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ORIENTATION LOCK: ON? ASPECT RATIO IN SOCIAL MEDIA

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ABSTRACT. The shape of a video (aspect ratio) is subject for debate for more than 100 years. From film to television to digital and mobile, the aspect ratio of video went from almost square to super wide. After the arrival of video capable mobile phone, everything started to go backwards. We first observed unintentional vertical videos, then square video created especially for mobile devices and even some vertical platforms that encourage users to only create vertical videos. This study aims to provide a systematic review of the most common aspect ratios throughout the history of film and video, but most of all to describe the current situation and possible trends regarding the aspect ratio of modern videos – what are the most common aspect ratios, in what situations are the used, are the trends indicating the increase of vertical or horizontal? The quantitative research conducted on over 3000 videos posted on Facebook shows that most common shape for video right now is square, but vertical videos are also of high interest. 1:1 aspect ratio may be a transition from landscape to vertical. As users become video producers themselves, more and more content is being created. The traditional video producing workflow is being challenged and it becomes apparent how that user-generated content is gaining on professional produced video.

Keywords: *Mobile Devices; Smartphones; Screen Format; Vertical Video; Mobile Film-making*

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Introduction

For more than 100 years, the traditional shape of the video screen was a horizontal rectangle. It varied from the first Motion Picture Patent (1:33) to the super wide Panavision 70 (2:20), but it was always horizontal. All that was about to change in 2005 when YouTube was launched and the first user generated video content reached the Web.

Traditional video was shot horizontally because our eyes sit horizontally, but technology is in constant motion, and video is no exception. We are long past the age of classic horizontal 4:3 or 16:9 devices that constrain the way we consume video. The arrival of mobile devices created a revolution where the consumers became producers and the producers (brands and marketers) have to pay attention to the influencers that set the trends in video creation, becoming in a way consumers themselves.

A recent study showed that 72% of millennials (people born between the early 1980s and 2000s) no longer turn their phone (from 9:16) to watch videos in widescreen (16:9) (Pogue, 2018)– a good reason for marketers to create videos with vertical aspect ratios in mind. Changing aspect ratio is not only a question of post-production cropping; it is an issue of pre-production, when the shooting is planned with the end result in mind. Video producers have to be aware of the particularities of each platform (or platforms) that they have to create the video for, their suggested specifications and aspect ratio (horizontal, square or vertical).

The aspect ratio of a video is a creative way to deliver the message to the audience. It is not the message itself, but merely a tool that can have a great impact on the way people receive, interpret and interact with the video.

1. Literature review

1.1. Define aspect ratio, orientation

Aspect ratio (AR) is a term that generally is used to describe the relation between the height and the weight of an image. However, this concept is of great interest as it is not only used to define the shape of an image on screen, but also the shape of a display device, a camera sensor or a film stock (Jackson, 2016, p. 78). Aspect ratio is also important in many of the design related activities (web design, UX/UI design, game design etc.).

It is crucial to remember that it is the ratio between the numbers that defines the shape of the frame, not the number themselves. In other words, the aspect ratio is a numerical way to describe a rectangular form. In the case of the ubiquitous 4:3 aspect ratio, the shape can be described as a 4 units wide and 3 units high rectangle (Cinemasource, 2001). The units that define the shape could be pixels, centimeters, inches, millimeters. Although the common ratio form (4:3) is used more often, in the cinematographic industry it is common to reduce it to a single number (1.33).

Another way to explain aspect ratio is by the smallest set of numbers that can be achieved by dividing each side of the colon by two. For a 1280x1024 (SXGA) resolution, dividing it by two would mean 640:512, then 320:256 and so on, to the smallest possible numbers, 5:4, an aspect ratio witch is very close to being square. (Jackson, 2016).

