Comics and Life: Illustration, Intersection, and Insights

The Comic Grid and the New Storytelling Possibilities of the Interactive Kinetic Block.

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ABSTRACT

For over a century, comic books have predominantly followed a 3x3 grid structure for each page. Jack Kirby showed us the endless iterations of this structure, and Dave Gibbons used that structure to near perfection in *Watchmen*, demonstrating the deep narrative possibilities of the grid.

In the late 1960s, Jim Steranko made a significant impact on Marvel comics by creating some of the most iconic pages for *Captain America* and *Nick Fury*. Steranko questioned why the dynamic imagery on the pages was not reflected in the layout itself. In 1973, he published *Frogs*, a one-page spread described as a single kinetic block of images with a beginning, middle, and end. *Frogs* was an experiment in form, designed to be a collaborative experience with the reader and to take advantage of the viewer's random vision movement.

Frank Miller, Chris Ware, Jon McNaught, and many others have utilized the kinetic grid to transform the way readers interact with the page. Steranko published Frogs with the intention of inspiring others to experiment with new possibilities for the page layout in order to create a format that is as captivating as the stories themselves. In his writings about Frogs in *A1: The World's Greatest Comics* (Titan, 2014), Steranko expresses his intention to revisit *Frogs* and adapt it for the internet by incorporating interactive elements. He argues, similar to Scott McCloud, that current digital comics “restates the old and the obvious,” and “does not realize the creative potential,” "explore new territory,” or “engage new formats.”

Steranko's concept was presented to a group of sophomore design students. They were given a comic grid and asked to brainstorm ways to enhance and deepen the story through interactivity. The students recognized that this approach offered limitless possibilities and allowed them to tell stories in a new and exciting way. This paper will explore the underlying structure and interactivity, and will provide several examples from the class.

THE STRUCTURE OF COMICS

There is a straightforward structure that underlies any page of comics. Each page is made of panels and gutters or gaps between the panels. The panel is the unit that creates the larger narrative structure and supports all the "visual codes." The panel-gap-panel structure produces a sequence with the panels working together to imply what happens in between (Postema, 2013). Putting several of these panel-gap-panel structures together on a page builds a grid of varying shapes and sizes. Creators have pushed, pulled, reorganized, simplified, maximized, and subverted the grid in countless ways. Groenteen in his seminal book *The System of Comics* states that the panel, how the page is broken up, is central to the "narrative power" of comics. The flexibility of the grid is a major factor in the endurance of comics as a powerful storytelling medium (2007).

The origin of the comic grid can be found in the forms' evolution. Comics, or the *cartone*, began as a single image married with a line of text on a page in a magazine. Comics evolved through the early part of the Twentieth Century into a strip as a side-note in a newspaper. Eventually, the strips were stacked and printed full page and became a central attraction in the very same publications. Many years later multiple pages were put together into what we know today as a comic book or graphic novel (Figure 1).

Creators understand that the grid or sequence of panels, their shape and the separation, carry meaning, and so have explored the vast possibilities of the grid (Postema, 2013). Jack Kirby, whose career spanned nearly 5 decades from the Golden Age into the Modern Age [1] explored endless iterations of the formal grid structure in the 20,000 pages of comics that he created (Figure 2). Dave Gibbons adhered religiously to the 3x3 grid, using it to near perfection, illustrating its deep narrative possibilities in *Watchmen (Moore and Gibbons, 1985)* (Figure 3).



Figure 1: Substance and Shadow (Leech, 1843); The Yellow Kid (Outcault, 1895); a page from Famous Funnies #1 featuring Mutt and Jeff, created by Bud Fisher (Gains, 1934)

Artists and comics traditions from other cultures have challenged this structure. But, even when it is not a perfect grid, as seen in Japanese Manga (Figure 4) or the example in Figure 5 from Will Eisner, the basic structure of the grid is still holding the story together. Even Jack Kirby subverted the structure by having his characters break out of the panels and leap across the page (Eisner, 2001). When discussing how he built on the grid Kirby said about his layouts, "…I tore my characters out of the panels. I made them jump all over the page…" .



Figure 2: Tales of Suspense #85 (Lee and Kirby, 1959)



Figure 3: Watchmen (Moore and Gibbons, 1985).

The artists of the underground comix movement, who rejected all traditional values and rules, still stuck to the formal grid. The grid is so solidly at the core of comics that even R Crumb, the most prominent artist from the comix scene, could only go as far as to hand draw the panels loosely to show his disdain for their authority (Figure 6).



Figure 4: Appleseed (Masamune, 1985).



Figure 5: City People's Notebook (Eisner, 1989).

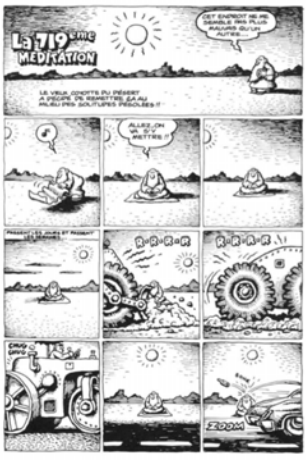


Figure 6: *The Book of Mr Natural (R Crumb, 1995).*

The grid is the "… instrument for converting space into time …" (Groensteen, 2013) and is the artist's "map of time" (McCloud, 2000). "Moving through time requires moving through space." (McCloud, 2000). If you accept McCloud's and Groensteen's (among many others) premise that space is time on a page of comics, we can understand the deeper meaning of this structure and what it says about our understanding of our world.

