Comic Circuit: An Online Community for the Creation and Consumption of News Comics

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Abstract

News articles present important information in a lengthy, often exclusively textual way, which can be less accessible for teens and young adults looking to scan information quickly. News articles have the potential to reach a wider audience and tell more effective stories if presented in a visual, succinct, and engaging manner. Comics are a medium that can become an alternative to news articles, because their storyboard format has the ability to both inform and excite readers. We propose Comic Circuit, a website where users can create and consume news comics that are based on news articles. Low and medium fidelity prototypes of the system were designed after interviewing expert cartoonists and creating personas of potential users. We used our mid-fi mockups to conduct user testing with young adults, and did additional quality assurance of our design with quantitative testing. We present a high-fidelity prototype of Comic Circuit based on this testing and research. The community of users can benefit from this system by consuming news quickly, gaining recognition for their comic creation work, and expanding their skill set.

Author Keywords

comics; crowdsourcing; creativity; cartoons; journalism

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Figure 1: An example of comic journalism by Matt Bors.

Figure 2: Creating the affinity diagram from the expert interview notes.

"They say that a picture's worth a thousand words, but the picture takes a thousand times longer to draw."
- U-16

"It's hard to do a comic about something very that are time sensitive. I'm not going to do a comic about a situation that's changing rapidly."
- U-17

Figure 3: Sample quotes from our interviews with cartoonists.

Introduction

Young adults under the age of 25 are spending much less time consuming news than other groups—in one study, 29% of them reported that they consumed no news the previous day, compared to 19% of those between 25 and 39 [1]. Older teens are also less likely to read a daily newspaper than average [9]. Being in the fast-paced information age, news readers are choosing succinct content over longer prose but are still not very informed. The ineffectiveness of news consumption is impacted by the communication medium, which currently presents a news story as long text supported by one or two photos. It is hard for the text-based medium to provide both a high-level summary and low-level details of the event. Photos typically only capture one moment in time and can be hard to obtain. To encourage news consumption in young people, our design project explores alternative media for news.

Comics provide a great visual-based opportunity to communicate news articles. They are a visual medium that combines written words and illustrations in sequential panels [7], traditionally used for popular entertainment purposes. For younger audiences, reading comics can be a gateway to reading other material, and the process of creating comics can be a learning experience itself [6, 8, 10]. Comics have been used to communicate current events via comics journalism, where a comics journalist draws comics to explain an event [3]. A comics journalist must have a wide range of social and technical skills and often works alone throughout the process, and therefore cannot report on a wide scope of current events. A comic creation community would need tools to support these setbacks.

We designed Comic Circuit to explore the possibility of building an online community that generates and consumes news comics. Our system is similar to online comic making tools such as Pixton and BitStrip, which provide the technology to piece visual components together in panels. Unlike these tools, Comic Circuit focuses on making comics based on current news arti-
cles, and emphasizes creating these comics collaboratively. To help users create comics, our system suggests existing news articles and provides guidelines to facilitate the visual storytelling process for non-professional comic artists. We ground our design in interviews with expert comic journalists and cartoonists, crowd experiments, and iterative prototyping.

Research: Expert Interviews

To inform our design and map out our platform, we interviewed expert practitioners. Our primary research questions were: 1)What are cartoonists' workflows and processes? 2)What are the challenges of content creation? 3)How do cartoonists collaborate on work? 4)What makes a successful comic?

Method
We interviewed fifteen cartoonists and comic artists—nine over the phone and six through e-mail. Thirteen were found on Cartoon Movement, an online community that features full and part-time professional cartoonists and their work. Two were prominent comics journalists found on Wikipedia.

In a preliminary survey, we asked about the artists' comic creation procedure, their views on collaborative work, and the difficulties they face. We later conducted in-depth interviews about the experts' backgrounds, process, and beliefs about cartooning. We asked each expert to walk us through the process of creating their last comic to get a more immediate sense of an instantiation of their process. Emphasis was placed on parsing the cartoonists' process.