Table 1: Most important aspect ratios in the history of video (until mobile)

Name/use	Aspect Ratio		
Square format	1:1	1:1	FILM: Stills, some large format cameras (120 film). Used in social media
Aspect ratio for SD TV in most of the world	4:3	1.33:1	Originally used by the Lumière Brothers for silent movies so used until the late 1920, TV, Computer displays, SD Televisions (except in Europe) old film

Name/use	Aspect Ratio		
Academy Ratio		1.375:1	FILM: Named after the "Academy of Motion Picture Arts and Sciences" in 1938. After the introduction of sound on the same film.
35mm "full frame" stills	3:2	1.5:1	FILM-Stills: The aspect ratio of 35 mm film used for still photography
HDTV, Widescreen PC Monitor	16:9	1.78:1	Aspect ratio chosen for all modern HDTV standards, also many widescreen PC, laptop and video screen devices.
Paramount format	15:9	1.66:1	FILM: Developed by Paramount Pictures, now common in mainland Europe; native Super 16 mm frame ratio.
"Panavision"		2.39:1	Aspect ratio of current anamorphic (wide-screen) theatrical projection from 1970 onwards. Specified as 2.40:1 for Blu-ray Disc film releases (1920×800 resolution).

1.2. A Brief Overview of the Aspect Ratio

The first recorded aspect ratio that was used on a massive scale was the 4:3 or 1.33 aspect ratio and it was invented by William Kennedy Dickson. In 1909, the Motion Picture Patent Company declared this AR to be the industry standard for silent film in the United States. In 1932, the Academy of Motion Picture Arts & Sciences changed the standard to a 1.37 aspect ratio due to the addition of sound on the film stock. This new AR was called the Academy ratio (Hess, 2017).

The invention of television as a direct competitor for the cinema led to a series of changes that introduced new aspect ratios. It was not until big production houses had to compete with the commercialization of television sets that they began experimenting with new ratios to give the audiences something they could not get at home — wider and larger screens (McCullagh, 2019).

What followed was a decade-long war of widescreen formats. Starting with Cinerama (a multicamera and multiprojector system, AR 2.59), then passing to Cinemascope (AR 2.45), Vistavision 1945 (AR 1.85), Todd AO (a 70mm film with AR 2.20) and Super Panavision 70 (2.20), just to name a few.

The most common modern aspect ratio is 16:9 (1.78). This standard came about as a compromise between theater aspect ratios and television's 4:3 format. The 16:9 aspect ratio allowed for the comfortable viewing of both older television programs and blockbuster films, without having to crop and "pan and scan" either format to fit well on the screen (McCullagh, 2019).

1.3. Mobile devices and aspect ratio

Mobile video is a big part of media consumption at this moment, but when it was first introduced, it was more of a gimmick then a serious feature. The first important moment for the mobile phone came when it became available as an object of mass consumption during the 1990s. First text messages (in 1993), then the first smartphone and the first camera phone came along in 2002, followed by the Apple iPhone, with a touch screen, in 2007 (Kossof, 2014).

The mobile phone is a main component of a culture that is changing our understanding of the new millennium. (Jenkins, 2006, p. 5). In a "databased culture" (Manovich, 2001) where digital products are considered an important forms of cultural (and personal) expression, the mobile phone (with a camera) has become a powerful tools for capturing, editing, storing and distributing, therefore promoting new ways of producing and experiencing media.

1.4. Online video and aspect ratio

Although online video has been around since the early 1990s, when web browsers attained the ability to display images, while a camera was connected to the Internet and was able to refresh in order

to transmit images, the focus of this paper will be on the period that followed the launch of the first online video services. In 2005, YouTube was launched and Apple introduced a video podcast for iTunes (together with the iPod it opened the era of mobile video). After 2007 Justintv, Ustream, Livestream, Metacafe, Dailymotion, and other video services become available. All this, combined with a higher quality internet connection, started a trend of video consumption that would not stop to this day.

With the arrival of the smartphone, people were able to create and distribute their own digital content. This raised a big problem: not all people were trained in the art of shooting video. Many preferred to keep their phones in a vertical position resulting in a vertical video. This practice was mocked at first in such manner that in 2012 the "Say no to vertical video" campaign was launched, also known as VVS or Vertical Video Syndrome (Beaulac, 2019). This campaign encouraged people to shoot horizontal videos instead of vertical ones, arguing that cinema, computers, and the human eyes sit horizontal. In spite of the campaign, the number of vertical video continued to rise and eventually all major social media platforms (Facebook, Instagram, Snapchat, YouTube, IGTV, etc.) offered support for square and vertical videos.

