Visual Journalism Is an Appealing and Engaging Format for Telling Complex

Non-fictional Stories

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Abstract

This paper examines the reasons behind the increasing popularity of visual journalism among journalists, news outlets, and media consumers, and contains a methodology and analysis for creating a visual journalism feature story. This feature story is part of an applied creative project that seeks to explore the intricacies and problems with creating feature stories using visual journalism techniques. Visual journalism has grown in scale and popularity as a form of online journalism since the publication of the New York Times's *Snow Fall* feature article. However, visual forms of journalism existed since the beginning of the field, such as photojournalism. Visual journalism combines multimedia elements, such as images, charts, animations, and other visuals, with aspects of traditional journalism, like text, newsworthiness, and fact-checking. User experience design and responsive web development help bring visual journalism feature stories to life, adding meaning to these stories by engaging users through interactive visuals and other elements. However, these elements need to be designed and tested carefully to ensure they do not detract meaning from the story or distract users from the story itself. This paper also explores the many limitations and troubles of creating a visual journalism feature article as an individual person working outside of a professional news outlet and during a pandemic. A survey to analyze the effectiveness of visual journalism feature articles suggests that the format works better than traditional forms of journalism for conveying and condensing information in a manner that is visually appealing and easily understood.

Keywords: visual journalism, journalism, digital longform journalism, user experience design, visual communication

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Non-fictional Stories

Whatever people choose to call them, visual journalism, multimedia storytelling, multimedia features, interactive multimedia pieces, or something else, these journalism forms look set to shape the way journalists tell stories. This paper aims to show that visual journalism offers an appealing format for telling complex non-fictional stories that attracts users by utilizing the latest web technologies to format and display content in an engaging manner. The paper describes the methodology and presents the outcomes of a creative applied project, a visual journalism feature, about the major events causes and outcomes of Armenia's Velvet Revolution, entitled, *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19* (Madhoo, 2020).

Since 2012, visual journalism pieces have won praise from readers, journalists, and prominent journalism organizations. A visual journalism piece, *The 1619 Project*, visualizing the story of American slavery won the 2020 Pulitzer Prize for Commentary (LaForme, 2020; The New York Times Magazine, 2019). But the trend's seminal moment was in 2012 with the The New York Times's publication of *Snow Fall: The Avalanche at Tunnel Creek (Snow Fall)*, a six-part story combining interactive elements with animations, simulations, and video footage (Branch, 2012). It "documents and analyzes the causes and deadly impact of a monster avalanche in Washington's Cascade Mountains" (The Peabody Awards (2012)). *Snow Fall* also won a Peabody award, with The Peabody Awards (2012) saying:

> A spectacular realization of the potential of digital-age storytelling, *Snow Fall: The Avalanche at Tunnel Creek* illustrates and enriches superb, traditional feature writing by John Branch … At once beautiful and scarifying, *Snow Fall: The Avalanche at*

Tunnel Creek is a lucid, enveloping multi-media experience, and for this it receives a

Peabody Award.

These accolades provide compelling evidence that the visual journalism form helps create

unique and engaging stories that would not likely be as effectively told in a different format.

However, visual journalism existed since the late 1990's. One of the most

documented examples is Mark Bowden's 1997 *Black Hawk Down* narrative (Jacobson et al.,

2016). Technological advancements in terms of user-facing hardware, faster networking

speeds, and other web technologies have allowed for an increasing level of interactivity

(Rogers, 2020). Rogers (2020) and the telecommunications company, Ericsson (2020), argue

that more recent developments in virtual and augmented reality could create a more visual

and immersive experience than visual journalism offers. Nevertheless, visual journalism has

paved the way for journalists to use technological advancements for developing more

compelling and immersive stories.

Visual journalism contains many layers that make it difficult to define. The BBC's

Visual journalism editor, Amanda Farnsworth (2013) says, "For many in the newer fields of

digital journalism, it's simply about visualising data, or using graphics such as maps or charts

to explain stories." But she adds that "in the BBC, it's also about bringing together our TV

designers with the teams that create the more high-end multimedia graphics online and

harnessing the unprecedented creative opportunities that brings" (Farnsworth, 2013).

Scholars like Gynnild (2019) offer similar definitions: "Visual journalism is an umbrella term

that refers to journalism platform design as well as to the specific elements, or visual genres,

within the frames of a platform design. As an end product of complex journalistic processes,

the term comprises the narrative elements of storytelling that can be seen or watched" (p. 1).

Visual journalism also contains interactive elements that help users engage with the story, which traditional online features do not.