Notes from the interviews were used to construct an affinity diagram to illustrate overarching themes in the data. The affinity diagram presented notes from our interviews in a hierarchical fashion so we could see and extrapolate from the issues our expert user population face [2]. The team looked over the affinity diagram and brainstormed design ideas for the organization and features of a creative platform. The data was abstracted

"I doodle in class every chance I get."

Personal Information
Age: 15
Location: New York, New York
Education: 9th grade in high school

Goals
- Improve his reading comprehension
- Pass reading and writing classes
- Find the next great comic book to read
- Have a creative profession when he grows up

Scott Davis,
Visual Thinker

Figure 4: One of the personas created to aid our design process.

and coded in multiple levels of interpretation through an iterative process, deriving insights and design ideas organically [4].

Findings
The interviews revealed two main stages in professionals' process: ideation (exploring different ways to visualize the task and choosing the best one for the final vision) and execution (carrying out that vision). Ideation is often the most challenging part of the process, as U12 stated, "It's frustrating sometimes when you really can't come up with a good idea, because there are times when you are out of ideas—you are not in the mood to draw." Cartoonists discussed their struggles with coming up with ideas that were timely and relevant as well as the challenges of generating creative and original ideas. These insights led to a fundamental design decision: to develop a collaborative platform to offload and distribute the ideation process to a creative community. The key design challenge was how to support collaboration while affording iteration, implementation, and division of skills. Another insight revealed is the importance of building trust and relationships between collaborators. The online community would need to facilitate the building of relationships among users, and this informed specific features of our platform.

Design Process
We employed a mixed-method approach to our research, initially carrying out qualitative research and later conducting quantitative concept evaluation. This facilitated decision-making on diverse design issues related to the process of creating comics.

Personas
Our personas delve deeper into the motivations of potential users by exploring the needs of both teenagers and young adults, who function as either producers or consumers of news comics.

Jill Catran is a 23-year-old Digital Strategist at GE Healthcare in Boston who was a Media Studies major in college. She has limited ability in illustration, but is proficient in digital tools. Jill wants to contribute her voice to new media outlets, and considers making news comics an exciting opportunity to do so with her skill set.

Alexandra Gutierrez is a 16-year-old in the 11th grade in Ann Arbor, Michigan. She is an excellent student and has a special interest in world history. Alexandra is gathering materials for her online portfolio to include in her college applications. She plans on supplementing her portfolio with online stories and comics about her favorite history topics.

Peter Wu is a 25-year-old programmer at a small tech startup. He moved from Beijing, China to California at the age of 12. Peter enjoys the exciting startup life and works long hours, but is beginning to feel isolated from events outside of his industry. He likes to read concise international news stories to keep up with current events in China, where most of his extended family lives.

Scott Davis is a 15-year-old from New York City who is struggling with reading comprehension and writing in school, but is an avid comic book reader. Scott's teachers see his potential as a visual thinker, but need him to improve his understanding of news articles and written material. Scott benefits from reading news comics because they keep him more engaged with the story.

Based on an analysis of these personas, it became clear that different types of users have distinct needs that we should address in the first iteration of our design. Jill needs to create news comics with limited artistic skills, and so we included a components library that would support the quick assembly of comic panels. Alexandra wants to make comics to put on a portfolio and build an online reputation, so we decided there must be a way to feature exceptional comics on the site. Peter would like to read the news quickly, and so we organized news by topics to ensure easy browsing of relevant in-

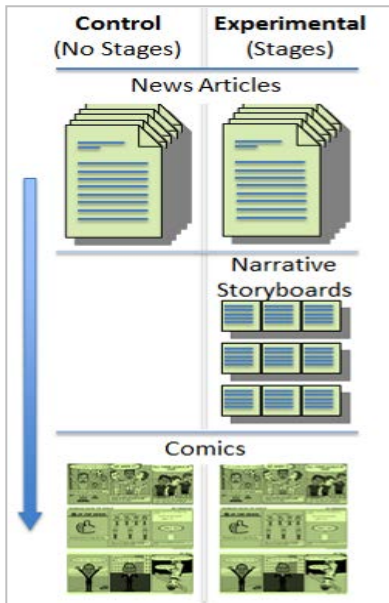**Figure 5:** Mid-fidelity Balsamiq mockup page used during user testing.