1.5. Vertical videos and brands

It was when the social platforms started to encourage marketers to create video ads designed especially for mobile devices when everything skyrocketed. Facebook claimed 8 million videos per day, Snapchat over 10 billion vertical views per day, and Periscope, over 110 years of vertical videos per day (Lafferty, 2016). In 2016, 54% of consumers wanted to see more video content from the brands they support (hubspot.com, 2017) and 87% of businesses use video as a marketing tool (wyzowl.com, 2019). These are just a few statistics that should make a picture of the situation of video consumption in the past years. The numbers are appealing and marketers embraced the medium without hesitation.

The issue with mobile video production is that it does not work like traditional video, but it has to be specifically designed for mobile device. In order to address these issues, Facebook (applicable for Instagram as well) put together a "good practice guide" when creating content for its platforms: aspect ratios of 4:5 for feed, 9:16 (vertical full screen) for stories, 1:1 for carousels, 16:9 for in-stream videos (facebook.com, n.d.).

The tools for video production started to adapt for vertical format. Brands like iMovie (Apple), Quik (GoPro), Kinemaster, Adobe Spark, and even the industry standard Adobe Premiere started offering the possibility to create video in vertical aspect ratios.

Video producers also acknowledged the importance of vertical video and started to adapt for the new format. National Geographic produced the final episode of their documentary "One Strange Rock" in vertical format and streamed it on IGTV. Although it is 47 minutes long, it has generated over 3 million views. Spotify started to introduce vertical videos exclusive for their platform in an attempt to build interest, and Netflix introduced previews for their film in vertical format (Gilliland, 2018).

The way people produce and consume video dictates the aspect ratio for the videos that are produced. This is mainly because people do not turn the phone horizontal, because consumers are also producers and because younger generations do not have any kind of setback regarding vertical videos since they are the "inventors" of this format.

2. Research design

This study aims to identify the new trends in video creation, from a platform perspective. The affordance of each digital platform prompts changes in the creation of video, from format to length and content. This study focuses on Facebook as the social network sites that incorporates a plethora of functionalities and content types, centering on the next research questions:

(RQ1) What is the most common orientation for Facebook videos?

(RQ2) What are the most common video aspect ratios used on Facebook pages?

(RQ3) Is there a relationship between video length and Facebook appraisal indicators?

(RQ4) What claims do the descriptions make about the video content?

2.1 Methodology

Quantitative methods were deemed favorable for this study, given the applied nature of the research questions. Furthermore, quantitative analysis on text corpuses in the form of a clustered co-occurrence network was chosen as a preferred method for studying the video description. The scope of the text analysis is to identify subjects and specificities of video descriptions in the context of multimodal communication and expectation building.

2.2 Sampling and data collection

The pages chosen for the study were considered on the basis of two indicators: popularity and content. Popularity was established by the number of page likes. Pages dedicated to a very specific niche (e.g.: cooking video, do it yourself) were excluded from the sample in favor of more general audiences. At the intersection of online tops, statistics, popularity and content, the next pages were chosen:

Table 2. Sampled Facebook pages

	Name	Page	Year of page creation	Number of page likes (May 2018)	Number of videos posted in 2017
1.	**UNILAD**	www.facebook.com/uniladmag	2011	42 mill.	538
2.	**LADbible**	www.facebook.com/LADbible	2012	36 mill.	484
3.	**The Dodo**	www.facebook.com/thedodosite	2014	24 mill.	533
4.	**Now This**	www.facebook.com/NowThisNews	2012	14 mill.	560
5.	**BuzzFeed Video**	www.facebook.com/BuzzFeedVideo	2013	13 mill.	554
6.	**Seeker Media**	www.facebook.com/SeekerMedia	2015	8.7 mill	541

Given that the number of video uploaded on the Web fluctuates throughout the year and can be seasonal, this research proposes a longitudinal study, covering the year 2017. Using an API interrogation software, data for 4776 video was collected, but after manual filtering and processing, incomplete and erroneous data were discarded, making the final dataset DS=3211 videos. The following metrics were also collected: number of likes, reactions, comments, height and weight (from which the aspect ratio was calculated), length (in seconds) and the text description.