It is possible to look at each of these comic creators that have been highlighted so far and read their work through the lens of how they worked with the grid. Since, "[the] literal shape and arrangement of panels often function as physical or spacial metaphors of lived human experiences …" (Fawaz, 2019), each one of these creators has tried to help us understand our world and more importantly our relationship with time in a different way.

JIM STERANKO

In the late 1960s, Jim Steranko burst onto the pages of Marvel Comics creating what is now seen as some of the most iconic pages of *Nick Fury: Agent of S.H.I.E.L.D.* and *Captain America* (see Figure 7) among many others. When you look at Steranko's work, there is no doubt that he was inspired by Jack Kirby, but it is also clear that he is trying to break new ground. Steranko "wondered why the wild imagery on the pages [in comic books] was not matched by the form itself." (Elliott and Leach, 2013).

After a short career with Marvel, Steranko became disenchanted and left mainstream comics to pursue other possibilities in publishing and movies. Fortunately, he did not leave comics completely, and for a time he created comics for magazines like *Heavy Metal* which encouraged more experimental ideas in story and form.

In 1973 Steranko published *Frogs* in *COMIXSCENE* (which eventually become *MEDIASCENE* and then *PREVUE*), a one-page spread that he describes as images grouped with the beginning, middle, and end all happening on one page (Elliott and Leach, 2013) (Figure 8). It was intended as an experiment in the comics form.

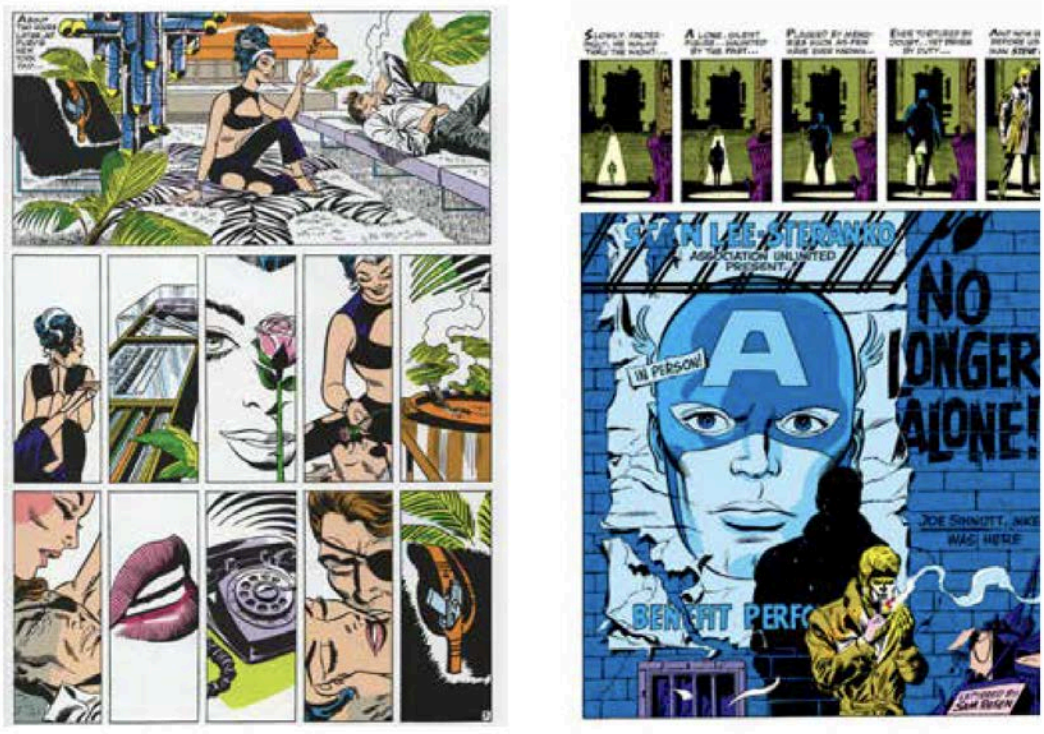


Figure 7: Steranko sample pages from Nick Fury: Agent of S.H.I.E.L.D #2 (Lee and Sternako, 1968) and Captain America #110 (Lee and Steranko, 1969).

Steranko realized during his time in mainstream comics that it was nearly impossible to visually surprise the viewer, because all the information on the facing pages of an open comic book spread were seen by the viewer's peripheral vision. The only place where a visual surprise could happen was in the top left corner of the left-hand page.

