

Storyboards: a Dynamic Storytelling Tool

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ABSTRACT

Stories can be told in many different ways—word of mouth, written word, movies, plays. One of the fastest, most universally understandable and information-rich ways to tell a story is with a storyboard. Storyboards have been used throughout history to depict events through pictures. Even when created very quickly, storyboards can convey a wealth of information, showing a particular order of events in an interesting and easy-to-understand way.

INTRODUCTION

We have many ways of telling a story—through words, plays, movies, etc. One way that is particularly descriptive, visually rich in information, easily understood, and interesting to view is the storyboard. A storyboard as a series of cells (drawings, photographs, paintings, etc.) physically arranged to tell a story in a specific sequence. Storyboards can tell the story of what we envision happening, or they can relate events that have already happened. Storyboards can use images as simple as stick figures or as complex as a film frame. They may also incorporate text.

Storyboards have been around since the beginning of recorded time. Early examples of storyboards, from the cave drawings found in France to the hieroglyphics of Egypt and the “story rings” of native Americans, show how picture sequences were used to record events and perhaps even enhance the oral telling of the events.

This paper describes how anyone can, and probably already does, create at least some form of storyboards. Most of us have conjured up storyboards in our minds when we’ve thought of upcoming events and visualized possible results of these events. You may have considered this activity “a mental run-through” or simply “thinking things through.” See Figure 1, below.

Figure 1: Ron Sova does a mental run-through of the UPA Submission Process



Figure 1 illustrates two important points:

1. We can easily visualize a sequence of events and imagine the outcome.
2. The sequence and outcome can be depicted extremely clearly using the simplest of drawings.

We all can harness the creative mental energy that we unconsciously exercise everyday to create tangible storyboards—ones that can be incorporated throughout the user interface design process to enhance more traditional activities. The authors encourage readers to try drawing a short storyboard after reading this paper and viewing the simple examples we provide.

A CHRONOLOGY OF STORYBOARDING

Music and dance have been with us forever, it seems. When human beings began to convey messages with drum beats and to tell stories using dance movements, non-pictorial storyboarding began. Pictorial storyboarding has been with us for as long as human beings have held a stick to sketch images in the sand or on walls.

Ancient times

- **30,000 years ago**—the caves of Lascaux, France [1]
Early human beings recorded their exploits on the walls and ceilings of their caves: men as they leave for the hunt, surround their prey, and return with the kill. The cave drawings also depict hard-fought triumph on the battle field.
- **6,000 years ago**—hieroglyphics
The court scribes of pharaohs storyboarded the history of the pharaoh's rule, his exploits in battle, and his eventual journey to the afterlife.

Recent history

- **100 years ago**—graphic novels
In the 19th century, the graphic novel (a type of bound literary “comic book”) was a major storytelling art form.
- **65 years ago**—Disney Studios
In 1931, Disney Studios developed the method we now recognize as storyboarding. According to Disney lore, animator Webb Smith used a separate piece of paper for each of his drawings, then pinned them all up on the wall. Previously, drawings had been presented in panels, comic-book style. Smith's method worked very well for cartoons and cartoon features because an entire team could view his sequence of drawings at the same time. In addition, the director—and anyone else involved in the production—could wander in at their convenience and see exactly how a storyline was unfolding. [2] It worked so well for planning animated features that it began to spill over to the “human” movie industry, meeting with great success.

Storyboarding today

Storyboarding is gaining wider acceptance for business as people in professions outside the movie industry— usability, for example—begin to acknowledge its potential as a powerful communication tool.

Storyboarding is great for:

1. Visually presenting an idea
2. Comprehensively showing activities—including timing and sequence
3. Involving different audience groups
4. Removing international and language barriers
5. Facilitating audience recognition of an idea
6. Enabling immediate audience feedback

As storyboarding continues to evolve to include pert charts, flow diagrams, and other visual representations often used by management executives, it is gaining acceptance in high corporate levels.