3. Analysis

3.1 Orientation and the growth of square videos

The relation between the height and the width is indicative of the orientation of the video, which can be either horizontal or vertical. However, with the rise in prominence of Instagram, square videos are seen to permeate other platforms as well.

The shortcomings of vertical videos were discussed in a previous section, and, as Figure 1 showcases, the number of vertically shot videos is in decline, with three of the six interrogated Facebook pages showing extremely low numbers. Our sampled data provides evidence that square videos are becoming the preferred method for creating video content.

However, LADbible stands out as the page with the highest number of vertical videos and lowest of horizontally shot videos. Given that a vertical video is any video that has the height larger than the width, even by only a few pixels, a secondary manual assessment of the dataset revealed no anomalies in the width-height proportion of the LADbible videos.

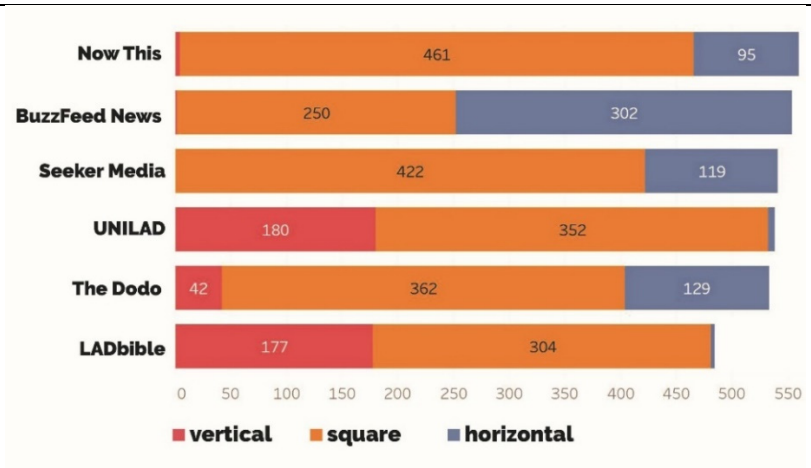

Figure 1. Video orientation for DS = 3211 videos

3.2 Aspect ratio in Facebook videos

Further calculations on the proportions between width and height rendered the aspect ratio of each of the sampled videos. Building on the previous analysis, it is expected that the majority of videos have an aspect ratio of 1:1 (67%). For the purpose of this visualization (Figure 2), the orientation of the video was ignored and the aspect ratios merged (ex.: 16:9 for horizontal videos and 9:16 for vertical videos are both in the 16:9 category).

While most of the pages show a uniform distribution between 1:1 and 16:9 (most common aspect ratio for mobile consumption), LADbible stands out, again, through the use of contrasting video formats. Almost a quarter of the videos posted on that page have employed the 4:5 aspect ratio, one associated with the proposed Facebook video standards.

Atypical aspect ratios are, in this analysis, those that do not fall in the categories covered by Facebook guidelines. Only 2.2% of the sampled videos fall in that category, a negligible number for the purpose of this research. Usually this category is associated with videos that were not created with this aspect ratio but latter cropped to fit the mobile screen.