"If placed anywhere else, it tended to draw the eye to that panel first, after which the viewer must return to the top left corner of the left-hand page — essentially reversing direction or traveling backward through the story and compromising its dramatic intent."
(Elliott and Leach, 2013)

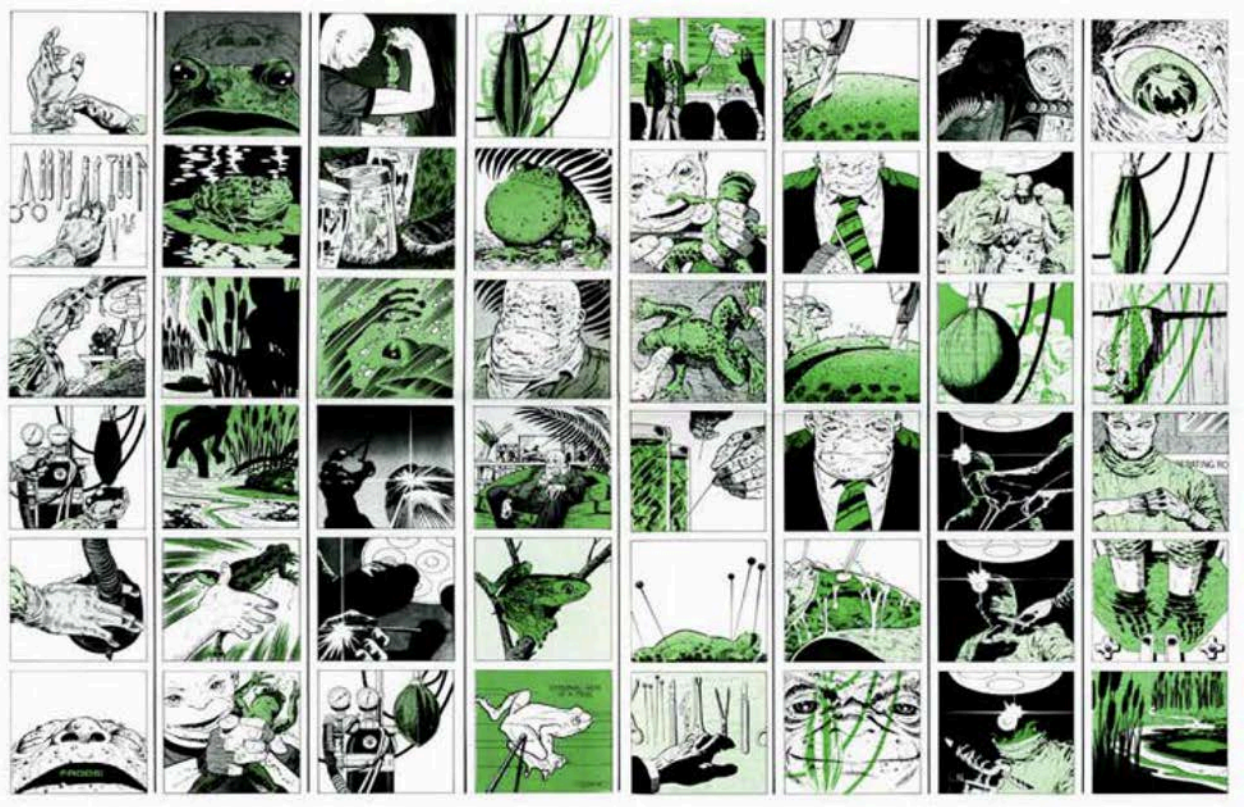


Figure 7: Frogs by Jim Steranko (Elliott and Leach, 2013)

It is possible to look back at the work that Steranko was doing for Marvel on the pages of *Nick Fury: Agent of S.H.I.E.L.D.* and *Captain America* and see the seeds of *Frogs*. For instance, on the splash page from *Captain America* 111 (Lee and Steranko, 1969) there is a series of colored blocks with no descriptive text or dialog (Figure 8). Each of the blocks shows us a part of the scene. These appear to be an establishing shot in an aspect-to-aspect transition (McCloud, 1993). The reader might try to read the page from left to right or top to bottom, as they would any page of text or comics, but Steranko designed the page to disrupt standard reading.

Each panel is color-coded blue, green, magenta, or yellow (except for the final panel in the bottom right corner which is colored naturally). The colored panels are distributed throughout the page. As the reader focuses on any one panel they find their eyes leaping from one part of the page to another trying to find a panel of similar colors. Steranko uses the gestalt grouping principle of similarity (both similarity of panel color and panel shape, however, the panel color

appears to be the stronger of the two influences) to move the reader around the page. This makes the reading of the page an individual experience, as no two people will find their way through the page in the same way.



Figure 8: *Captain America* 111 (Lee and Steranko, 1969).

Like the page from *Captain America*, *Frogs* cannot be read left to right, top to bottom. The reading of *Frogs* was designed as a collaboration with the viewer and takes advantage of a reader's random vision movement. Steranko's design moves the viewer about the page by using properties of visual grouping. Since all the panels are the same size it feels like the reading order should be from left to right across the strip in rows. However, the panel directly below panel one is similar in color to panel one so the viewer feels pulled downward, reading the page in columns.

The color schemes in the columns seem to support reading the *Frogs* vertically, but it is not our normal inclination to read in columns (at least in the Western reading tradition) we are easily drawn away to panels that seem similar to the one we are reading. Additionally, since there are flash-forwards and flashbacks within the story the viewer can easily find themselves, as they

reach the end of the page, looking back for a similar design or theme they saw in an earlier panel. Once the reading order is broken readers find themselves wandering the page trying to figure out the story.