Due to the complexity, time, and cost of developing visual journalism features, this journalism form is still in its infancy. They require additional work above traditional online features. For instance, both visual journalism features and traditional features demand good research, diverse sources, fact verification, visuals like images, newsworthiness, and journalistic ethics and codes of conduct. However, visual journalism also needs user experience design, web development, and performance optimization to ensure that the format enhances the story without creating unwanted distractions. Nevertheless, major news agencies worldwide (Al Jazeera, 2020; Bloomberg, 2020; Financial Times, 2020; Reuters, 2020; Safi, 2020) have adopted the format, which looks set to define a new era of online journalism in the future.

Literature Review

This literature review discusses the main elements that constitute and define visual journalism. These elements include the key features that distinguish it from traditional journalism. Also discussed, will be the processes required for producing visual journalism pieces, technological advancements that make this form possible, and the markets that allow this type of content to be published.

Visual journalism falls under the category of visual communication, and as such, it contains different types of visuals. Gynnild (2019) says that these visuals include "photos and videos, cartoons and animations, data visualizations, multimedia presentations, and graphics" (p. 1). In terms of semiotics, therefore, "visual journalism communicates meaning through a multitude of interrelated signs" (Gynnild, 2019, p. 1). Machin and Polzer (2015) also discuss how additional visual details, such as colors and typography, combine to create meaning by

allowing "ideas, attitudes, and identities" to be communicated (p. 19). The overall effect of

the visuals "form part of the ideas about the world, concepts and attitudes that are

communicated," and not just add to the "news, editorials or features" (Machin & Polzer,

2015, p. 1). New technologies have allowed for increasing use of visuals in journalistic

pieces. Gynnild (2019) says that less than two decades into digitization, exploratory web

design embraces interactive data visualizations, motion graphics, 3D modeling, and

animations as well as photos and videos and other elements that can be seen, watched, or

heard" (p. 5) However, Machin and Polzer (2015) argue that "the way we communicate has

itself changed" because of these developments (p. 2). Visual journalism implements visuals

in a way that creates and supplements meanings and concepts of a given story.

Journalism has always published pieces targeted at specific markets, and thus visual

journalism also appeals to the demands of the markets today. Aspects like "mood and identity

of the title" can be better conveyed using "the right visual and compositional choices," and to

ensure that "is appropriate for the brand of the news programme and the attitude and mood it

seeks to present to viewers" (Machin & Polzer, 2015, p. 2). Machin and Polzer (2015) argue

that visual elements also help shape meaning within a story and develops "social relations …

with readers, users, and viewers" (p. 1). "Visual communication in journalism" always aimed

to "engage and influence audience opinion and behavior through attracting more attention to

the news" (Gynnild, 2019, p. 1). Farnsworth (2013) provides similar information, but from a

journalist and editor's perspective: "So we want to use our skill and creativity to engage and

inform our audiences on the biggest, most significant stories, providing insightful, personal

and shareable visual explanations." The shareability of an article also remains an important

factor when producing a visual journalism feature, adding to its market appeal. But this

marketability has also been derived from the features ability to appeal both visually and textually to its audience.

The biggest influence on visual journalism is *Snow Fall*, which falls under the category of digital long-form journalism. This format is "characterized by the purposeful integration of multimedia into long-form journalism," a combination of long and detailed creative non-fiction and technological elements like images, videos, and animations (Jacobson et al., 2016). Features based on this emerging journalistic genre embed "the user into the narrative through visuals, audio, and compelling writing" (Jacobson et al., 2016). It is this combination of established journalist techniques, creativity and multimedia that allows the engagement of readers and viewers with a feature story.

Digital longform journalism bears many similarities and differences from visual journalism. For instance, both generate narratives using a combination of text, videos, images, "maps, and other graphical elements (Hiipala, 2016). However, visual journalism offers a greater level of interactivity and can be shorter in length than that of digital longform journalism. Both forms, however, use visual elements, multimedia, and traditional journalistic techniques to develop compelling stories.

Another major influence on the development of visual journalism is social media. Social media has helped pave the way for more experimental forms of visual journalism because it allows users to produce and disseminate news themselves. Gynnild (2019) says that this change "in user interaction with the news media inspired other forms of visual journalism experimentation, for instance the evolving use of interactive graphs and maps in data visualization," which are more difficult for non-professionals to create (p. 4). Before this time, visual technologies like photographic and video cameras also shaped the way people created content. Journalism and social media also fit together for the "sharing and referencing

of visual postings," and thus "the boundaries between visual journalism and decontextualized storytelling are increasingly blurred" (Gynnild, 2019). Social media became a shifting point for journalists to take visual communication of news to a level beyond the everyday person.