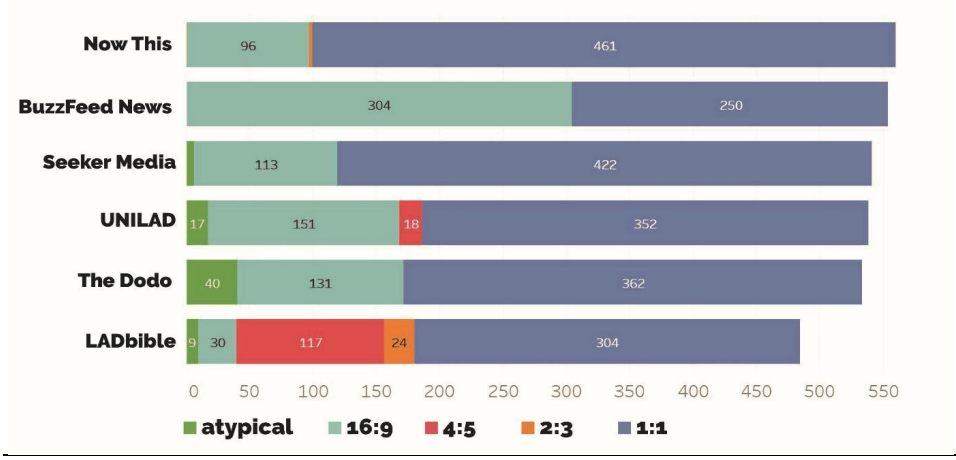

Figure 2. Aspect ratio for DS = 3211 videos

3.3 Video length and appraisal

In the attention economy of social media, the length of a video is a powerful metric, in need of constant scrutiny. The histogram in Figure 3 follows the distribution of number of videos according to length, in custom intervals. The gross amount of video have under 4 minutes (83%), with a staggering drop for videos between 4 and 15 minutes (14%). The analysis reveals that longer videos were posted to the Facebook pages, between 1 and 9 hours (30 videos).

Closer analysis reveals that 25 of the 30 videos over 1 hour were posted by NowThis, two by Seeker Media, two by the UNILAD and one from The Dodo, referencing events like the US Government shutdown (8h livestream), animal livestreams, the Royal Wedding prep livestream, Hurricane Florence, senate hearings regarding Brett Kavanaugh, former president John McCain's funeral, sports and American politics.

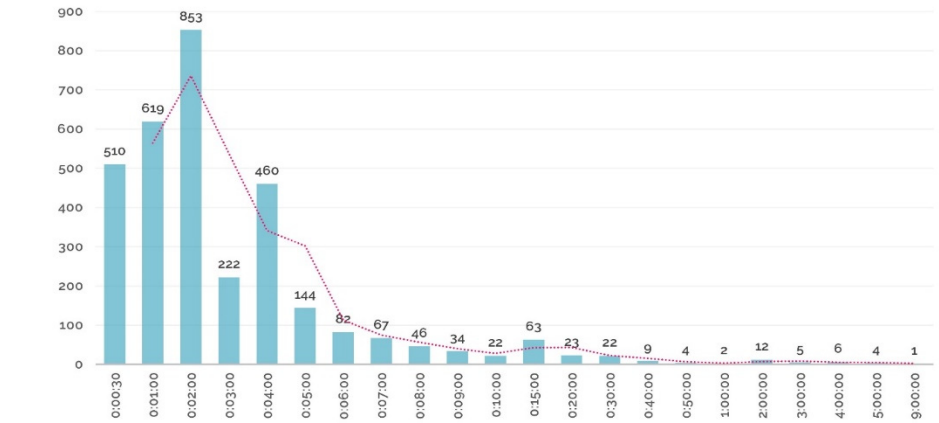

Figure 3. Histogram showing number of videos by length of video DS = 3211

On average, NowThis has the longest videos, given its 25 hours long livestream, followed by BuzzFeed News, The Dodo, Seeker Media, UNILAD and LADbible. However, when measuring against appraisal indicators, the shorter videos are seen to show an increase in reactions, with The Dodo standing out. Length cannot solely account for popularity, of course, so the next part of the analysis is useful to contextualize the findings presented here.