However, the movie industry is still the biggest user and proponent of storyboards. DVD releases of movies often contain bonus features that include the storyboards the director used to plan the movie's events and the characters' reactions to the events. These behind-the-scene glimpses show how simply, yet comprehensively, storyboards communicate all the different aspects of a scene to diverse personnel—the director, actors, the cinematographer, and myriad designers and coordinators—who must work together to ensure planned events happen as envisioned. [3]

Now isn't this story beginning to sound familiar?

Storyboards in research and design

- **Research** (past events). Storyboards can be used to provide visual feedback from field research, which is especially important when photography is not allowed or not practical. (Also see [Level 7 Photographs](#) and "[Photos are really good](#)" on page 6.) Storyboards are a way of clearly showing how users perform tasks at their workstation, and can also show other information about users environments that otherwise might not be written into the report.
- **Design** (future planning). We can use storyboarding to produce 'page flow storyboards' and task flow diagrams to convey design ideas to a large group of people who must work together to ensure planned events happen as envisioned (just as in the movie industry).

Take a moment now to think about your own experiences with written, drawn, and spoken stories—plays, movies, books, comics, and actual storyboards. Recall these experiences and focus on what you visualized as you:

- Read a story
- Attended a play
- Saw a movie
- Viewed a storyboard

Now, think of something more *active* and focus on what were you hoping to convey in the process of:

- Telling a story
- Writing a script
- Acting in a play, skit, movie, or video
- Creating a storyboard (or playing "Pictionary")

Congratulations; by thinking visually and actively, you've just opened the door to incorporating storyboards into your design process.

To review—storyboarding . . .

- Has been with us since the beginning of recorded time
- Can be used to enhance communication in the design process
- Visually breaks down a process into sections that can then be discussed and designed
- Employs all the richness of a picture along with the fluidity of a movie
- Can be done by anyone

But I Cant Draw!

Yes, you can! You don't need to be an illustrator or an artist. Even the "drawing challenged" among us can create excellent storyboards. Let's explore simple ways to use the drawing skills you currently have—it's all just a level of degree, as described below.

SEVEN LEVELS OF STORYBOARD IMAGES

Level 1—Wire Figures



Basics. Draw the head where you want it. Use a single straight or curved line to form the torso. Then draw curved lines for the arms and legs.

Advantages. Level 1 drawing is a kind of shorthand that allows you to capture gestures, body language, and arm and leg placement very quickly.

Uses. Level 1 is excellent for on-the-fly capturing of events, as they happen. The final storyboard can be presented to the project team as raw input or it can be enhanced with more detail by going to a higher level of detail.

Level 2—Stick Figures



Basics. Create stick figures by using short lines that represent parts of the anatomy. For example, forearm, upper arm, and shoulders, are each represented by line segments. While less fluid than the wire format, this method more precisely shows limb placement.

Advantages. Stick people don't take much time to create. Because they are low-fidelity, viewers leap directly to content without stopping to critique artistic quality.

Uses. Stick people better parallel the human anatomy, and therefore can serve as the wire frame or as a building block for a higher level figure. Because stick figures work well in many different situations, they are well understood and accepted in design and business.

Level 3—Circles, Boxes, and Triangles



Basics. Add circles, boxes, and triangles to your stick figure to show volume.

Advantages. With Level 3, you can indicate the amount of space that is occupied by an individual (and by extension, the objects around him). It is still very fast, shows relative volumes, and will not be critiqued as a work of art.

Uses. Level 3 edges toward a more developed drawing and can be very useful to portray specialized action. For example, if the action takes place in a small, cluttered cubicle, use Level 3 drawing to quickly represent the claustrophobic relationship of the subject to his/her environment.

Level 4—Human form



Basics. Add simple shape and volume to your stick figure to give it more realistic human form.

Advantages. Level 4 drawing goes beyond symbolizing the human form to actually showing it. It is still very fast, shows relative volume and body shape, and depicts what that body is doing without having to include a lot of personal detail.

