presented from a design perspective. There is no resource online for designers to access principles of sequential visual storytelling information. It is imperative that this information be accessible to designers to advance the intelligent use of sequential visual storytelling.

Goals
The overall goal of this thesis is to communicate the basic principles of sequential visual storytelling to designers so that they can integrate an efficient working knowledge of those principles in their work. To reach this goal, it will be key to develop a resource that can be easily accessed by many different designers at any given time. A secondary goal of this thesis is to offer information that will be useful to fields such as Webdesign, illustration, and pre-film production.

Processes and Strategies
Interviewing and asking questions of professionals in the field of graphic design and illustration would be a good way to start gathering information. Creating a comparative matrix that shows what current content is out there and what is needed would be a useful tool for analyzing information. Also, mind mapping could be a method of brainstorming used to generate associations that may not otherwise have been considered. Creating a hierarchical structure of the primary, secondary, and tertiary information would be an efficient method to organize a large body of content. Generating solutions will be accomplished through analyzing the results from the processes, strategies, and methods.

Possible Applications
One possible application would be to create an online resource that provides facts, theories, fundamental rules, and general information that communicates the principles of sequential visual storytelling.
Precedents

Precedents Opening Statement
The fundamentals of imagery in motion are interpreted differently across various disciplines. Each discipline provides a different perspective on how to view the subject of visual storytelling. Many different theories and facts are used by the individual disciplines to explain imagery in motion.

VizAbility – Interactive Learning CD-ROM
VizAbility is a perfect example of how one discipline’s theory can be applied to another to aid in the learning process. The project was commissioned from MetaDesign by educational book publisher PWS publishing of Boston, which owned the rights to a book called Experiences in Visual Thinking by professor Bob McKim. According to MetaDesign: Design from the Word Up, “It was developed to aid students involved in the visual arts, although it had actually been written for engineers. Its basic premise was that engineers tended to focus so hard on the problem in front of them that they missed the bigger picture. This stunted their ability to solve problems creatively. The publisher saw that students’ visual education and skills still could be improved and decided to republish the book, this time adding an interactive CD-ROM” (p.26).

Rob Roy Kelly – Introductory Level Perceptual Studies
This is a great example of a basic set of principles from which people can learn to draw in an intelligent way. According to Rob Roy Kelly, “developing eye and hand skills, using the pencil as a tool, learning design process, criteria and terminology. These are refinement problems and self-paced as it is meaning less to advance students who do not understand or cannot do the exercises. By allowing students to progress according to their abilities, those with more experience or talent do not become bored, and good but slow students do not feel undue pressure” (p.56).

HTML 4 kids - http://html4kids.net/
HTML 4 kids is an example of an online resource/tool in which a complicated topic is broken down into fundamental parts so that it can be easily understood. According to the website html4kids.com “Kids, teachers and adults can learn to make web sites and programs for the Internet, learn HTML and create web pages without having the problems of uploading live to the Net. They learn to code and try it out in complete control inside of the home or classroom” (index.html).
Mission Statement, Goals, Objectives, Strategies

Mission Statement
This thesis will examine, organize, and develop the basic principles of sequential visual storytelling related to the graphic design field. This will improve the quality of intelligent fundamental development of imagery in motion for graphic designers.

<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain, describe, and identify the situation in graphic design and demonstrate a need for this thesis</td>
<td>Describe the direction in which the graphic design field is moving with respect to imagery in motion.</td>
<td>The designer will diagram the increase in the roles of designers due to the boom of the Internet.</td>
</tr>
<tr>
<td></td>
<td>Identify areas in the tool sets of graphic designers when relating to imagery in motion.</td>
<td>The designer will develop a comparative matrix to show the type of jobs designers work on and the type of tools they have to work with.</td>
</tr>
<tr>
<td></td>
<td>The designer will demonstrate the need for the thesis topic in the graphic design discipline.</td>
<td>The designer will give concrete examples in which graphic design professionals have been involved with preliminary imagery in motion design.</td>
</tr>
<tr>
<td>Show familiarity with other disciplines' existing information</td>
<td>Through researching literature and Internet resources, the designer will demonstrate familiarity with sequential visual storytelling.</td>
<td>Key words will be entered into library data and Internet Google searches.</td>
</tr>
<tr>
<td></td>
<td>Examine other disciplines and show what existing resources can be applied to graphic design.</td>
<td>The designer will develop a comparative matrix to show what resources can be used from other disciplines.</td>
</tr>
<tr>
<td>Define terminology</td>
<td>Gather information from other disciplines and develop a working list of words.</td>
<td>The designer will use Wurman’s hatracks model to develop a functional word list.</td>
</tr>
<tr>
<td></td>
<td>Divide the terminology into set categories to be more easily understood by graphic designers.</td>
<td>Develop categories by comparing and contrasting elements within the word list.</td>
</tr>
<tr>
<td></td>
<td>Define basic terminology and its relation to graphic design.</td>
<td>Determine the graphic design relationship by developing a comparative matrix.</td>
</tr>
</tbody>
</table>
## Mission, Goals, Objectives, Strategies