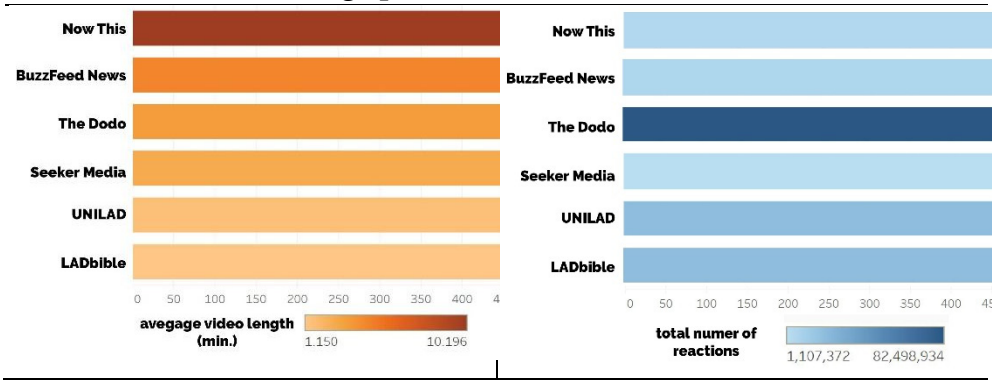

Figure 4. Average video length and total number of reactions per Facebook page DS=3211

3.4 Content and claims

The following analysis is based on the descriptions attributed to the videos. We favored the descriptions over the titles because they offer more information and context. The result is a co-occurrence network with an additional variable, the name of the page. The clusters are indicative of the major themes employed by each of the analyzed pages.

Figure 5 showcases the most common words associated with each individual page and the words with higher degrees of co-occurrence. According to the analysis, each page has a specific type of content it promotes. The Dodo published videos with animals, feel good stories about rescuing and saving kittens, dogs, and family members. LADbible and UNILAD also prominently feature video about dogs and cats, but use a more dramatic words – *incredible*, *absolutely*. NowThis is shown to promote more news-centered content, with *Trump*, *politics*, and *gun violence* as reoccurring subjects in their descriptions. The Parkland Highschool shooting and the Hurricane Florence are seen to take center stage in the visualization. SeekerMedia is shown to feature videos with science-centered content, revolving around *NASA*, the *universe* and *scientists*.

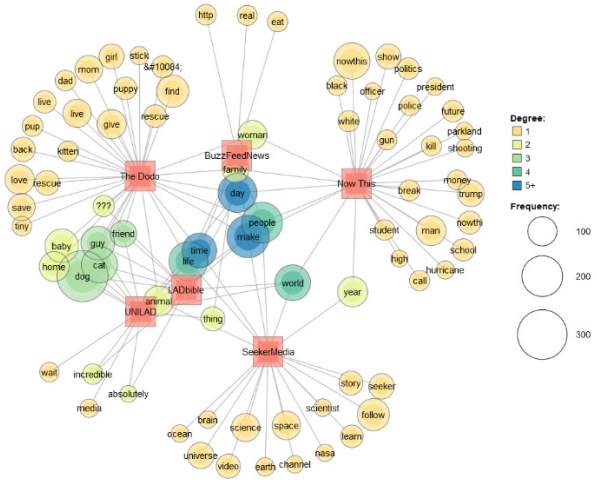

Figure 5. Co-occurrence network, top 120 edges

4. Findings

The growing popularity of Instagram has, most probably, prompted the increase of square videos and has led to the decrease of vertically shot videos. The classic horizontal orientation is still been used by certain content creators, but it fades in comparison with square videos. It remains unsure if the square videos are created in this manner or they are edited on order to better suit the platforms they inhabit.

Building from this, it becomes obvious that the most common aspect ratio is 1:1, specific to square videos. The second most popular aspect ratio remains the 16:9 widescreen, most intuitive for mobile phone viewers. However, LADbible steps outside of these canons and embraces the 4:5 and 2:3 formats, commonly associated with Facebook.

Video length is one of the metrics that delineates Facebook and Instagram videos. Given that Facebook allows video uploads of any length, it enters YouTube territory, incorporating as many functionalities as possible on the social media backbone. Facebook even allows for video livestreams, a tactic employed by several pages throughout 2017. Videos between 2 and 8 hours are not common, but make up for an interesting subset for further studying. Covering very diverse subjects, livestreaming videos is mostly used by the pages shown to feature news and current affairs related content, like Now This and BuzzFeed News, with The Dodo and its animal livestreams coming into third place. Length and appraisal are two metrics rather hard to link is such an analysis. However, seems that shorter videos have a higher appraisal rate that long and unedited livestreams.