Figure 6: Experimental conditions for our quantitative concept evaluation.

formation. Scott needs to learn about the topics he is creating comics for, so we included an optional narrative summary step so that comic-makers can summarize the news and further digest the information before jumping into the creation of the comic strip. These insights, in addition to data from expert interviews, were used to design medium fidelity mockups.

User Testing
User testing was conducted with eight users on medium fidelity mockups created in Balsamiq, and focused on the navigability of various features of the website during exploration. The users for the tests ranged from age 17 to mid-20s, comprised of high school and university level students with a gender breakdown of 4 males and 4 females who had varying interests in comics and news. Each user was asked to perform tasks pertaining to site navigation and comic creation via the interface.

In general, users were receptive to the idea behind the platform. We found some users wanted to only read the news comics. One user mentioned, "It's a cool site. I would use it to read the news, but wouldn't make my own comics." Other users were interested in both creating and reading comics. One stated, "It's fun to create comics. I would probably be on here all day just making things!"

We utilized the more specific findings from the tests performed on the mockups to make changes that were incorporated into the design of high fidelity prototypes. In the final design, comic strips are ordered by date instead of by user rating. They are divided into today, this week, and all time top news comics. This was done to facilitate the consumption of current news events, as opposed to showcasing highly ranked comics. We also changed how comics about the same article were organized, because users were confused when viewing multiple comic strips made for the same news article. Broader sections such as "Today's Top News" and "This Week's Top News" are scrolled through horizontally,

while different comic strips made about the same topic are listed vertically. The use of both horizontal and vertical scrolling will afford intuitive navigation on mobile, especially tablet, computers. Furthermore, extending our platform into the mobile space would allow readers to consume news content on-the-go. We expect that comic creation would not be hindered by the lack of a keyboard and mouse, but rather would be learned more quickly.

Generating Quality Content Through Crowdsourcing
In addition to user testing of the interface, we quantified and tested some open questions about the process of the experts interviewed, who expressed conflicting experiences about their creative process. Some reported having a clear sequence to their work, while others created things more chaotically and spontaneously.

We decided to test if breaking down comic creation into sub-tasks would aid the process of non-professional users by carrying out a between-subjects experiment with two conditions. Participants utilized Amazon Mechanical Turk and BitStrips (an online comic creation tool) to create a new comic. In the "Single Stage" control condition, participants (n=12) were instructed to create a "readable, informative" comic based upon a news article. In the "Two Stage" experimental condition, the comic creation process was broken into two stages. For the first stage, a set of participants (n=73) created a narrative storyboard of the article. This involved using text to describe the images and write captions for a 3-panel comic strip based on the article. Those narrative storyboards were evaluated by the community to choose the best for continued work. In the second stage, a second set of participants (n=7) created comics based upon those narrative storyboards. The control and experimental comics were evaluated by a third set of participants to determine the quality and informativeness of the content.
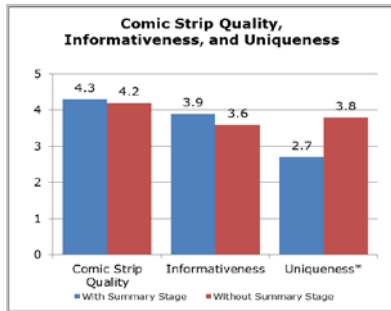
The data show no statistical difference in the quality of