<table>
<thead>
<tr>
<th>Goals</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Develop a set of principles</td>
<td>Based on the research and defined terminology, The designer will develop a structured framework in which a set of principles could be reside.</td>
<td>Compare and contrast other graphic design tool sets, such as visual syntax.</td>
</tr>
<tr>
<td></td>
<td>Within a structured framework, the designer will create a working hierarchy in which to place the defined terminology.</td>
<td>Use Wurman's hatracks model to organize the principles into a working hierarchy.</td>
</tr>
<tr>
<td>Evaluate the principles</td>
<td>Generate a questionnaire to solicit feedback from graphic design professionals in the field.</td>
<td>A working model of principles will be distributed via email to graphic design professionals.</td>
</tr>
<tr>
<td></td>
<td>Have committee members evaluate the project and assess its progress.</td>
<td>Document comments and feedback from the committee members and evaluate accordingly.</td>
</tr>
<tr>
<td></td>
<td>Show gathered information to other disciplines and ask for suggestions and feedback.</td>
<td>A working model of principles will be distributed via email to others outside the graphic design discipline.</td>
</tr>
<tr>
<td>Develop a solution in the form of an application</td>
<td>The designer will formulate a resource/tool that the graphic design profession can access at any time.</td>
<td>Existing resources will be compared and contrasted to determine the best possible direction for the application.</td>
</tr>
<tr>
<td></td>
<td>A tangible application will be developed to function as the resource/tool.</td>
<td>The application will also be viewed by other disciplines and the general public.</td>
</tr>
</tbody>
</table>
The set of principles will help break through barriers in the graphic design field. Barriers include misconceptions, territorial constants, timidity, etc.

Explanatory Diagram of Thesis Project

Web Design Information  
Illustration Information  
Pre-Film Production Information  
Animation Information  

Useful Information  

Facts, Theories, and Fundamental Rules  

Organized Set of Basic Principles of Sequential Visual Storytelling

Graphic Design Discipline

Resource/Tool for Graphic Design

Graphic Design Discipline  
Other Disciplines  

More Intelligent Fundamental Development of Imagery in Motion
Evaluation Plans

Intermediate Evaluation
There will be weekly evaluation with chief advisor to evaluate overall progress on thesis work, research, and scheduling.

Periodic committee meetings will be held to show progress of thesis and receive recommendations on overall direction.

Periodic evaluation will be done by outside experts in the fields of graphic design and visual storytelling. Feedback will be sought on direction, subject needs, and research options.

Retrospective Evaluation
A survey will be given to professional graphic designers outside RIT to review the finished application. The evaluation will be structured in a checklist format. Each designer will answer questions by checking specific functions or theories that make sense or help them integrate an intelligent method of developing imagery in motion in their working process.

Professionals in the field of visual storytelling will be asked to give tangible feedback on the design application. They will be given a questionnaire to fill out responding to the terminology and function of the sequential visual storytelling resource/tool.

Follow-up personal interviews will be conducted after the checklist and questionnaires are returned. The interviews will be structured to get a more in-depth response to particular parts of the evaluation to which professionals responded.

Dissemination
The end result will be the intelligent fundamental development of imagery in motion in the graphic design discipline and other disciplines. Other audiences will include educational institutions and the general public that have an interest in the subject of sequential visual storytelling.

The thesis exhibition will show the progress of this thesis as a work in progress at the RIT Bevier Gallery.

Tangible future plans will include a Web site that will function as a resource/tool in which graphic designers can interact to learn intelligent fundamental development of imagery in motion.