The co-occurrence analysis ties all the finding together, showing that emotion stories with happy endings are the ones that create more buzz around, with The Dodo, LADbible and UNILAD at the forefront of human interest stories and rescued animals. On the other hand, Now This, which has a very pronounced news content is shows to have lower engagement numbers.

5. Conclusions

This case study shows how the shape of videos produced for online platforms (Facebook in this case) is going through a transformation, a trend that is more and more visible in the last years. A quantitative is very useful in understanding the extent of this transformation process.

The content type of these videos is also an interesting topic to analyze. The main segment of video produced and distributed is human interest story followed by current affair/news story.

Both the literature review and the case study suggest that the aspect ratio is in constant transformation and this time it all starts from the end user. It is no longer the case of video producers changing the shape of the video in order to attract more viewers. This time around, the behavior of the users dictates the trend. The platform, Facebook in this case, provides a guideline (based on studies of video consummation) that most marketers and video producers follow in order to access a larger audience.

The general trend that can be observed is that more and more video is being produced in two ways. In the first case, users demand more video and video producer try to accommodate this demand and in the second case users produce video on their own, because of the development of budget friendly and intuitive tools that allow everyone to easily produce videos.

BIBLIOGRAPHY

Beaulac, H. (2019, February 12). *The Rise of Vertical Video Content on Social Media*. Retrieved 12 1, 2019, from MarTech Advisor: https://www.martechadvisor.com/articles/social-media-marketing-2/the-rise-of-vertical-video-content-on-social-media/

Cinemasource. (2001). *Technical Bulletin: Understanding aspect ratios.* Retrieved November 11, 2019, from Cinema Sources: http://www.cinemasource.com/articles/aspect_ratios.pdf

facebook.com. (n.d.). *Best Practices for Aspect Ratios*. Retrieved 12 1, 2019, from https://www.facebook.com/business/help/103816146375741?id=271710926837064

Gilliland, N. (2018). *Five examples of brands using vertical video*. Retrieved 12 1, 2019, from https://econsultancy.com/brands-vertical-video-social-examples/

Hess, J. P. (2017, January 5). *Filmmaker IQ*. (J. P. Hess, Producer) Retrieved November 11, 2019, from filmmakeriq.com: https://filmmakeriq.com/courses/history-aspect-ratio/

hubspot.com. (2017, November 6). *Content Trends: Preferences Emerge Along Generational Fault Lines*. Retrieved December 1, 2019, from Hub Spot: https://blog.hubspot.com/news-trends/content-trends-preferences

Jackson, W. (2016). *Digital Video Editing Fundamentals.* Lompoc, California, USA: Apress.

Jenkins, H. (2006). *Convergence Culture: Where Old me and New Media.* New York: New York Press.

Kossof, A. (2014). The Mobile Phone and the Flow of Things. In M. S. Marsha Berry (Ed.), *Mobile Media Making in an Age of Smartphones* (first ed., p. 35). Palgrave Pilot.

Lafferty, J. (2016, March). *Periscope in #YearOne: 110 Years Watched Live Daily, 200 Million Broadcasts*. Retrieved December 1, 2019, from Ad Week: https://www.adweek.com/digital/periscope-in-yearone-110-years-watched-live-daily-200-million-broadcasts/

Manovich, L. (2001). *The Language of New Media.* Cambridge: MIT Press.

McCullagh, J. F. (2019, June 25). *Choosing Aspect Ratio: A Guide to Everything You Need to Know*. Retrieved November 28, 2019, from Premium Beat: https://www.premiumbeat.com/blog/filmmaking-guide-choosing-aspect-ratio/

Pogue, D. (2018, 3 1). *Video Looks Most Natural Horizontally, but We Hold Our Phones Vertically*. Retrieved 12 3, 2019, from www.scientificamerican.com: https://www.scientificamerican.com/article/video-looks-most-natural-horizontally-but-we-hold-our-phones-vertically/

wyzowl.com. (2019). *Video Marketing Statistics 2019*. Retrieved December 1, 2019, from Wyzowl: https://www.wyzowl.com/video-marketing-statistics-2019/