To further breakdown how visual journalism functions, it is important to understand how much of a role design plays. According to Machin and Polzer (2015), multimodality, a field of visual communication, "provides a more predictive set of tools for breaking down and analysing the visual appearance of journalistic output" (p. 12). It provides a theoretical basis with which to create " our own designs," because different design elements can evoke different moods and meanings depending on the context (Machin & Polzer, 2015, p. 12). Multimodality also emphasizes the influence of time on viewers' perceptions of a visual journalism feature, because the more attractive it appears the more likely they are to read the feature (Hiippala, 2016). Reducing the size of images into thumbnails to improve page load times and create a visual effect also adds meaning to the story because they can create visual space and be used to attract the user to specific elements on the page (Hiippala, 2016, p. 3). After the publication of *Snow Fall*, many journalists have experimented with and created new kinds of feature stories, and dedicated teams focus on the "design premises of visual journalism" (Gynnild, 2019). These developments show much more important design has become in producing visual journalism features.

However, there are many issues faced by news agencies and journalists that hinder the production of visual journalism features. One major hindrance is that there is a "lack of financial support for digital content both from within the publishing industry as well as from advertisers" (Machin & Polzer, 2015, p. 5). Design and branding consistency are cited as major difficulties in producing online journalistic content, especially as the market demographics differ between print and online (Machin & Polzer, 2015). These designs also

need to function across desktop and mobile platforms, but journalists and news agencies agree that the added level of interactivity adds value to their articles (Machin & Polzer, 2015). These difficulties have always existed for journalists, irrespective of the medium or journalistic form. Machin and Polzer (2015) say journalists "must communicate ideas, attitudes and values using the right kinds of visual resources but in a context where this may be constrained by the specifics of technology, production processes and finances" (p. 6). Problems like these hinder the development of visual journalism, which costs more than traditional forms of journalism, including digital journalism.

Another major issue with visual journalism stems from the legitimacy of the visuals themselves. Gynnild (2019) argues "that visual credibility has been a crucial issue throughout the history of the field" and that this issue has become pressing over time due the democratization of information and how easy it has become for anyone to edit and create fraudulent visual data (p. 1). Fact verification has long been a component and requirement of professional journalism, so investigating the legitimacy of images is paramount for creating visual journalism features.

The additional work that goes into a visual journalism feature adds a further level of complexity compared with traditional features. Greenfield's (2012) interview with *Snow Fall's* creators provides essential details for what goes into creating a visual journalism feature. They describe the processes, pitfalls, and positives of working with this format, especially its immersive elements. For instance, they detail that their designers "are just working together and in constant R&D mode, trying these experiences as you scroll them into your browser and getting to the point where they are not too distracting and are timed right" (Greenfield 2012). The creators also say that "the way that it was coded — to try to create this so it wasn't a heavy experience for a reader — that was ambitious for sure" (Greenfield

2012). Therefore, testing different components when coding a visual journalism feature is important.

Description of the Project

This applied creative project features a visual journalism feature detailing the causes, consequences of Armenia's Velvet Revolution and discusses the effects of COVID-19 on the small South-Caucasian nation. The feature contains interactive visual elements like maps and charts to help bring the story to life. This project aims at unravelling the intricacies of creating a feature based on visual journalism practices, practices that often contain experimentation and tend to be unique in format. However, this feature, like others from the genre, still maintains common elements of visual journalism, like images and animations, and traditional journalism, such as newsworthiness.

The original intention was to publish this feature online before May 8, the end of Armenia's Velvet Revolution, when the revolution's leader, Nikol "Pashinyan, secured the votes needed and became the new Prime Minister of Armenia" (Eurasia Partnership Foundation & Avaneszadeh, 2018, p. 4). However, this timeframe was not possible due to constraints detailed in this paper's Limitations section. Research (Harcup & O'Neill, 2016; Shoemaker & Vos, 2009) says that "timeliness" is one requirement that helps determine the newsworthiness of a story. Another requirement, according to Harcup and O'Neill (2016), is "Follow-up: Stories about subjects already in the news." Therefore, the feature was updated to contain the current COVID-19 in Armenia to create better newsworthiness than publishing a story about an event from the past that lacks relevance when not published on or during its anniversary.

Research Questions and Methodology

Research Questions

Based on the literature review, this creative applied project aims to uncover and present the intricacies of creating a visual journalism feature. These intricacies include ensuring that the visuals and interactions add to the story but do not distract from it. Moreover, these details also provide information about how to create a visual journalism feature. This creative applied project asks the following research questions:

1. How does one create a visual journalism piece?

2. What are the main elements that define visual journalism pieces?

3. What are some of the pitfalls with creating a visual journalism piece?

Methodology

This creative applied project required research, web design and development, writing, and journalistic skills. *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19*, therefore required the use of traditional journalistic techniques, visual journalistic techniques, and user experience design based on information from the literature review. To maintain uniformity and consistency and to simplify the creation process, this feature article utilizes AP style guidelines, the recognized standard for news writing. This methodology section highlights the five-step process I used to create and analyze *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19* feature article: (a) Research and Resource Collection; (b) Writing and Journalism; (c) Web Design and Development; (d) Publishing; and (e) Online Survey.