Steranko refers to the form of *Frogs* as a single kinetic block; a complete story on one page. The *Captain America* splash page is only an introduction to a larger story. Since you are forced to look for the solution or conclusion of the narrative in *Frogs* in one page or block, the exploration of the page continues longer than in the previous experiment in *Captain America*.

This style of comics, the single kinetic block of panels, has been used frequently. It is most often used in the same way it is utilized in *Captain America* 111. We can see examples of this from Frank Miller, Chris Ware, and Jon McNaught (Figure 9).



Figure 9: Frank Miller, *The Dark Knight Returns #1* (1985); Chris Ware, *Acme Novelty Library* (2004)*: Nineteen*; and Jon McNaught, *Kingdom* (2018).

The previous examples are both from mainstream and independent makers. All of these are pages from a larger story. But we can also find examples that read more like *Frogs*. In *Invincible 123* (Kirkham and Ottley, 2015) in Figure 10 the pages are part of a larger story, but these two pages also form a complete story.



Figure 10: *Invincible 123*

The single kinetic block has even found its way back to Marvel (Figure 11).



Figure 11: *All-New Hawkeye* 4 *(Lemire and Perez, 2015)*

Dave Gibbons uses some of the attributes of the single kinetic block on the page of the *Watchmen* in Figure 12 (Moore and Gibbons, 1985). This page is part of a larger story, but the reader might sense there is something deeper to unlock in this grid, so we spend more time here than we might on the page from *All-new Hawkeye*.



Figure 12: *Watchmen (Moore and Gibbons, 1985)*

Since Steranko published *Frogs* more research has been done on the single kinetic block or waffle-iron grid as referred to in *The System of Comics*. “Forcing the frame to observe great neutrality allows it to elevate other parameters whose visibility and therefore efficacy would be considerably reduced if the layout were given over to useless fantasias.” (Groensteen, 2007). Isabelle Guaitella argues that the grid “inducing a state of receptiveness in the reader” and therefore allows for “ a more immediate integration of meaning” from the reader. Groensteen concludes that the grid “….is ideal for materializing the inexorable flow of time,” or “march of destiny.” (Groensteen, 2007). Which again illustrates the narrative power of the page layout.

There might be no better place to observe this than on the final pages of the sketchbook graphic novel *The G.N.B. Double C* by the cartoonist known as Seth. Impressively, the structure of the entire novel is a repeating 3x3 grid. The story retells the history of the society known as The Great Northern Brotherhood of Canadian Cartoonists. Seth recounts the glory days of the society but ultimately arrives at the present day and the decline of the society which can be seen in its infrastructure, membership, and cultural influence.

At the end of the novel Seth says to the reader: “Looking out from here, I know that I am looking back … not forward. I know that the time is ticking toward twelve.” (Figure 13.)

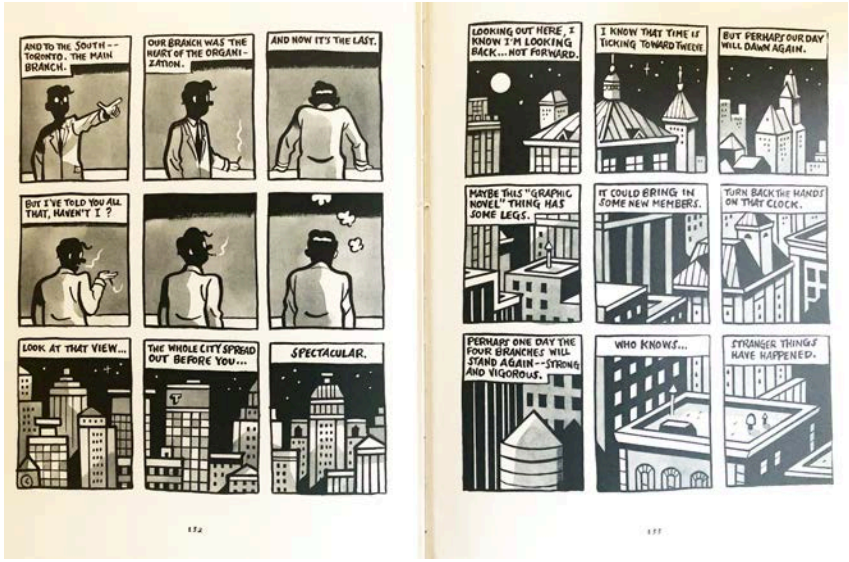


Figure 13: *The G.N.B. Double C (Seth, 2011).*

Steranko published *Frogs* to encourage others to experiment with the possible future of the page and as a step toward evolving the form (comics in comic books) to be as exciting as the stories. At the end of his writing about *Frogs*, in *A1: The World’s Greatest Comics* (Elliott and Leach, 2013), he promises to return to *Frogs* and rework it again for the internet by adding interactivity. He claims, as Scott McCloud does, that what we have seen of comics on the internet “restates the old and the obvious,” and “does not realize the creative potential,” ”explore new territory,” or “engage new formats.” (Elliott and Leach, 2013).