Disadvantage. The proportions must be more accurate, because viewers will now see your drawing as a person and will compare (either consciously or subconsciously) to what they know people look like.

Uses. Level 4 usually edges toward more fully developed people. Use it to more accurately depict people in relation to each other and to their surroundings, again without worrying too much about detail. You can use this degree of drawing as a storyboard when discussing the action within your team.

Level 5—Life like



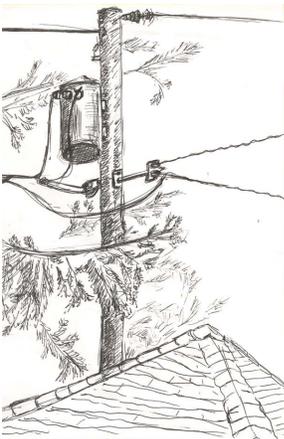
Basics. Add simple clothing and hair, using the least amount of detail needed to portray what you think is crucial.

Advantages. Level 5 drawing is more informative for communicating necessary details. It provides a richness of detail for a particular snapshot in time. The increased realism makes it easier for the viewer grasp more of what is happening.

Disadvantages. Level 5 takes more time and talent to create. Because the drawing may appear more artistic and realistic, viewers may be more critical of its quality and not focus as quickly on the action and environment the drawing portrays.

Uses. Level 5 can be used for both internal and external storyboards. It is especially useful for the external storyboards because the cost of creating them is low enough to be easily cost-justified. Use the more finished look of Level 5 to describe actions to your company's Vice President for example.

Level 6—Realism



Basics. Hire an illustrator to do the drawings at this level, which shows the information more realistically—exactly as it would appear if you were looking at it.

Advantages. Level 6 drawing this level has a very professional look. Management sees it not only as an excellent means of visually translating information, but also as a communications media they are proud to share with those outside the company. There are two main advantages of this level over level 7 photos: 1) This method allows you to highlight the points that you feel are the most important in the scene you are depicting, and 2) because they are very high-quality drawings, people will enjoy seeing them as works of art as well as communication tools.

Disadvantages. Level 5 takes more time and talent to create. Because the drawing may appear more artistic and realistic, viewers may be more critical of its quality and not focus as quickly on the action and environment the drawing portrays.

Uses. Level 6 images are best used for presentation-quality storyboards. Use the more professional look of Level 6 for executive management and customers.

Level 7—Photographs



Basics. If you know the basics of good photography and have a decent digital camera with a minimum of 1.3 mega pixels, go ahead and take photos for your storyboard.

Advantages. Photographs “tell it like it is.” A photograph captures everything that is present in the scene, making it easier to show others what you saw.

Anyone can take a picture. You don’t have to have special training to take acceptable photos, unless you need a high quality image or the photo composition is very specific. Photographs can also be used as reference for any of the preceding levels (especially useful for level 6 realism).

Disadvantages. Not all companies allow you to photograph on their premises. Also you have to have a camera handy when the time comes up. This will be easy when you are planning to take pictures, but if the opportunity arises at any particular moment you may not have the camera handy. Another disadvantage is the wealth of information in a picture. As strange as it sounds, it can be too much information. Those areas that you want to highlight have the same importance as those things that have no effect on your purpose. The last disadvantage of a photo is that it can only be used to record a story. It cannot be used to imagine or design a story.

Uses. Level 7 are best used for presentation-quality storyboards, where photos are required for the level of realism needed for the presentation.

When is “really good” not so good?

As you can see, all storyboards are not, nor should they be, created equal. For example, when storyboarding field research information to explain to a design team what you observed, you need not use a Level 5 story board. Detailed, high-resolution drawings may be “too good” because viewers may critique the drawing (“that left arm seems a little long to me”) rather than focus on the content.