Research and Resource Collection

Like any journalistic feature, *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19* required extensive research.

This research included conducting primary research in the form of interviews with two political scientists, the Head of Armenia's Migration Service, students, a fact checker, and a journalist. These sources helped reveal the causes and consequences of Armenia's Velvet Revolution that helped lead to the policies and decision-making processes that Armenia's current administration has implemented to tackle the COVID-19 pandemic.

Secondary research included gathering images from a photojournalist that was active during the revolution, Creative Commons, and social media. Data was also collected from prominent sources, such as Freedom House, the World Bank, and the Statistical Committee of Armenia (Armstat) to ascertain the quantitative change before and after Armenia's Revolution. This data includes statistics regarding democracy in Armenia, corruption, and the COVID-19 pandemic.

Writing and Journalism

The focus for this feature article is about how the improved democratic environment created by Armenia's post-revolution government allowed for a better reaction to the COVID-19 pandemic than the previous government would have done.

The original title was, *The Journey of a Revolution Began with a Single Step: Armenia's Velvet Revolution*. The "journey" and "step" were used as puns in reference to the revolution's *My Step Movement* and the subsequent formation of the *My Step Alliance* (Freedom House, 2019). However, because the focus changed from the details of this event to its more current events, the title was brainstormed and developed into *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19*. This title meets the generally accepted maximum eight-word limit taught by a journalism instructor at the American University of Armenia. It also functions well in literary terms due to the alliteration of the "c" sound. The title summarizes the feature's focus, an especially important attribute in a world where about

6in 10 users do not read more than the title before sharing the post on social media (Gabielkov, 2016).

Images and other visual elements also required proper attribution. For the sake of journalistic professionalism, ethics, and AP Style guidelines, all third-party content was attributed within the respective captions. These sources made it easier to incorporate content within the piece without requiring attempts to contact the copyright holder for permission to utilize them.

The feature story went through many drafts and edits before its final proofread and publication. Most of these drafts were to cut down the numbers of words for the sake of brevity and creating a sharper and more enticing story. Removing extraneous words also emphasized the visuals, some of which needed sizing adjustments. These edits also included verifications and corrections of errors in the usage of AP style, the guidelines chosen for this feature article. While proofreading, I ensured that all elements from visual components to interviewees were correctly attributed. The second-to-last draft was passed through Grammarly, an "AI-powered writing assistant," as a second layer of proofreading to ensure there were no errors that I missed (Grammarly, 2020). Two peers also proofread this draft, and provided valuable insights into what could be improved, and highlighted spelling, grammar, and punctuation errors. These errors were corrected and the suggestions factored into the final draft, which went through the final proofread before being published online.

Web Design and Development

This feature article was built using HTML, CSS, and Javascript and was based on the open-source Bootstrap front-end framework, the world's most popular front-end framework[1]. Bootstrap allows for simple and rapid development of mobile-first responsive websites that

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[1] See https://getbootstrap.com/ for more information.

display correctly across different screen sizes and devices. A framework like this is perfect

for a project like *The Journey of a Revolution Began with a Single Step: Armenia's Velvet

Revolution*. It contains prebuilt components and plugins that allow for visualizations and

interactions. The other plugins used to add additional functionality to the site are also

open-source projects.

The article's responsive design was adapted from previous visual journalism pieces I

have produced, and functions across mobile and desktop devices[2]. Complementary colors

were chosen using Adobe's Color Wheel[3] app. The primary blue shade was chosen, as blue is

said to make "us feel more comfortable, … may have a calming effect on us, … [and can

make objects appear] significantly more likable" (Dreher, 2018). This color was used as the

background for certain sections and for the URL links. Black was used as the primary text

color, and most of the backgrounds were white. Black text on a white background still offers

the greatest contrast, making it easier to read and absorb the content.

Open-source javascript plugins were used to create the feature article's interactive

elements. First, the map was generated using Knight Labs's StoryMapJS plugin that helps

create visual maps and highlight map details [4]. Second, Knight Labs's open-source Storyline

JS plugin was used to create the linear storyline explaining the change in Armenia's

democracy ratings over time[5]. This plugin uses Google Sheets data to generate the linear

chart, so I added the data about Armenia's democracy rating into a new Google Sheets file

and linked that to the Storyline JS plugin. Finally, the charts used to explain details about

Armenia's COVID-19 cases, corruption problem, and other data were visualized using the

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[2] See https://niallm1.com/articles/armenia-poverty-problem-numbers/ and
https://niallm1.com/articles/armenia-tech-powerhouse-diaspora/
[3] See https://color.adobe.com/ for more details.
[4] See https://storymap.knightlab.com/
[5] See https://storyline.knightlab.com/

open-source Chart.js plugin[6]. This plugin allows for interactive, animated charts that function across mobile and desktop devices.