DIGITAL COMICS

Comics have been transitioning to the screen for as long as there have been images on the internet. In many cases, comics are the same on screen as they are on the printed page. Dittmar distinguishes between digital and webcomics, “Webcomics are those comics that are read on the Internet … digital comics are comics that are distributed and screened digitally (2021).” For simplification for the remainder of this paper, digital comics will refer to both comics delivered on the web or through other digital means.

There is a low bar for calling something a digital comic. For example, a scanned page of a printed comic turned into a web image and presented on a screen is considered a digital comic. The only thing digital about them is that they are now pixels rather than printed ink.

Comixology, one of the largest sellers of digital comics, by default, presents comics as just a page on the screen. They have added an enhanced view that allows the reader to select from two different ways to view a comic: Standard view, which is just the scanned printed page, or enhanced view if enabled, displays one or two panels of a page at a time so that they can be larger on the screen. Enhanced view is an interesting and more valid form of a digital comic as it takes advantage of digital delivery [2]. Ultimately, it is limiting because it puts blinders on the viewer as they cannot see all the frames of a page at one time and consider each frame(s) in comparison to the page.

Considering (reading and visually dissecting) more than one panel at a time and experiencing the space between them is essential to comics. McCloud addresses this in the chapter *Blood in the Gutters* from *Understanding Comics* (McCloud, 1993).

“Comic panels fracture time and space… but closure [the gestalt principle] allows us to connect these moments and mentally construct a continuous, unified reality.” (McCloud 1993). McCloud goes on to say that closure is the grammar of comics, “…since our definition of comics hinges on arrangement of elements — then, in a very real sense, comics is closure!”

Without closure, you cannot have comics. And if you are only getting one or two panels at a time then you will not be able to see the page as the artist designed it and you are missing a part of the story. A well-designed page of comics is about the content in the panels, the space between them, and their structure on the page. The page is the “meta panel” (Eisner, 2008).

This is clearly articulated on the pages of the *Watchmen* (Moore and Gibbons, 1985). If you only saw this page from Figure 14 one panel at a time (see Figure 15) you would miss the larger story that Alan Moore and Dave Gibbons designed for us. Seeing comics one panel at a time prohibits the storytelling possibilities of the whole page. “To break a comic down into a single picture is to

tear the map to shreds — the very fabric of comics core identity." (McCloud, 2000). The page is the artist's map of time, the map of converting time into space (Groensteen). The number size and shape of panels create the rhythmic effect (Eisner, 2008). For the story to resonate the "…rhythm must not be jerky. It needs subtleness, change in tempo, accelerations of pace." When you only see one or two panels at a time the rhythm of the story is disrupted and the narrative does not move in the way it was designed (Groensteen).



Figure 14: *Watchmen* (Moore and Gibbons, 1985)



Figure 15: *Watchmen* (Moore and Gibbons, 1985). This is the same page from Figure 14, advancing one panel at a time.

There is a lot more to the comics than what happens in the panels and between the panels. Comics is a full-page experience, a collaboration with the viewer. This is not to say that there are not great examples of comics being published on the web today in ways that have gone beyond the remediation of the printed page. Now comics live on the internet in new ways that remain comics exactly, there have been “durable mutations,” as McCloud suggested in *Reinventing Comics* (2000). “Artists search for new forms that preserve comics' silent static nature while exploiting other capabilities of digital media.” (McCloud 2000).

A great example is the augmented screen, where each time you advance, the panel or the page you are looking at is changed and altered or built to a final form (Figure 16).

