



MULTIMEDIA STORYTELLING ON THE WEB

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Abstract:

This paper seeks to provide different forms of media on the web, such as those already used for digital storytelling. Several practical examples from the real web are described. Furthermore, the advantages but also the limitations of each individual medium used for digital storytelling on the web, are presented. The contemplation finally expands focus on the use of combined media in the context of digital storytelling and presents the concept of multimedia storytelling. The emphasis is on the description on specific forms of multimedia storytelling compared to more common content on the web.

Keywords:

Multimedia, Storytelling, Animation, Image, Video.

INTRODUCTION

Multimedia storytelling is the artwork of conveying a story through more than one kind of media along with text, such as image, animation, audio and video [1,2]. This method affords new possibilities for telling stories, however additionally increases new challenges. Different media have special strengths — and they need to be used with intention. When executed well, multimedia stories are capable of leverage the ones strengths to carry emotions and construct empathy in approaches that single-medium stories cannot.

Multimedia stories are interactive in a manner that single-medium stories are not [3]. By incorporating numerous forms of media, a variety of stories that we cannot imagine can be created. This interactivity is a vital function that allows us to be engaged with our environment and to seek their feedback. Inserting clickable quizzes, remarks, and animation affords an interesting way to get the audience to take part within the story experience.

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Moreover, multimedia storytelling is versatile. Multimedia stories can have different forms, and they can be adapted to discover what model fits fine in a chosen story. This versatility can also assist in construction potential to an organization which seeks to be presented on web. For example, developing short videos to encompass in a multimedia story can assist for creating longer video stories withinside the future.

Viewers are drawn more intensively into the stories and topics through the use of multimedia options. This form of digital storytelling is particularly interesting from a cognitive-psychological point of view. It was found that the human brain far more processes and remembers if multiple, different senses are addressed in parallel. In addition, the term storytelling also describes the way how history is consumed - by scrolling [4]. The user does not have to himself navigate through the site using menus or links. However, this doesn't mean that the user only has to scroll through long texts. Rather the scrolling due to the various multimedia elements becomes an experience through mouse commands, or swiping on smartphones as well tablets. Even the user can individually control the speed of information absorption.

With the advent of the World Wide Web (WWW) at the beginning of the 90s, the PCs changed their function to a media presenter [5]. In this way, what is now the primary platform for multimedia storytelling as we know today was created. Initially, only the display of text and images was possible in rather poor quality. The rapid improvement in technology, the increased perfor-

mance of the special image formats, such as computer animation or moving images (videos) for the web was possible for the first time. As a consequence, these media required new formats. The prerequisite for use animation was that the users installed the appropriate plug-ins such as Flash, Java, QuickTime and Silverlight [6]. At the same time, however, the new technologies also brought security gaps.

With the introduction of the iPad and iPhone, the technical replacement of these plug-ins was carried out, because Apple's smart devices did not support Flash or other plug-ins. As a result, the compatibility problem still exists, because the variety of screen formats has increased enormously with smartphones and tablets. Moreover, there is also a problem of various image resolutions on a plethora of multimedia devices, shown in Figure 1.

Current increasing the possibility of animations to be distributed natively on a vector basis, i.e. without to convert first to (pixel-based) videos, established very late in the development of the web. With this step at the latest, today's interactive multimedia web has become an almost ideal platform for the distribution and use of content based on the concept of digital storytelling. One example of different multimedia content on a smart phone is shown in Figure 2.

It can be expected in the near future that next to web other cloud platforms could establish multimedia storytelling. For example, interactive games based on Virtual Reality (VR) and hologram technology can become common [7].



Figure 1 - Multimedia devices with responsive web design
(<https://medium.com/altcampus/making-a-responsive-web-design-3ee34b3ee63a>).



Figure 2 – Scrolling on different multimedia content

(<https://newsroom.unsw.edu.au/news/general/instagram-can-make-teens-feel-bad-about-their-body-parents-can-help-heres-how>).

As with the older forms, the web offers extensive potential for storytelling. The uniqueness lies in the technical possibilities that allow different types of media skilfully combined into a multimedia experience. In the following, individual media available on the web for digital storytelling are presented. Storytelling with only text is described in the Section 2. The other kinds of storytelling with images and text, as well as with header images, are presented in the following sections. Before conclusion, storytelling with a video, as the most spectacular medium, is described.