These front-end features were combined with the text and images using GitHub's open-source Atom text editor.[7] The resultant web page was then tested in different web browsers, including the desktop versions of Google Chrome, Mozilla Firefox, and Microsoft Edge, and the mobile version of Google Chrome.

Publishing

The components of the feature article were published onto a web server using the SSH File Transfer Protocol (SFTP)[8] via the open-source FileZilla app[9]. These components include the HTML, CSS, and Javascript code, as well as the images. After that, the web page was tested on the desktop versions of Google Chrome, Mozilla Firefox, and Microsoft Edge to ensure that it functioned like it did in the local development environment. Finally, the web page was tested on the mobile version of Google Chrome to test and ensure its correct functionality.

Online Survey

Due to time constraints, I was unable to conduct a survey on the feature article itself because it was not published within adequate time before submission of this paper. However, I was able to conduct an online survey based on two visual journalism feature articles[10] I had previously worked on that follow the same format and general structure, including the web page template.

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[6] See https://www.chartjs.org/
[7] See https://atom.io/
[8] See https://www.digitalocean.com/community/tutorials/how-to-use-sftp-to-securely-transfer-files-with-a-remote-server for more details.
[9] See https://filezilla-project.org/ for more information.
[10] See https://niallm1.com/articles/armenia-tech-powerhouse-diaspora/ and https://niallm1.com/articles/armenia-poverty-problem-numbers/

Research Findings and Analysis

This creative applied project and research paper revealed useful insight into the production of a visual journalism feature story. This journalistic form appears to be harder to produce than a traditional journalism feature, but it offers many benefits in terms of storytelling and marketability.

Findings

An online survey of nine participants between the ages of 16 and 39 (see Appendix A) revealed the benefits of visual journalism. All participants answered that images and videos were part of visual journalism, but less than half considered newsworthiness as part of the field (see Appendix B). However, eight of the nine participants agreed that visual journalism was a better form of journalism than traditional journalism (see Appendix C).

One of the primary reasons for this positive perception was that visual journalism makes the story more engaging and easier to understand (see Appendix D and Appendix F). One participant also answered that the feature story, *Armenia Plans to Become Tech Powerhouse Through Its Diaspora*[11]*,* was good because "it's interactive and easier to skim through the information" (see Appendix D). Others answered that "it is more interesting and attractive" and that "they [the use of visual elements, such as charts, images, and animations] add to the whole story and make it more complete and easy to read" (see Appendix D). In general, participants had a positive perception of the format.

The less positive visual journalism feature story, *Armenia's Poverty Problem in Numbers*[12]*,* reveals further details about the effectiveness of visual journalism for conveying complex, and this case, negatively perceived information. A participant responded that the visual elements "help make the reading smoother" because "a topic such as poverty can be

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[11] See https://niallm1.com/articles/armenia-tech-powerhouse-diaspora/
[12] See https://niallm1.com/articles/armenia-poverty-problem-numbers/

very heavy" (see Appendix F). Three of the nine participants answered that they found the article very informative because of the visual elements and that the information was easier to understand because of these elements (see Appendix F). One participant said that "Having so many types of visual input helped me grasp the information better and sometimes, I could understand the whole paragraph just by analyzing the charts and animations" (See Appendix F).

However, only one participant mentioned the usage of colors. They said that the *Armenia Plans to Become Tech Powerhouse Through Its Diaspora* feature "is great, especialy [sic] the colors and your eyes rest from reading when you look at visual [sic]" (see Appendix D). No other participants mentioned the usage of color or about how the visuals influenced their eyesight.

Analysis

The survey, although small in scale, reveals details about the efficacy of visual journalism as a form of interactive storytelling about complex topics. These details also bear similarities with research from the literature about the benefits and aspects associated with visual journalism.

For example, the majority of participants said that visual journalism functions better than traditional journalism. This perception makes sense given that the form is meant to add meaning to traditional journalism through the usage of visual and interactive elements. The survey also revealed details about how this works. Participants said that the visuals added meaning to the story and made it easier to consume. That means the visual elements of the visual journalism feature stories surveyed added meaning to them without distracting attention from the story being told. It makes little sense to spend extra time, effort, and

finances producing a feature with elements that reduce the storytelling capabilities of a more traditional feature story.

In general, participants like the overall effect of the feature articles because of the way they conveyed meaning. They said that the visuals and interactive elements made the piece more engaging, something important for attracting and maintaining a user's attention in today's world of fast information. Adding to that, one participant noted that these features were easier to skim read than a traditional feature, and another said they could understand the text through the visuals without reading the text. Again, that suggests visual journalism features may make it easier for news outlets to attract a user's attention even when they are disinterested in reading the details of the story. And it also shows that when done correctly, visual elements need to be standalone sources of information that can also supplement the text within the feature.