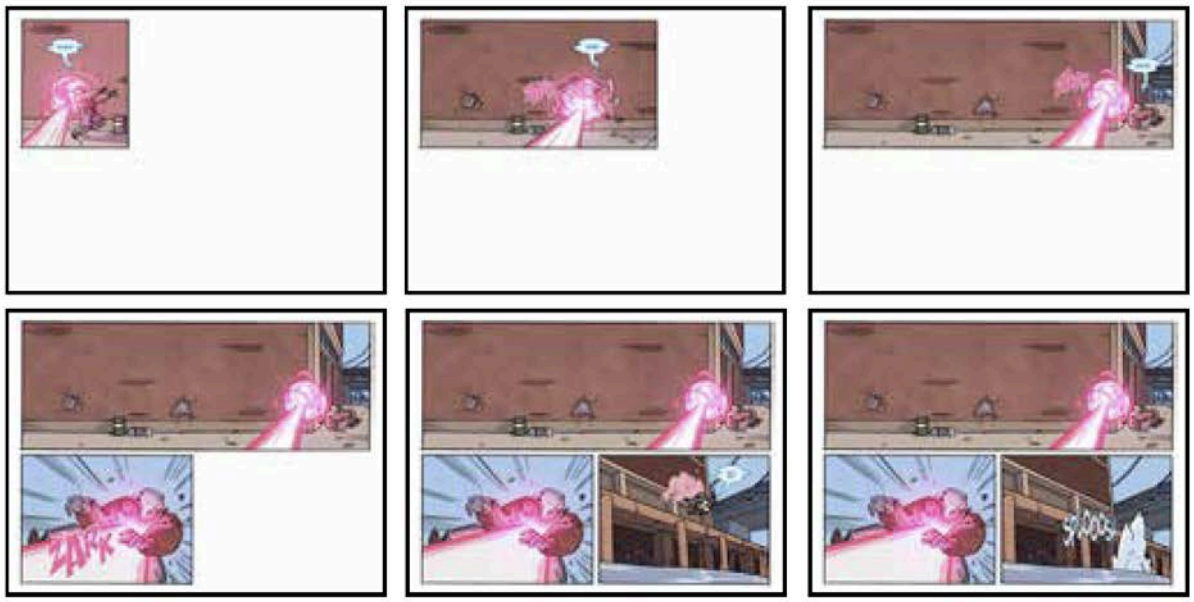


Figure 16: *Atomic Robo: Two-Fisted Tales: Along Came A Tyrantula* on Comixology (Clevinger and Wegener, 2015)

Some creators of digital comics have added movement and sound. With these additions, the form can feel less like a comic and more like animation or film. Dittmar tells us, “If [comics] contain film or audio - they are no longer comics in accordance with the established definition.” It is possible that they have become another medium (2021). Adding audio and animation adds time-based media, which is now time through time, not time through space (McCloud, 2000).

Something similar can happen when creators add interactivity. This can make the comic feel more like a game and less like a reading experience. However, reading digital comics should be an interactive experience (McCloud, 2000). The viewer should feel like they are “reshaping” or co-authoring the story through the interaction (Sayilgan, 2023). The interaction could allow the viewer to choose different paths, reveal hidden content or windows, or zoom in.

One of the most successful digital comic forms is the *endless* scrolling comic popularized on webtoons.com. McCloud presented this idea in *Reinventing Comics* (2000) and his TED talk *The Visual Magic of Comics* (2005) as he reimagined the future of comics. The screen in this case is not a page, it is a window through which we are looking at only part of a whole story.

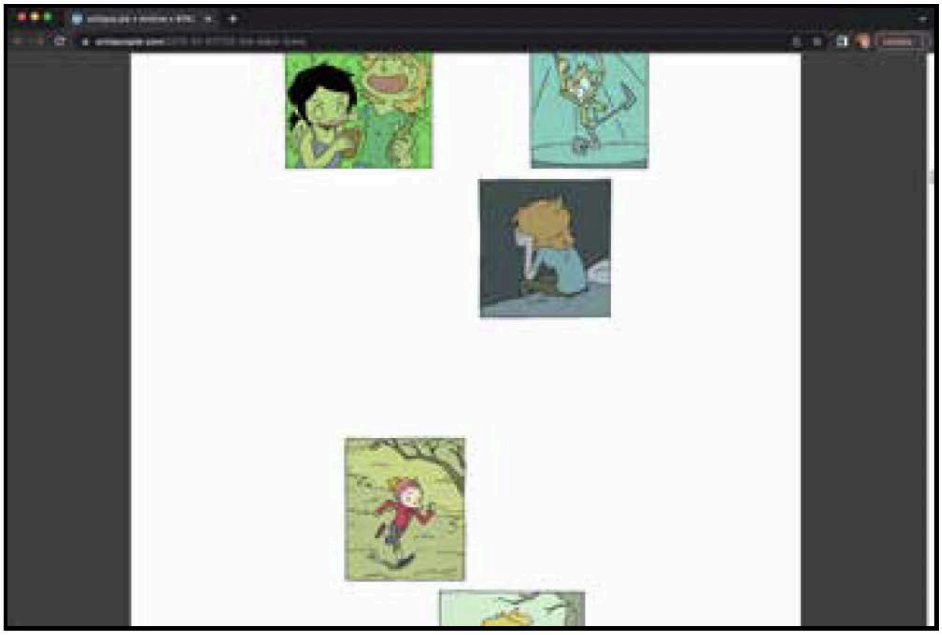


Figure 17: *The Witch Lives* from the web comic *Octopus Pie* #742 (Gran, 2015)

INTERACTIVE COMICS IN THE CLASSROOM AND BEYOND

Steranko was also considering the future of comics in a digital space and was disappointed with what he saw (Elliott and Leach, 2013). In his writings about Frogs in *A1: The World's Greatest Comics* (Titan, 2014), Steranko expresses his intention to revisit *Frogs* and adapt it for the internet by incorporating interactivity. He argues, similar to Scott McCloud, that current digital

comics “restates the old and the obvious,” and “does not realize the creative potential,” "explore new territory,” or “engage new formats.”

He never returned to *Frogs* to show us what he intended. So, in the spring of 2021 in the Sophomore level Art and Design studio at NC State University’s College of Design, we took up the challenge of making the single kinetic block interactive.

We started with the questions: what if Steranko made his grid interactive, what would that look like? Maybe you could physically reorder the panels and construct a page that matches your reading? Being able to reorder the panels might be another novel way to make comics digital and interactive.

We also overlaid research from scholars Hillary Chute and Marc Singer:

“[Comics have the ability] …to spatially juxtapose (and overlay) past present and future moments on the page. (Chute, 2008).