2. STORYTELLING WITH TEXT

One of the simplest and oldest ways of distribution information on the web is text. The Web standard HTML (Hyper Text Markup Language) was originally invented by Tim Berners-Lee and developed exactly for this task. The basic idea was to share information between different scientists worldwide and exchange among research institutions and universities. This content was in the form of pure text pages constructed in HTML and linked via hyperlinks. Due to constant further development, the possibilities in the range of website functions have multiplied. In addition to complex, responsive layouts the support of images, audio and videos was possible. It can be observed that regardless of technical progress on the web, text is still a widely used form of the information presentation. This could be justified because the effort in creation a textual content, such as blog posts, articles or e-books is significantly lower than the production of a video or animation, as a rule.

In addition, it is relatively easy to share text with other media types. The power of written words should not be underestimated. Experienced copywriters can use

text tool to create best stories. Even emotions, such as joy or fear, are described by words. Text is also essential part of modern, digital communication. Over 55,000,000,000 text messages are sent daily via various services, such as Viber or WhatsApp. However, observation exclusively text-based websites is no longer widespread. Among other things, this is due to the fact that the users of a website only read 20 - 28% of the words on a page. Rather, the behaviour of the recipients has changed in such a way that the users of digital texts mostly (superficially) scan them. This could be found out with the help of eye tracking studies. Accordingly, the user tends to capture web page by reading the first lines intensive in a horizontal movement. He leaves his gaze with a vertical movement by sliding down a bit on the web page and then captures a content with a second horizontal eye movement. Finally, in another vertical eye movement, he scans the rest of the website. Here it is interesting that the upper left area is considered much more intensively than the rest content below or to the right.

In conclusion, written text is still very present in communication on the web. Nevertheless, it is being consumed differently by users than actually thought, since this is evident increasingly unwilling to read a lot of text on the web. This is particularly important for digital storytelling. Therefore, it seems useful to users to give an incentive to read longer texts anyway. This can be realized in many different ways. A good story, for example, stimulates the user's urge to read. The story should arouse curiosity by the reader by personal, funny, comical or provocative elements. It doesn't matter whether it's about a product, a company, a team, a vision or personal experiences. It is important that the content to be conveyed in a stimulating story, and the user is not only confronted with facts that seem boring to him. Rather, he wants to be entertained.



Based on the described changed reading habits on the web, a clear structure of the text has positive effects in terms of information processing for consumers. Short sections of text with meaningful headings could therefore reflect the changed reading behaviour in digital content and thus lead to a more pleasant reading experience.

3. STORYTELLING WITH IMAGES AND TEXT

The following section will focus on the potential of combination of images and written text for storytelling in more detail. Images have always been a substantial means of human communication - starting with the cave paintings thousands of years ago, up to the billions of photos shared on Facebook, Instagram or flickr, uploaded in recent years. Images can also be used to communicate effectively on the web. The success of the image communication is based on the way how people process information. Heimann and Schütz showed that about 90 percent of information processed by the human brain refers to visual information refers and, on the other hand, images are processed 60,000 times faster than text [8].

With regard to the smartphone, however, it should be considered that the shortened attention span is accompanied by increased information processing. Humans can thus probably identify faster and select what we want to deal with or not. In addition, an image at a glance can tell a whole story, and processing is less tedious than selecting content to read from a text. It is not necessary to read sentence by sentence before each of these fragment merges to form a whole. However, Sammer and Heppel state that in certain cases a picture can be misunderstood or misinterpreted, so that the well-known idiom no longer applies [9]. A meaningful keyword or a short line of text can convey the meaning of an image.

If we take a moment to hold on and to visualize something, without context it remains dull. Accordingly, images can support a story only with an appropriate context. From this it can be concluded that digital storytelling, based exclusively on images, will not work adequately probably due to the lack of context. Here is an example: A loaf of bread being held by a hand with a severed arm is shown in Figure 3. The fingers are dusted with flour, and the background could be a wooden table.

Is this about the offer of a baker, or is this the start of a tutorial on how to bake bread? Maybe there is the bright light behind the bread but hand does something spiritual. As can be noticed, the brain automatically tries to make up a story for ourselves, since the viewer has no other clues other than the depicted subject. Figure 4 shows the added missing text to clarify the context.

For multimedia storytelling on the web, there are mostly four different ways of using images:

1. Header images;
2. Background images;
3. Images in the content area, and
4. Infographics.

Mostly used kind of incorporating images in multimedia storytelling are header images. These images can create a high level of emotionalization and are therefore prominently used in modern Web design. In the past, header images were often only wide images, whereas today fill the whole screen in full size and often go beyond the actual website. These images are only a decorative element, but sometimes they are also part of the content. However, header images often come with a large and important meaning. These images are located in the header area and thus represent an important part of the website, since this area is first accessed by the user. Here the user must both inspect visually and contextually, so that it is sufficient to explore the rest of the site.