Photos are “really good,” when they turn out, but they may contain clutter that has nothing to do with the issues of concern and is difficult to eliminate from the picture, as discussed under Level 7. Storyboards often are better than photos for communicating problems, because you can more easily isolate the main issue.

On the other hand, if you are on a large project, and it is important to keep the top company executives informed of your findings, you may need the very professional appearance that Level 6 and 7 storyboards provide. Professional-quality storyboards not only can convey crucial information, but Marketing and Sales executives can use them to convey to fellow executive staff and customers the level of diligence the design team pursues in researching user information.

STORYBOARD DRAWING TECHNIQUE

One technique the authors use to create good-quality storyboards is to start with a simple line drawing of an action, enhance it with ink, erase unwanted pencil lines, and then scan the drawing into the computer to add finishing touches, such as shading, color, and more detail.

Sketching with pencil



1. Start with a pencil and a soft, clean eraser so you can easily erase unwanted lines without leaving smudges.

Be sure to use a good enough quality of paper that will stand up to an eraser and will absorb ink without allowing the ink to bleed in case you decide to follow through with inking.

2. Sketch ideas, styles, and orientations you are envisioning for your storyboard.

Be sure to use a light touch so that you can easily erase unwanted pencil lines.

Inking in the good and erasing the unwanted



1. Look over your drawing and decide if you have something you want to preserve.
2. Once you see something you like in the sketch, go over the lines you want to preserve with a black pen or fine tip marker. Again, be sure use quality paper; otherwise the marker may bleed through.
3. Erase unwanted pencil lines.
4. You are now ready to scan your drawing into the computer.

Scanning and enhancing



1. Scan your drawing into the computer.
2. Try out different ideas for shading and color on the individual cells, armed with the knowledge that you now have the power of the "Undo" feature of your graphic program.
3. Save versions of your enhancements that you like in a file format that best suits your printing and/or displaying needs.
4. Chose your best drawing and insert it into your storyboard.

STORYBOARDING IN THE DESIGN PROCESS

Ron Sova created a storyboard midway through a web design project to solve a problem his design team of 14 people was having with optimally categorizing information for users to find the way to order a Spanish language brochure. Creating a storyboard lent context to the situation, which allowed the team to come to a consensus.

- Time that the design team spent discussing this problem before the storyboard:
More than 2 weeks
- Time to create this storyboard and reach consensus:
About 4 hours

You do the math.

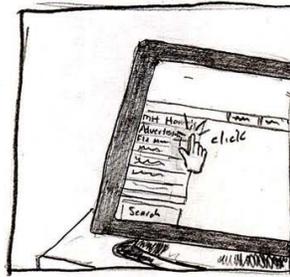
The storyboard that Ron used to help reach team consensus is presented on the next page. *(This storyboard may not be reproduced without UPA's and the author's written permission.)*

Storyboard - Order a Spanish Language Brochure

4/26/03



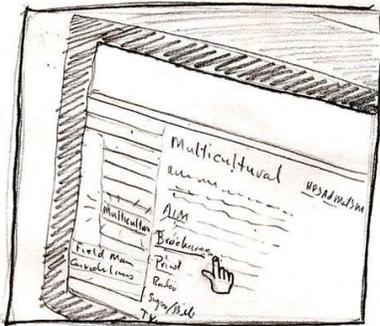
Angie, we are going to start selling to the Hispanic community. Get some brochures to send out and a sign for the window.



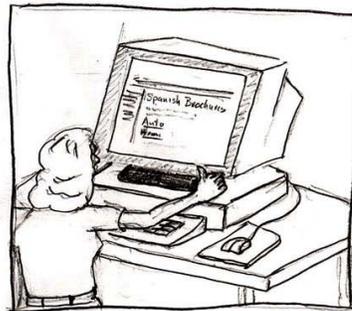
I'll just go to the Hum book site and see what is available



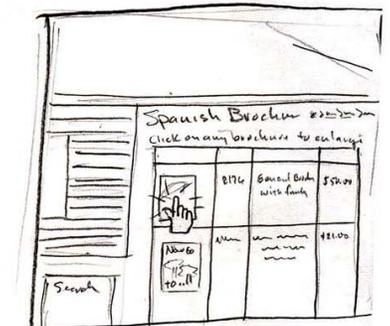
Ah, here we are, Multicultural...