More interestingly, the survey revealed something missing from the literature review about the mood conveyed within a story. One participant noted that visuals benefited the consumption of the more negatively perceived visual journalism feature about poverty in Armenia. This information is useful for understanding that negative topics could be portrayed more positively through the usage of visuals and interactions to make it easier for someone to read about it.

From a personal perspective, creating a visual journalism feature is more difficult and time-consuming than a traditional feature. However, if the visual journalism feature is designed correctly, with the visuals adding meaning to the story and existing to provide information themselves, the benefits appear to outweigh the difficulties.

Limitations and Future Research

Limitations

This project contains many limitations that hindered its potential to uncover further information about the effectiveness and intricacies of visual journalism. These limitations, however, offer valuable insight into the problems with creating complex content that needs to remain newsworthy, especially with regard to its timeliness. Some of the limitations may be circumvented in a professional journalistic environment, such as a news agency.

The most significant limitation against this project was time. Although the project was mapped out with a detailed timeline that included additional time to account for problems that may have arisen, I did not factor in how much of an impact a pandemic and lockdown like COVID-19 might cause. Armenia's lockdown meant I had more pressing family obligations to deal with that limited the available time for working on this project.

The lockdown also made it harder to conduct interviews, interviews which would have been more constructive when conducted face-to-face, as opposed to virtually via Zoom or email. Research (Blenke, 2013; Hilton, 2020) shows that face-to-face meetings tend to be more productive than virtual ones. However, email and virtual interviews still function as data gathering tools, but not as effectively as in-person interviews.

Sourcing for this project could also have been better. There are not enough interviews and interviews with more prominent figures connected to the revolution, including the opposition. Therefore, the story contains less quotes that would have added further depth to the story.

Time limitations also made it difficult to gather resources, such as images and videos, for the interactive piece. However, many Creative Commons resources, Twitter posts, YouTube videos, Facebook posts, and other public domain content allow for non-commercial

usage with or without attribution depending on their license. Access to more higher quality visuals would make the interactive piece more appealing and professional.

A further issue with the time constraints meant that the analysis component of the project lacked detail. For instance, multiple A/B Tests, a method for experimenting with different designs to determine the most effective one, could have been conducted to determine and improve upon the piece's layout, colors, content, and functionality (Jenkins, 2014; Optimizely, 2020a). This piece is also yet to be published in a journalistic publication, and it currently has almost no web traffic. That means useful web analytics data, such as heatmaps, time on site, and bounce rates, could not be determined (Optimizely, 2020b; Optimizely, 2020c). Publication on a prominent news website with significant traffic would help gain valuable insight into the effectiveness of this interactive piece. To save time, the survey conducted to determine what worked well on the piece and what did not was not based on a random sample or on the produced *Armenia's Velvet Revolution: Causes, Consequences, and COVID-19* feature story. A randomized survey would offer better insight into the piece's effectiveness for covering and creating a compelling story. Therefore, the analysis component of this research would be more detailed and complete.

Another limitation is that one individual with the skills to create a visual journalism feature may not be as effective as a dedicated team working on the project. That individual may have functioned more efficiently by focusing on his most valuable talent as part of a team, rather than a spread of many different talents. In a professional news agency setting, these issues would not likely exist because there would be people dedicated to editing, researching, writing, designing, and developing the piece depending on the size of that agency. This team may also work more efficiently to ensure that the content met its

newsworthiness deadline without the need for adding additional content to make the piece more newsworthy.

Future Research

The literature review and this project's survey support the idea that visual journalism is an effective method for telling a complex story. A larger amount of qualitative and quantitative data would provide useful metrics for analysis and understanding more detailed aspects of this journalism form.

Subsequently, web analytics and other forms of digital marketing techniques should provide this useful information. A/B testing would help determine what formats work best for each interactive component. Guerrazzi et al. (2016) argue "that format is a much less important measure than salience of the story." That means journalists need to be careful in selecting what formats they use based on the information they need to present because some formats work better than others depending on their content.

This applied project only focused on creating and analyzing a visual journalism feature to show how effective a format it is as a whole for purveying information. A more effective project would not just focus on analyzing the piece as whole but test the individual formats within the piece. For instance, A/B testing could help determine whether an image would function better as part of a gallery or as an independent element. Analyzing how effective the individual parts are and how well they function as a whole would allow for more detailed insight into this journalistic form.

Another research area that could help enlighten the effectiveness of visual journalism is the field of psychology. As shown in the literature review, research by Cairncross and Mannion (2010) shows that interactive multimedia can be effective in "engaging" learners and "promoting deep learning" (p. 156). Analyzing the psychological effects of visual

journalism on the learning process would further enhance or disprove the idea that this journalistic form is well suited for telling complex stories.

