102
Comics for Adult Learning: What the Evidence Reveals

Kevin Thorn,
NuggetHead Studioz
What is a Comic?

Hubris Web Comic, 11-17-2010
©Greg Cravens | http://hubriscomics.com

June 1938, Action Comics #1, Page 2.

source: @frilansara
“COMICS” is the word worth defining, as it refers to the medium itself, not a specific object as “comic book” or “comic strip.”

Scott McCloud
*Understanding Comics
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“Juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or to produce an aesthetic response in the viewer.”

Scott McCloud
*Understanding Comics*
Juxtaposed pictorial and other images along with words in deliberate sequence, intended to instruct or convey information and/or to produce an aesthetic response in the viewer to learn.

(edited for learning)
Comics for Adults

Comics in Learning
Educational Comics: Examples
Comic Formats and Styles
The Research
Interactive Comics
Resources
The idea of comics for learning with specific characters and storytelling began in the 19th century when the first comics appeared in the paper created by James Henderson [1874] and designed his comic for adults because children couldn’t afford to buy the paper.
Josh Elder’s *Reading with Pictures* organization has been promoting the idea and cataloging the use of comics in the classroom.

*http://www.readingwithpictures.org/*
Comics in Learning

Comics Uniting Nations is a partnership of UNICEF and NGOs PCI Media Impact and Reading with Pictures, to make the Sustainable Development Goals accessible to the citizens of the world through comics.

*http://www.comicsunitingnations.org/*
Comics in Learning

Atlas Black: The Complete Adventure

A graphic novel created by Jeremy Short et al. (2011) to teach key management concepts using the storyline of two students aspiring to start their own business.
Comics in Learning

Jeremy, a professor at the University of Oklahoma conducted a study that shows that graphic novels may improve memory and be more effective in teaching students than a traditional textbook.
The findings reported in this research suggest that businesses might find a good return on training dollars by creating illustrated versions of key training manuals.

*The study: Graphic presentation: An empirical examination of the graphic novel approach to communicate business concepts*
I want to point out to adults that there is a world of good material available to you now in comic form - in this medium - and learn to give it your support because the more you support it, the better the material will be as it comes out.
Comics in Learning

Will Eisner always believed that the comics medium has teaching potential.

*PS Magazine, the Preventive Maintenance Monthly

Each episode offers the same cautionary tale: a soldier who ignores preventive maintenance learns of its importance in the end.
“In its most economical state, comics employ a series of repetitive images and recognizable symbols. When these are used again and again to convey similar ideas, they become a language – a literary form, if you will. And it is this disciplined application that creates the ‘grammar’ of Sequential Art.” (Eisner, 1990, p. 8)
Educational Comics
Educational Comics: Examples

The comic’s plot is about the controversial arrival of the USS George Washington, a nuclear aircraft carrier replacing the older USS Kitty Hawk.

Jack Ohara is a young third-class petty officer, nervous about coming to Japan on his first overseas assignment.
Educational Comics: Examples

“Using the immensely popular format of manga will expose people to learning about the George Washington in a medium that’s popular here in Japan,”

CNFJ spokesman Cmdr. David Waterman
Educational Comics: Examples

Easy-to-follow explanations for the causes and mechanisms of numerous common disorders, listing symptoms and indications for each.

*Pathophysiology Made Incredibly Visual 3rd Ed.*
You’ve just been hired as a Quality Assurance Inspector for a research testing company. Your job is to talk to employees and **identify** CAPA, Corrective and Preventative Actions.
In early-mid 2008, Scott McCloud created a comic book for Google explaining the inner workings of their new open source browser Google Chrome.
Educational Comics: Examples

In September 2015, the 193 countries of The United Nations launched *The Global Goals of Sustainable Development*, a commitment to achieve 3 extraordinary things in the next 15 years: **end extreme poverty**, **fight inequality & injustice** and **fix climate change**.
Educational Comics: Examples
Recently, there has been an explosive increase in the creation of educational comic books, including many about science.

Benjamin D. Jee

*Comic cognition: exploring the potential cognitive impacts of science comics
Comic Format and Styles
Embedding text in an image can lead to better understanding than when text and image are separated—the spatial contiguity effect.

**FIGURE 1.** Three ways in which comics integrate text with images: (a) narration, (b) speech and thought bubbles, (c) sound effects. Original artwork by Jack Butler.

*Mayer, R. E. (2003)*
Comic Formats

Layouts. Not to be confused with Formats.

Header - Titles and Global Access Elements

Usable Real Estate

Footer - Navigation and Global Access Elements

print
digital
<table>
<thead>
<tr>
<th>Format</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Static Comic</td>
<td>Self-paced linear/exploratory navigation</td>
</tr>
<tr>
<td>Motion Comic</td>
<td>Self-paced linear/exploratory navigation</td>
</tr>
<tr>
<td>Motion Video</td>
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<tr>
<td>Animated/Explainer Video</td>
<td>Auto advance (ex: whiteboard style)</td>
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<tr>
<td>Gamification Comic</td>
<td>Exploratory navigation (points; levels)</td>
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<tr>
<td>Educational Comic (digital or print)</td>
<td>Books, Games, Apps</td>
</tr>
<tr>
<td>Print Comic</td>
<td>Informative, Job Aide</td>
</tr>
</tbody>
</table>
Comic Styles

Black & White – Line Art – Realism
Comic Styles

Flat – Illustrated – Cartoon
Comic Styles

Monotone – Line Art – Metaphors – Cartoon
Comic Styles

Painted – Hand-Drawn – Realism
Charlie, a consultant for a state public health agency has been assigned to work with a team on a large-scale immunization health information systems project.
Comic Styles

Style is Subjective

My Little Pony may not be the best style for Forklift Driving Safety topic.