The designer could also deliver presentations to various colleges and learning institutions on the subject of basic principles of sequential visual storytelling. This would help communicate the overall goal of intelligent fundamental development of imagery in motion.
# Timetable

## Fall

**September**
- 01 Labor Day
- 08 Fall Quarter Begins
- 08 Thesis Planning Begins

**October**
- 08 Proposals Signed
- 13 Columbus Day
- 17 Last Day to Withdraw
- 26 Daylight Savings ends
- 31 Halloween

**November**
- 14 Last Day of Class
- 17 Planning Report Due
- 22 Fall/Winter Break
- 27 Thanksgiving

## Winter

**December**
- 01 Research and Analysis
- 01 Class Starts
- 08 Committee Meeting
- 20 Last Class Before Break
- 25 Christmas Day

**January**
- 01 New Year’s Day
- 07 Committee Meeting
- 08 Class Begins
- 24 Last Day to Withdraw

## Spring

**March**
- 05 Thesis Show Goes Up
- 08 Classes Begin
- 08 Bevier Gallery Opening
- 10 Committee Meeting
- 17 St. Patrick’s Day
- 24 Thesis Show Ends

**April**
- 11 Easter
- 14 Committee Meeting
- 16 Last Day to Withdraw

**May**
- 10 Thesis Sign-Off Meeting
- 14 Last Day of Class
- 22 Commencement
Glossary of Terms

Camera Angle
The point of view from which the reader surveys a subject. A “high angle” means that the “camera” is looking down on the subject; in a “low angle,” it is looking up, and so on. “Another angle” means simply that the action continues in the next panel, but from a different point of view.
Talon, Durwin. Panel Discussions: Design in Sequential Art Storytelling. 2002

Comics
Juxtaposed pictorial and other images in deliberate sequence intended to convey information and/or to produce an aesthetic response from the viewer.
McCloud, Scott. Understanding Comics: The Invisible Art. 1985

Composition
The framing of a panel to achieve a desired distribution and balancing of elements contained within.
Talon, Durwin. Panel Discussions: Design in Sequential Art Storytelling. 2002

Eye Movement
How the reader moves through the story through the design of panels and pages.
Talon, Durwin. Panel Discussions: Design in Sequential Art Storytelling. 2002

Frames
Sequenced segments that deal with the encapsulation of events in the flow of a narrative.
McCloud, Scott. Understanding Comics: The Invisible Art. 1985

Illustrative Imagery
A sketch or finished drawing that captures the gesture of an image in a non-photographic format.
Pannafino, James. Rochester Institute of Technology Graduate Student. 2003

Panel
A graphic device that captures the current moment of the story.
Talon, Durwin. Panel Discussions: Design in Sequential Art Storytelling. 2002

Sequence
A related series of panels, unified by some common element: setting, concept, action, character, mood, etc.
Merriam Webster’s Collegiate Dictionary, Tenth Edition

Storyboard
An illustrated view, like a comic book, of how the producer or director envisions the final edited version of production.
Simon, Mark. Storyboards: Motion in Art, 2000

Transition
The bridge from one scene or event to another and/or anything that links together a sequence of panels in a story.
Talon, Durwin. Panel Discussions: Design in Sequential Art Storytelling. 2002
Bibliography

Books

*A historic look into the pre-production of the various video genres.*

*Well known professional cartoonist takes a look at comic strips and tells us what makes them tick.*

*Various art and storytelling techniques used in the comic book industry.*

*A look at the different storyboards and what goes into making them.*

*Motion pictures guide to storyboarding movie scripts.*

*Well known professional cartoonist takes a look at the visual narrative of comic strips.*

*Interviews and case studies by various comic book artists on how they develop a visual story.*

*A basic look at storyboarding and the art side of motion.*

*An in-depth look into comic books and how much meaning they truly have.*

*Examples of various kinds of storytelling.*

*Examples of different artistic techniques that go into developing various storytelling devices.*
Thesis Documentation Structure

1 Thesis Project Definition
Introducing, identifying, and understanding the nature of the problem—including history, situation, and goals.

2 Precedents
Describing other existing projects, case studies, and models that have meaningful relationships to the study.

3 Research
Describing facts, principles, theories, or relationships that have been discovered to help to solve the problem.

4 Synthesis
Describing interrelationships and patterns—sorting, sequencing, and ordering information or parts of the problem.

5 Ideation
Describing the generation of conceptual solutions and preparation of a range of preliminary design approaches.

6 Intermediate Evaluation
Describing testing strategies that were used to judge ideation and the resulting selection of possible design solutions.

7 Implementation
Describing how the project was refined, developed, and produced to its final form or application.

8 Dissemination
Describing plans for future audience interaction—how could this product or information be distributed/used in the future?

9 Retrospective Evaluation
Assessing the final product to determine strengths and weaknesses—how could future versions be improved?

10 Conclusion
Summarizing overall experience and outcome—what was gained?

11 Glossary of Terms
Defining particular terms that were used within the written documentation to aid in reader understanding.

12 Bibliography
Listing all sources used for the study by category—books, journals, magazines, Web sites, etc.

13 Appendices
Labeling each tool, involvement, or activity separately—enabling a reader to refer to more in-depth details at the end of the thesis documentation.