Moreover, an analysis of different moods conveyed by a visual journalism feature could help generate new insight into the form. One survey participant noted how the usage of visual and interactive elements helped lessen the impact of reading about a heavy topic like poverty. No participant mentioned this detail for the article about Armenia's thriving tech industry, a topic that conveys a more positive mood.

Finally, interviews with journalists that create visual journalism features would help enlighten research into this field of journalism. They could provide researchers with qualitative data about their hands-on experience telling stories through visual journalism, including what troubles they face and how the form compares with more traditional forms of journalism. Greenfield (2012) does something similar by interviewing *Snow Fall's* creators, but interviewing several visual journalists from different publications using scientific research methods may help reveal further details into the form's nuances, drawbacks, and benefits.

Conclusion

Visual journalism is still a relatively new and developing field of journalism, but it provides a unique form of storytelling. It offers a level of interactivity and immersion beyond that of a video and significantly greater than that of a regular online feature article. This interactivity engages users more effectively than regular web interactions like hyperlinks do. The survey conducted supported research found in the literature review. The two visual journalism features were shown to have been perceived as better and more appealing because of the way the visual elements functioned to enhance or replace more text-based elements.

However, this paper also highlights specific pitfalls of creating a visual journalism feature. Timeliness remains an important requirement for newsworthiness. It takes much time and effort to create a piece like this, and in a news agency that means it costs more money than a more traditional feature article. The form is not a replacement for traditional journalistic techniques, tools, and trials either, which are traits of a professional albeit traditional feature article. Bias must be limited, integrity must be key, and sourcing must be diverse to help create a compelling narrative and sequence of events. This project did not fulfil some of these requirements due to time constraints, but that is part of telling a story in a timely manner. And this failure highlights a major reason for why there are not more visual journalism features, as they require a lot of work to be done correctly, which costs money in a professional journalistic agency that could perhaps be spent better elsewhere.

Visual journalism still has much room for improvement and development. It has proven itself capable of envisioning complex stories using traditional journalistic techniques combined with technology to shape the way that stories are told. Visual journalism may eventually be superseded by immersive virtual and augmented realities, as suggested by Rogers (2020) and Schmidt (2018). But these realities may simply be new visualization tools that add to the established conventions of visual journalism. When done correctly, visual journalism adds a layer to a story that could not be created outside of the form or any of its individual components.

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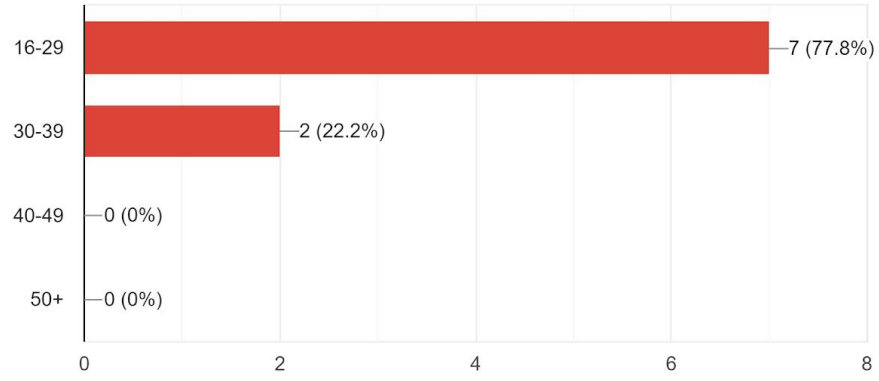The Peabody Awards. (2012). *Snow Fall: The avalanche at Tunnel Creek (www.nytimes.com)*.

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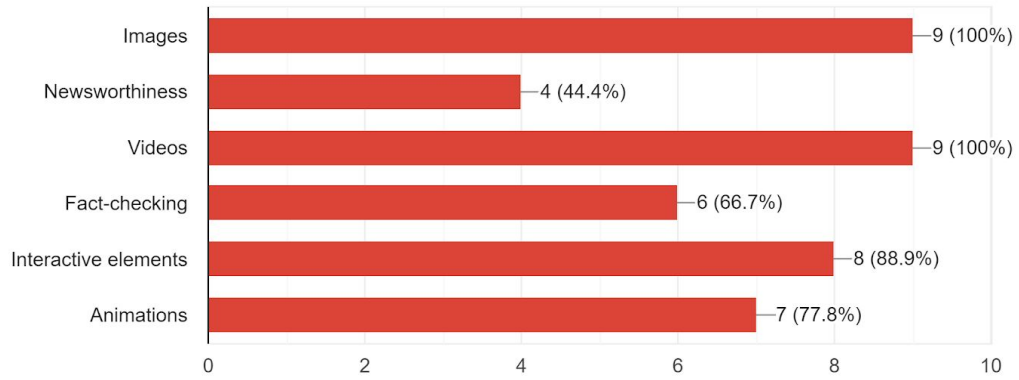
Appendix A

What is your age?