Figure 7: Key research results. *Uniqueness difference is significant; p=.003.
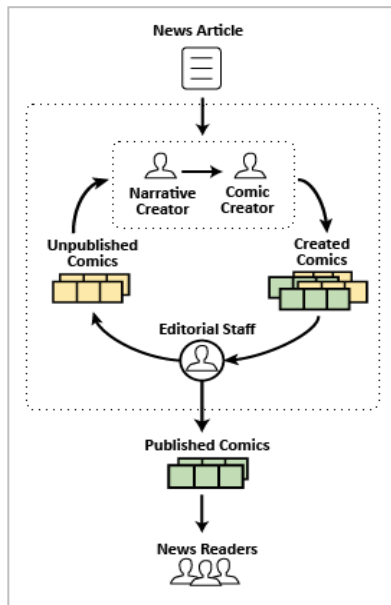

Figure 8: Editorial process within Comic Circuit.

the comics produced by the Single Stage vs. Two Stage process. However, the results contain other interesting conclusions that ultimately influenced our design. First, the comics created from narrative storyboards contained marginally higher quality scores (4.3 v 4.2, p=.39) than those created from the article alone, indicating that this difference might be statistically significant with more test participants. Second, in a follow up study, comics created directly from the article (without the narrative summary stage) were rated as significantly more unique than comics created using the staged approach (3.8 v 2.7, p=.003). While a two-stage process increases the quality of the comic, it potentially limits the creativity of the comic creators, who tended to be more literal, factual, and faithful to the content and structure of the article. Overall, the research suggested that including an editorial community, along with optional stages to comic creation, would encourage higher quality output by balancing the acknowledgement of creativity with the need for structure in the creative process.

Our Solution: The Design of Comic Circuit

Our proposed solution is Comic Circuit, a platform where people can read and create comic strips from news articles. Users take part in the comic creation process by selecting an article from a curated list of news articles and utilizing the in-site editor to collaboratively create comic strips. Our design process revealed three main uses of Comic Circuit:

1. Allow people to consume news articles in less time by providing a visual alternative.

2. Provide an online platform that gives users the ability to create comics by collaboratively pooling skills in writing, storyboarding, and visual design.

3. Enable people to build online reputations and relationships.

Comic Circuit works by providing its community members with a list of selected news articles that can then be converted into comic strips by the users. Each article

can have many comic strips associated with it, showing various perspectives of the article as envisioned by users. The editorial staff approves comics to be published on the site, or sends feedback to the comic creator.

Comic Circuit readers can glance over the top news headlines of the day, and understand the articles by reading the comics. Readers can also take on a more participatory role by making comics for articles, or by creating a different version of an existing comic.

Conclusion

Our design process explored the intersection of comics and news and revealed opportunities for communicating current events in a novel medium. The concept of Comic Circuit has been validated and fine-tuned at multiple stages of its design by professional comic artists, Amazon Mechanical Turks, and young adult users.

Our system facilitates the translation of news articles into comic strips by breaking down the task into distinct steps. By focusing on simplifying the comic creation process while retaining the final quality via peer editing and expert user evaluation, we have designed a community whose content can be seeded easily via collaboration. The products of this community are comic strips for current events that site readers can browse and interact with. Users who create comic strips can practice storytelling and visual layout skills, and can be recognized for their contributions.

Our initial goal was to create a platform whereby people could both digest current events in comic form and contribute by creating comics about current events. We learned during research that breaking down a complex task into simpler pieces is a good method for crowdsourcing coherent, quality content. This coherence, however, compromises some of the creative qualities of users' work. We ultimately decided to include some constraints but have a means of ensuring quality creative content. The site will have an editorial board of experts who feature submissions based on narrative

Figure 9: Hi-fidelity prototype displayed on an iPad.

content and holistic effectiveness of visual metaphor, rewarding exceptional work. However, Comic Circuit will encourage the construction of comics in stages, and will promote more in-depth research of a topic and the summarizing of key facts to render the content as informative.

We received positive feedback that highlighted the novelty of the concept and the variety of user needs that are satisfied with our design. Contributors can either adhere to the original news article content or present information creatively. For its viewers, Comic Circuit facilitates at-a-glance and high-level understanding of related past and current events via its concise visual medium. For the contributors, Comic Circuit provides a crowdsourced comic-creation platform that has the potential to be an effective educational tool that uses technology to move beyond the uses of traditional professionally made comics.

Acknowledgements

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