Figure 3 – Image of bread without context [4].



Figure 4 – Image of bread with context [4].

There is a skilful combination of image and elementary text. Compared to images in the content area, header images are displayed next to a text, which must therefore be integrated into the image. There are two common variants for the design of static header images. In variant one, an image is just as wide as the actual website content, as illustrated in Figure 5. It thus closes left and right flush with the content.

This creates, especially with big monitors, large unused areas that for example are kept in the background color. The design seems rather calm, since the image dimensions adhere to the grid of the screen design. Because of despite the size, this still has an exciting effect within the layout. In variant two, an image is as wide as the screen, but it has a lower height than the viewport. This will fill the entire screen width used for illustration. As already described, the user is optically drawn into the picture.

In addition to the function as header images, they can also be used in multimedia storytelling as background images [4].

They are particularly effective in large format. Background images are technically behind the actual content of the website which is mostly in the form of text. For web designers, the decision is whether the content of the background image should remain recognizable as such, or whether the background image is only used decoratively. It is advisable to give the image its own assign importance. The balance between the meaningful part of the text and the background image is subject to change and must be reconsidered in each individual case.

However, background images that are too remarkable can cause visual conflict with the foreground information and create split-attention effects. Large-format background images are good to represent emotions, feelings, memories and to generate user ideas. To conclude, the meaning of the background image is thus available for multimedia storytelling.

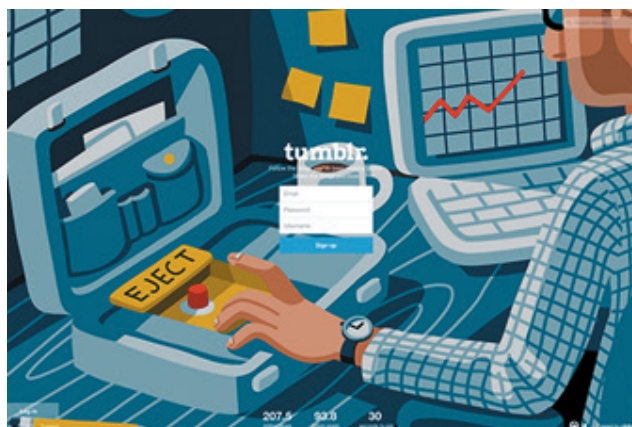


Figure 5 - An example of a header image wide as the web site (<https://www.impactplus.com/blog/6-websites-full-width-image-headers>).



Figure 6 – An example of a background image
(<https://multiurok.ru/blog/storitelling.html>)

Images in the content area often visually clarify the textual sense, but sometimes offer little of their own information content. This is often found predominantly in the texts. Finally, infographics can also tell a story well. They are particularly suitable when it comes to present facts and figures in a visually appealing way. Compared to graphics in print publications digital images are designed in a more complex and multifaceted way, due to a possible interactivity or animation. It is expected that infographics will become a trend in the near future.

4. STORYTELLING WITH VIDEO

Thanks to ever faster data transmission, online videos are currently booming as the most required medium. According to a Cisco analysis, online video made up 73% of all internet traffic in the end of 2021 [10]. Many of these videos have stories behind in some kind. In addition, this medium combines both moving images with audio and thus represents a medium which lends itself to engaging narratives. When people watch videos, it relaxes them while giving them control of both their cognitive area as well as the feelings [11].

Visual stories reinforce this mental attitude because in no other medium can feelings and technique harmonize so expressively. This fascination that the video format radiates could already be proven in a study from the year 2011. The result of the study proves that the visitors of a website, which one video contains, stay twice as long on this one ("100% longer average time-on-site per visitor"). As the web continues to evolve, videos are integrated and disseminated more and more easily.

Videos are now viewed and natively supported by modern browsers such as Chrome, Firefox, Edge, and Safari Opera. This medium can be used in various forms for digital storytelling. For instance, the Scottish whiskey distillery Balvenie informs on their website which artisans for their good whisky are responsible [12]. Within these portraits some videos are also offered, which are sold separately and can be viewed independently. The individual videos are an essential part of the contents and are only replaced by short texts and partly supplemented by a few pictures. The video is integrated as an interactive element. With the help of videos, Balvenie tells the personal story of the distillery and creates an emotional sphere for the user around their products.