“Comics possess a special potential since their very form presents temporal relationships through spatial and pictorial, as well as sequential means. …ideally suited for experiments with other configurations of time.” (Singer, 1999)

The project, *Interactive Comics: Single Kinetic Block*, was presented as a *project platform* in the studio. A project platform is an educational tool and strategy. The platform is a starting point to work from. There are two parts to a project platform. First is the visual content, then the nuts and bolts, the mechanics that make it work. In this case, the nuts and bolts are the code that enables the basic interactivity to work.

The initial project platform was a structure of similarly sized panels (Figure 18). Using Adobe Animate and publishing to an HTML5 Canvas[3] we added interactivity so that if you clicked on two blocks, one after the other, they would switch places. With this interaction, one could build an interactive version of *Frogs* because this would let the viewers reorganize panels to tell their

own stories. This version was a satisfying result, but for the project to be in the spirit of Steranko and *Frogs*, it needed to be more experimental. It needs to tell exciting stories and have the form be a part of the excitement.

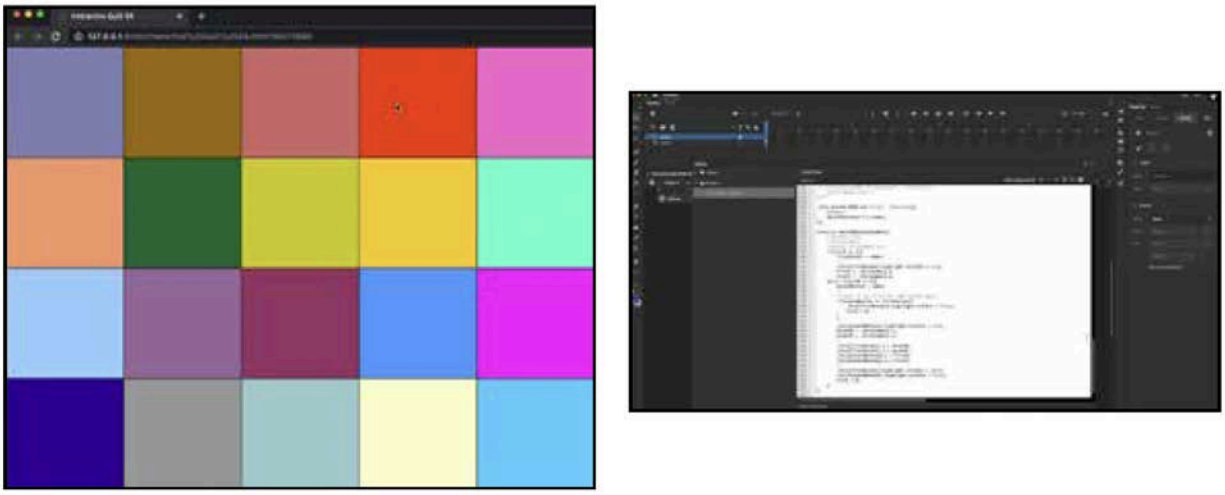


Figure 18: The initial template published in a browser from Adobe Animate using the HTML5 Canvas, plus the code base in the Adobe Animate publishing environment.

A project platform lets students focus on their artistry since the code base is supplied. But this is only a starting place. Students were asked to embrace Steranko's idea and imagine an interactive space based on the single kinetic block that would deepen their story [4].

Many of the projects developed were very interesting. Zeno Phu added animation to the panels and multiple layers. When you click on a moment in the grid, it jumps to another stage of the character's life. Ben Johnson gamified the grid. In his version, you needed to look at the panels and put them in the right order. Occhetti added music to the experience that was connected to the images that you selected. In Emma Anderson's version, panels would change based on the panels around them (Figure 19). Some of these experiments were more comics than others. But, there was one project that stood out because of its pure use of illustration, design of comic panels, and use of interactivity.

Henry Stover's project entitled *Goodbye* started with the concept of memory (Figure 19). Henry wanted to tell a story about how grief affects our memories. They considered memories to be

non-linear, so the first layer of interaction is that the user can swap the order of any panels. This interaction closely matches what we thought Steranko would have done with *Frogs*.

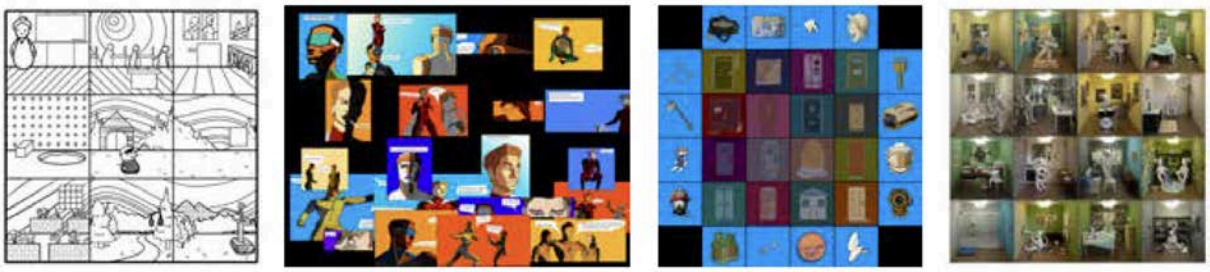


Figure 19: Projects by Zeno Phu, Ben Johnson, Occhetti, and Emma Anderson.