OK, in the Brochures section it tells me that the Hispanic language brochures are with all the other brochures. I'll try this



Great, looks like this is the Spanish Section. I'll just go to the general brochures first



Now I'll just enlarge it to make sure I know what it looks like...



How do you like this brochure to send out?
That's Great - let's order 1000!

DO TRY THIS YOURSELF

Imagine someone being chased by a snarling dog. Now grab a sheet of paper and draw two big boxes. In the first box, draw a stick person running. In the second box, draw the stick person running again but farther over. Add a wire or stick dog chasing the stick person. Go ahead and add an observer to the scene, if you like. Show the observer's reaction. (See our [on-the-fly storyboard](#) on page 11.)

Our experience has shown that a picture really is worth more than a thousand words. Simple drawings can accurately depict action sequences, spatial relationships, emotion, and environmental detail. Often it is faster and easier to draw an idea than to write about it.

Creating storyboards to enhance presentations can be enjoyable and rewarding for everyone involved.

REFERENCES

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<http://www.culture.gouv.fr/culture/arcnat/chauvet/en/>
<http://www.jimhopper.com/paleo.html>
2. “The Art of Walt Disney” by Christopher Finch, Abrams, 1973 (Historical information can be found on pages 82 and 83, and an excellent photo of a storyboard appears on page 325.)
3. “The Art of Storyboard” by Don Bluth, D.H. Press, 2004 (specific to storyboards for movies)

ADDITIONAL READING

Books on Storyboarding

1. “The Art of Storyboard” by Don Bluth, D.H. Press, 2004 (specific to storyboards for movies)
2. “The Art of Walt Disney” by Christopher Finch, Abrams, 1973 (Historical information can be found on pages 82 and 83, and an excellent photo of a storyboard appears on page 325.)
3. “From word to Image” by Marcie Begleiter, Michael Wiese Productions, 2001
4. “Show Me – The Complete Guide to Storyboarding and Problem Solving” by Harry Forsha, ASQ Quality Press, 1995
5. “Exploring Storyboarding” by Wendy Tumminello, Thomson Delmar Learning, 2005

Books on Cartooning and Illustration

1. “The Art of Cartooning” by Syd Hoff, Stravon Educational Press, 1973
2. “How to Draw Cartoons for Comic Strips” by Christopher Hart, Watson-Guptill Publications, 1988
3. “Understanding Comics, the Invisible Art” by Scott McCloud, Harper Collins, 1993
4. “The Concise Illustrator’s Figures Reference Manual” by Neal Cobourne, Chartwell Books, Inc., 1995
5. “Envisioning Information” by Edward Tufte, Graphics Press, 1994
6. “Humorous Office Spot Illustrations” by Bob Censoni, Dover 1987
7. “Office and Business Illustrations” by Tom Tierney, Dover, 1988