In addition to being used as the primary content element, videos can also be used for emotional support. That videos don't tell independent history, but are a part of it. In this case, video is also often used as an integrated background. The goal here is the same as for a wallpaper: create a visual world to evoke and highlight emotions. The video has the advantage in comparison to an image which is usually able to present a situation of just one point of view. Rather, multiple situations and views are reproduced, which trigger a more comprehensive perception experience for the viewer.

Furthermore, through the movement, the website is automatically filled with additional element and should be less static. As can be seen from the website ge.com/digitalvolcano, there is a movement in the form of a recognizable tracking shot in the background video, as can be seen in Figure 6. However, this is very slow and quiet so that the background video is not disturbed by the other informative content elements, such as the headlines and short passages of text.



Figure 7 – The colourful background in the head area (<https://www.ge.com/digitalvolcano>).

However, this form only became really possible with the expansion of broadband internet. Nothing would in this case affect the user experience more negatively than a background video, which is not played immediately, but only in a certain time would have to be loaded. The user may then see a black background, or even see an animated loading icon which is not displayed acceptably.

Moreover, videos are not present only on websites, but are also increasingly being posted on well-known video platforms like YouTube and Vimeo. As a result, they are detached from the actual site and will be in the website only via a corresponding snippet embedded in the video platform. These platforms offer hence the potential for viral spread. Videos in the various social media are often clicked, commented and shared in a very short time by a very large number of users. Particular stories are often told that are very emotional and personal. In addition, there is a clear trend towards everyday stories. This form is the personal identification of the viewer through the same or similar ones experience, as a key factor.

5. CONCLUSION

In the past few years, the web has evolved from a rather static visual medium increasingly towards a dynamic, multimedia environment, thanks primarily to the higher bandwidth. While primarily text-heavy websites with rather small images were dominant, the further development of technology today allows the use of far more emotional and expressive visual elements, such as large-scale images, videos and animations, as well as much more interactivity. Therefore, the web from today

represents an almost ideal place for multimedia storytelling. However, it should be noted that the available multimedia and increased interactivity in the context of multimedia storytelling typically not only provide variety for the user, but involve them directly and actively in the action. Finally, multimedia storytelling on the web is no more location-based, but can be used from anywhere in the world and can be consumed at any time.

6. ACKNOWLEDGEMENTS

This paper is partially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (projects TR-32025 and TR-32048).

7. REFERENCES

- [1] B. Alexander, *The New Digital Storytelling: Creating Narratives with New Media*. Santa Barbara, CA, USA: Praeger, 2011.
- [2] A. Samčović, *Multimedijalne komunikacije*. Univerzitet u Beogradu - Saobraćajni fakultet, 2015.
- [3] C. H. Miller, *Digital Storytelling: A creator's guide to interactive entertainment*. 2nd edition. Burlington, MA, USA: Focal Press, 2008.
- [4] M. Sawert and R. Riempp, *Digital Storytelling im Web am Beispiel von scroll-activated animations*. Springer Vieweg, 2019.
- [5] S. Ping, "WWW Traffic Analysis and Simulation," M.S. thesis, Faculty of Computer Science, University of New Brunswick, USA, 1998.



- [6] C. May, *Universal Design for Web Applications*. O'Reilly Media, 2008.
- [7] G. Schillinger, Z. Huang, and S. Snyder, "AURA Network The infrastructure for games of the future," White paper, August 2018.
- [8] M. Heimann and M. Schutz, *Wie Design wirkt. Psychologische Prinzipien erfolgreicher Gestaltung*. Bonn: Rheinwerk Verlag GmbH, 2017.
- [9] P. Sammer and U. Heppel, *Visual Storytelling: Visuelles Erzählen in PR und Marketing*. Heidelberg: O'Reilly, 2015.
- [10] Cisco Systems, Inc, "Cisco visual networking index: forecast and methodology," 2017-2022. [Online]. Available: <https://twiki.cern.ch/twiki/pub/HEPIX/TechwatchNetwork/HtwNetworkDocuments/white-paper-c11-741490.pdf>
- [11] P. Cavanagh, "Attention-based motion perception," *Science, New Series*, vol. 57, no. 5076, pp. 1563-1565, 1992.
- [12] Balvenie Distillery Company Limited, "Our Whisky Collection", <https://www.thebalvenie.com/our-whisky-collection/> Accessed April 1st, 2022.