Each panel in *Goodbye* represents a memory of an interaction between two characters. Even in its initial form, the panels don't tell a linear story, so the viewer can move the panels about to create a new story. Henry hypothesized that placing certain panels near others creates different emotions or associations. For example, if the user chooses to create a linear narrative, where the blue character is apologizing the reader/user may make the panel preceding the current panel seem like something worth apologizing for (Figure 20).



Figure 20: *Goodbye* in its initial state.

Even though the panels are arranged non-linearly the final panel seems to be in place since it is just a single phrase (and the title of the comic) *Goodbye*. Because of this most people who interact with the comic do not touch the final panel early on. But after a few minutes of moving panels around to form their narrative, users inevitably move the last panel. And this is where this comic becomes more innovative and experimental.

There are two versions of each panel: the first is how the memory would have occurred, while both characters were together, and the second, is where the pink character is gone, and the other is reflecting on what their absence means (Figure 21). To see the version where the character has left, the user has to move the goodbye panel. Then, all the panels after the goodbye panel are changed to a panel with the absence.



Figure 21: After the Goodbye panel has been switched with panel 6.

From here, the reader/user can make changes to create different narratives depending on how soon the pink character leaves, and what events occur before or after that happens. For instance, the story in Figure 22 has a pretty dark ending that feels very different from the story in Figure 23.



Figure 22: Darker ending.



Figure 23: Happier ending.

Just like how the emotions we associate with certain memories can vary depending on many factors like how much time has passed, or what else we've been thinking about lately, a structure like this allows each panel to change depending on where it is relative to the goodbye panel and depending on the context of the panels around it.

This is an extraordinarily interesting new form of comics. Because of the multiple layers of each panel, *Goodbye* could not have been created with the same impact in print. Henry created a unique comic story with interactivity. The project conforms to the essential ideas of comics in both print and digital forms of many influential comics researchers.

Hillary Chute states, "In comics, reading can happen in all directions; this open-endedness, and attention to choice in how one interacts with the pages, is part of the appeal of comics narrative …." . Chute continues, "Comics puts productive pressure on what "normal reading" is - not because it is so easy, or immediate, but rather because paths of reading and different moments of time can compete as alternatives." (2017).

Goodbye "Allow[s] the viewer to read in a nonlinear way." (Fawaz, 2019) and "... augments the narrative process." "It is an interaction with the medium and the story itself." Creating an "Intricate relationship between digital technologies, interactivity, and sequential storytelling." (Sayilgan, 2023).

We are eager to continue this work with other makers and researchers. More experimentation is needed in this form. If anyone is interested in the template or project platform you can contact Henry Stover or Professor Marc Russo at NC State's College of Design. We would be happy to share the technology with you. There are tutorials for how to use the basic platform and how to use the altered platform built by Henry for G*oodbye*.

NOTES

[1] The Golden Age of comics runs from 1933 to 1950. The Modern Age runs from 1985 to present. However, it might be more nuanced to follow Darren Fisher's timeline because an era running from 1985 to the present misses that a lot has changed in many different ways since 1985. Fisher breaks down the Modern Age into the Iron Age, 1986 to 2006 and the Mercurial Age, 2007 to the present.

[2] There are two different ways to navigate Standard View. If you hold your tablet oriented in portrait (tall), you can see the whole page without clipping. To navigate, swipe left and right as if you were turning pages. If you hold your tablet oriented in landscape (long), the page you are looking at gets cropped. You can only see about half of the whole page. To navigate, scroll up and down. As you reach the bottom of the page, the next page is there automatically for you to continue onto. This is similar to the endless scrolling comic that is on webtoons.com. However, since the pages have not been designed for this experience it does not take advantage of the new format. Plus when you come upon a part of the story that is a spread in the comic. There is a lot of black space above and below the image that is rendered small.

[3] There are some experimental interactive comics found on the Apple App Store or Google Play Store that need an entirely new app to support the interaction and media. These experiments offer some very interesting interaction, but their limited access is problematic, because the easy access of comics is often cited as one of the reasons for its cultural impact. This experiment was created in a web-native format so that anyone can experience it without needing a new app.

[4] One of the curricular goals of the project was to introduce students to coding. Through a short series of tutorials, students learned how to change the platform and offer different interactive possibilities to the viewer.

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BIOGRAPHY

Marc Russo is an animator and comic artist in the Triangle of North Carolina and a professor of animation focusing on the cartoon and storytelling at NC State's College of Design. Marc's animations have been selected by film festivals around the world. His comics have been published in independent publications and zines. His film *Sheltering Sky* was a collaboration with Triangle Wind Ensemble (TWE). *Sheltering Sky* was first screened Fantasia-style by TWE

in 2019 and has been performed around the world. He has worked as an animator on several NSF and Gates Foundation grants creating educational games. He recently took part in the animation competition for Pink Floyd's Dark Side of the Moon, where he completed an animated short for the track *On the Run*. Marc believes like Christopher Vogler, "… [stories] have tremendous power to heal … and make the world a better place."