9 responses

Appendix B

Which of the following aspects of Visual Journalism are you familiar with?
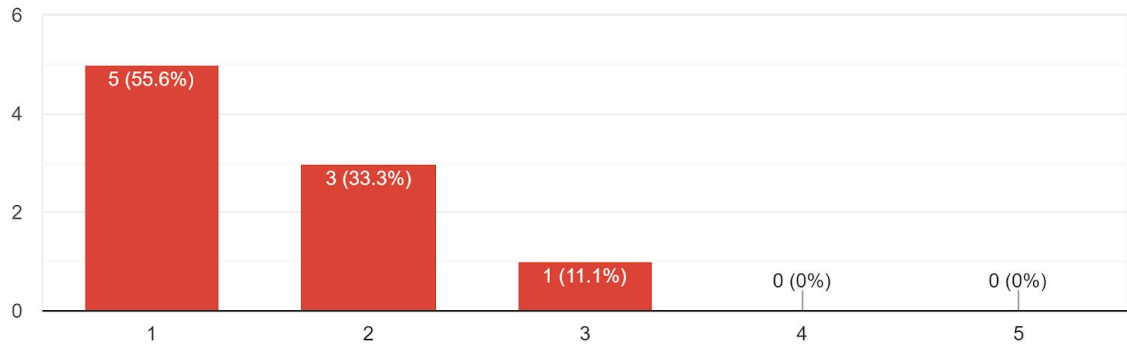9 responses

Appendix C

To what extent do you think Visual Journalism is better or worse than Traditional Journalism?
9 responses

Appendix D

Take a look at https://niallm1.com/articles/armenia-tech-powerhouse-diaspora/. What do you think about the use of visual elements, such as charts, images, and animations, in this Visual Journalism feature story?

9 responses

It is more interesting and attractive

Charts, images, videos and maps definitely enhanced the experience of reading. Personally I would like as much visuals as possible

Yes it does

N/A

Makes the read more engaging

It's interactive and easier to skim through the information

They add to the whole story and make it more complete and easy to read
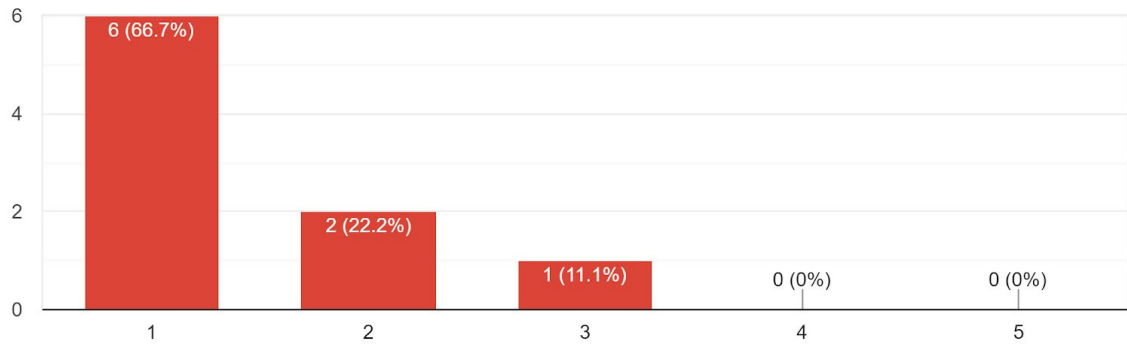
It is great, especialy the colors and your eyes rest from reading when you look at visuals

I love the graphics and the design, it makes things a lot more engaging.

Appendix E

Do you think that the visual elements add or detract from the story told on
https://niallm1.com/articles/armenia-tech-powerhouse-diaspora/?
9 responses

Appendix F

Have a look at https://niallm1.com/articles/armenia-poverty-problem-numbers/. What do you think about the use of visual elements, such as charts, images, and animations, in this Visual Journalism feature story?

9 responses

It makes it easier to understand things and more informative, which otherwise I might have missed seeing while speed reading a normal piece of news.

Having so many types of visual input helped me grasp the information better and sometimes, I could understand the whole paragraph just by analyzing the charts and animations.

Yes it does

N/A

Great. Very informative.

I really like it

Again, as in the same case, these make the whole article and the case more understandable.

A topic such as poverty can be very heavy, however the visuals help make the reading smoother.

Appendix G

Do you think that the visual elements add or detract from the story told on
https://niallm1.com/articles/armenia-poverty-problem-numbers/?

9 responses