B&W Painted Flat Monotone
Line Art Hand drawn Illustrated
Manga Superhero Cartoon Realism Editorial

No Rules. Mix-n-match
The Research
Dual Coding Theory

**Total Cognitive Demand**

- **Dual Channel**
  - **WORDS**
  - **IMAGES**

**Referential Connections**

- **EYES**
- **EARS**

**Essential Processing**

- **SELECTING Words/Images**
- **ORGANIZING Words/Images**

**Senses**

- **WORDS**
- **IMAGES**
- **SOUNDS**

**Working Memory**

- **Mental Models**
  - **PICTORIAL**
  - **VERBAL**

**Active Processing**

- **Integrating**

**Limited Capacity**

- **Prior Knowledge**

**Long-Term Memory**

*Clark & Paivio (1991)*

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school
Example
In a quiet Midwestern town, a small schoolhouse sits alone on a lonely dirt road.

It is here where Joanna discovered something that would change the course of her life.
All languages obey similar principles of **cognition**, be they spoken... 

...signed...  

...or visual.

Thus, to study visual language, we can draw upon the same methods used to study language from **linguistics**, **cognitive psychology**, and **cognitive neuroscience**.
Data Comics

Without prompt, aggressive limits on CO₂ emissions, the Earth will likely warm by an average of 4°-5°C by the century’s end.

HOW BIG A CHANGE IS THAT?

In the coldest part of the last ice age, Earth’s average temperature was 4.5°C below the 20th century norm. Let’s call a 4.5°C difference one “ice age unit.”

-2 IAU
-1 IAU
0 IAU
+1 IAU
+2 IAU

WHERE WE ARE TODAY
20,000 YEARS AGO
SNOWBALL EARTH (-4 IAU)

AVERAGE DURING MODERN TIMES
MY NEIGHBORHOOD:
HALF A MILE OF ICE

WHERE WE’LL BE IN 86 YEARS
CRETACEOUS HOTHOUSE
+200m SEA LEVEL RISE
NO GLACIERS
PALM TREES AT THE POLES

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*xkcd.com
Using pictures and images in comics for learning there is
“no serious consideration of the art of the comics
can overlook the narrative function of pictures”

*Harvey (1996)
Interactive Comics
Tell Me Your Secrets

This interactive graphic novel is based on true-events from World War II.
Valiant Hearts
Resources
Research References


Cohn, Neil. *Visual Language Lab*
Site: http://www.visuallanguagelab.com/
Resource of Examples

Josh Elder – Reading With Pictures - Comics Uniting Nations
   Site: http://www.readingwithpictures.org/

Jeremy Short – TEDx Talk – Graphic Textbooks: A Graphic Approach to Higher Education
   Site: https://www.youtube.com/watch?v=U7yybHtbCb8

Incredible Easy Series – Pathophysiology Made Incredibly Visual 3rd Ed.
   Site: https://www.amazon.com/Pathophysiology-Made-Incredibly-Visual-Easy/dp/1496321677/

App Review – The Comic Book

Scott McCloud – Google Chrome book
   Site: https://www.google.com/googlebooks/chrome/med_00.html

Margreet de Heer – The Global Goals of Sustainable Development
   Site: http://www.margreetdeheer.com/eng/globalgoals.html
Resources of Examples

Will Eisner – PS Magazine, the Preventive Maintenance Monthly  
Site: http://dig.library.vcu.edu/cdm/landingpage/collection/psm

BioNetwork – Pipetting  
Site: http://www.lsteam.org/iet/pipetting/

Navy Manga Comic – USS George Washington CVN73  

Data Comics  
https://datacomics925658343.wordpress.com/

Tell Me Your Secrets  
http://www.bbc.co.uk/guides/z3b77hv

CIA: Operation Ajax  

Valiant Hearts  
Books

Jessica Abel and Matt Madden – Drawing Words & Writing Pictures
   Site: http://dw-wp.com

Nick Sousanis – Creating an Illustrated Textbook From Scratch
   Site: https://textbookfromscratch.wordpress.com/2013/06/01/inspiration-post/

Nick Sousanis – Unflattening
   Book: http://www.hup.harvard.edu/catalog.php?isbn=9780674744431

Scott McCloud - Understanding Comics
   Site: http://scottmccloud.com/2-print/1-uc/

Will Eisner – Comics and Sequential Art
   Site: https://www.amazon.com/Comics-Sequential-Art-Principles-Instructional/dp/0393331261

Will Eisner – Graphic Storytelling and Visual Narrative
## Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Website</th>
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<tbody>
<tr>
<td>Pixton</td>
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</tr>
<tr>
<td>PowToons</td>
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<tr>
<td>MadeFire Comics and Motion Book app</td>
<td><a href="https://itunes.apple.com/us/app/madefire-comics-motion-books/id533379666">https://itunes.apple.com/us/app/madefire-comics-motion-books/id533379666</a></td>
</tr>
</tbody>
</table>
American Academy of Pediatrics: Custom art motion video
https://nuggethead.wistia.com/medias/t201fjdmj1

Service Master – Supply Management Initiative: Custom line art using VideoScribe

Public Health Informatics Institute – Informatics for Everyone Introduction: Custom art using VideoScribe
https://nuggethead.wistia.com/medias/9gxv7ynexd

Inflection Network – Facility Management Work Planning: Custom art live whiteboard video
https://nuggethead.wistia.com/medias/9gxv7ynexd

Georgia Sea Turtle Center – Sea Turtle Rehabilitation – an interactive tour

University of Texas Southwest (CDC Grant) – Partners with Positive: Custom art developed in Articulate Storyline
Thank You!

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