Storyboarding Websites

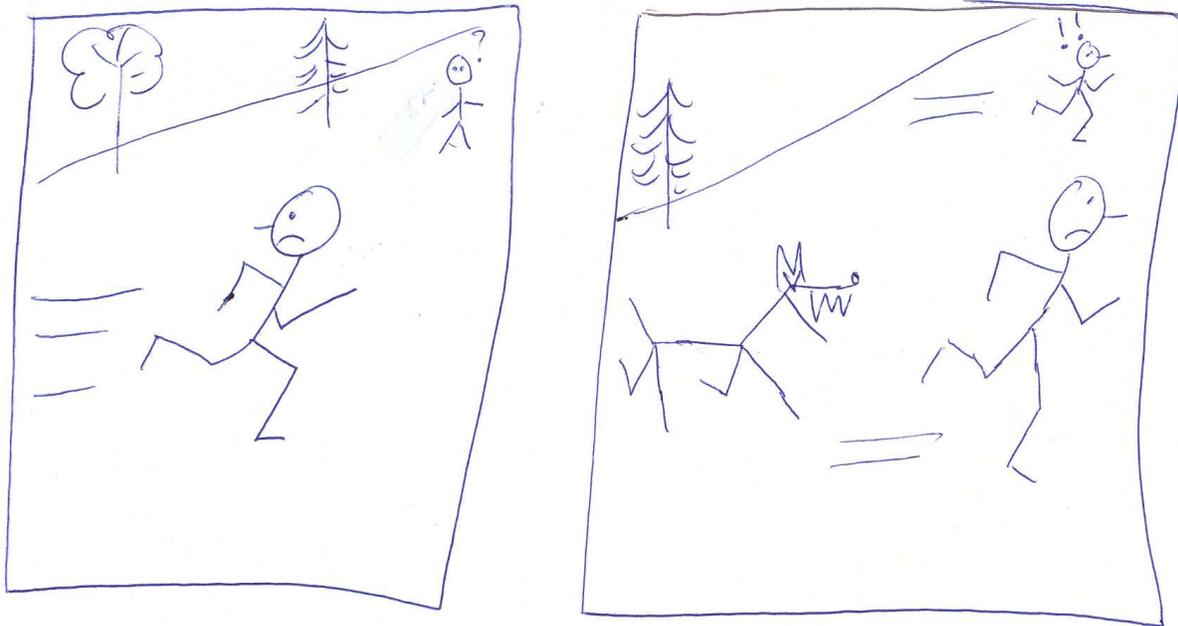
1. University of North Carolina Charlotte Storyboarding Master Worksheet.
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2. Storyboarding in Education:
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3. Wikipedia (for a description of storyboards and comics) <http://en.wikipedia.org/wiki/Storyboard>

Articles on Design and Organization

1. "Design by Walking Around" by Richard A. Zahniser, October 1993, Communications of the ACM, Volume 36, No. 10
2. "Sequential Thematic Organization of Publications (STOP)" by J.R. Tracy, 1965, ACM Digital Library

ON-THE-FLY STORYBOARD

Figure 2: Deborah Sova storyboards a dog chasing people



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Ron has been doing user-centered design since before the term was coined a decade ago and has been helping a wide range of clients with design and testing projects for over 25 years. Ron brings to all his projects a strong passion for understanding the user and involving them in the design process. Ron has successfully blended designer sensibilities and project management skill to his design efforts, which include creating a web-based agent quoting and sales system for insurance agents, analyzing and developing the information architecture for a large information repository for a global financial services corporation, and converting mainframe applications to web-based applications for a number of clients. Ron holds a Bachelor of Engineering (BSEE) from Marquette University and is working on an B.A. in graphic design. Ron regularly uses storyboards to depict, convince, and entertain those around him.

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Deborah Hinderer Sova has spent over a dozen years evaluating software and website usability for clients in a variety of industries including enterprise software, financial, medical, bibliographical, wireless, multimedia, security, and insurance. She is skilled in several usability methodologies, including RITE, traditional (lab), and field testing; contextual interviews; design walk-throughs; and heuristic (expert) evaluation. Before rejoining Tec-Ed after a 3-year hiatus, Deborah worked as a user experience consultant for the Nielsen Norman Group, American Express Financial, and Compuware Corporation. Deborah has published reports, presented papers, and participated on panels on usability-related subjects. She is also recognized as a participant recruiting expert, having co-authored with Jakob Nielsen an NN/g report titled “233 Tips and Tricks for Recruiting the Right Users as Participants in Usability Studies.” Deborah has served on five UPA conference committees, most recently as chair of the UPA 2006 Idea Markets. She holds Bachelor and Master degrees from The University of Michigan.