

The Impact of Camera Innovations on Visual Aesthetics in Documentary Films – A Filmmakers' Perspective

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Abstract

During the last three decades, digitalization and innovations in camera technology profoundly impacted the way documentary films are shot, edited, and consumed. Especially the fast-developing market for new cameras has a great influence on the visual aesthetics and the perceived credibility of non-fiction films. This paper investigates questions arising from this premise by means of interviews with documentary film-makers and fetches their opinion on the impact of technological innovations in documentaries. Three major changes with aesthetic impact are looked at in particular. 1. Video and DV camcorders were quickly adopted in the late 80s and 90s by independent documentarists. They led to a more home-movie-like visual quality of films but also produced very intimate films. 2. Since DSLR Cameras and Digital Cinema Cameras hit the market documentary films have regained a more cinematic image quality with shallower depth of field. 3. The emerging 'gadget' cameras like smartphones, GoPros, and drones increasingly introduced the concept of multi-perspective, and a non-anthropomorphic views as opposed to the traditional way of the single, shoulder camera perspective.

Keywords: Documentary Film, Camera Innovations, Visual Aesthetics, Interviews With Filmmakers, Multi-Perspective

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1 Introduction

Innovations in camera technology often have a major influence on the visual aesthetics of films. This is especially true for documentary films, where cheaper and lighter cameras were quickly adopted. Consumer- and semiprofessional models are frequently used, either out of aesthetic choices or out of production or financial necessities.

Within the last 30 years, the evolution of video technology and digitalization had an enormous impact on the way documentary films are shot, edited, and distributed, a fact that has only marginally been looked at in scientific studies of documentary films. This paper is part of the artistic and practice-based research project *Gadgets, Phones and Drones – Technical Innovation and the Visual Aesthetic of Documentary Film* which looks at the influence of camera technology on the aesthetics of documentary films and its implications on authenticity as well as the impact on the viewers.

The project focuses on three major technological changes of the last three decades: Up to the 90s, the heavy, professional shoulder cameras for Film or TV were predominant in documentary film productions. Since 1995 digital handycams were introduced, which were quickly adopted by professional filmmakers. A spontaneous, home-video like visual style emerged from this technological innovation. From around 2008 DSLR cameras were able to record high-quality HD Video. The shallower depth of field of full format DSLRs led to a reestablishing of the cinematic look. Another paradigm shift can be seen beginning around 2010. The use of multiple cameras like smart phones, drones, and GoPros results in a renunciation of the anthropomorphic single camera view. After decades of single-view shoulder camera, the multi-view brings a new visual style to documentary filmmaking.

This paper analyzes these changes through literature research and interviews with filmmakers (mainly from German-speaking countries), who were major participants during these changes. The main focus will be on how the camera technology impacted the filmmaking process, how and why the filmmakers were using the technology, and how the new visual aesthetics impact the storytelling.

2 Background and Film Theory

Culture Theorist J.T. Caldwell views production equipment, including cameras, as tools of social expressions and social practices. They have the agencies to change tasks, worker interrelationships, and the cultural significance “depending on how production technologies are used and why” (Caldwell, 2008, p. 153). An apparent example is a shift from recording on film to video and digital. With the emergence of small handheld video and DV palmcorders (Hi8 Video since 1989, DV Cameras since 1995), the technological barriers in handling a camera were lowered in such a way that many directors were able to shoot a documentary by themselves without a cameraman. The choice of the camera not only significantly changes the production environment on the crew side, but also the relationship between the film crew and its subjects, as well as its relationship with the viewer. For example, the low resolution of the DV image evokes different expectations in the audience than a documentary film shot on 35mm film.

The how and the why of camera choices are significantly more important in documentary films than in fiction films. While in fiction films camera choices are highly standardized, in documentary films they are wide open. They range from a setup that is very similar to feature films to a one-man, do it all kind of shooting setup. Cameras are chosen for many different reasons. They may be artistic, budgetary, or simply technological. But it is undeniable that they have a major impact on the film.

In an ideal world, a camera should be chosen for purely artistic and storytelling reasons. It is therefore not uncommon, that for different modes of documentaries, different cameras are chosen. For example, some of Bill Nichols six modes of documentary filmmaking - poetic mode, expository mode, observational mode, participatory mode, reflexive mode, and performative (Nichols, 2010, p. 31-32) - were only possible through the innovation of new camera and sound technologies. The observational mode, of which direct cinema is one of its most prominent movements, was possible because lighter 16mm cameras and synchronized sound recording were invented. Also, films of the poetic mode often use new camera technologies. For example, *Leviathan* (Castaighn-Taylor, Paraval, 2012) wouldn't have been possible in this form, if there weren't the versatile GoPro Cameras on the market. They are waterproof and cheap, which allowed the filmmakers to shoot on the fishing boat and it wasn't severe if they lost a camera (Lindenmaier, Interview 2018, 2:09:01).

If we deal with camera technologies and its impact on the viewers the formal aspects of documentary aesthetics have to be addressed. John Corner claims, that "An apparent absence of style [...] constitutes at least part of the conventional grounds of trust and credibility." (Corner, 2003, p. 96). He is mainly referring to TV documentaries of the late 90s and early 2000s, but at the same time, DV palmcoders were very popular in independent documentary films. Corresponding to Corners quote, many of those films don't emphasize on visual aesthetics, a kind of layman visual style, often also called "Home Movie" style, emerged. Furthermore, the low quality of the resolution and dynamic range of the recorded picture added to the lack of visual attractiveness of the picture. Later, especially in fiction films and hybrid formats, the visual style of DV shooting was explicitly chosen to enhance a feeling of realism (Landesman, 2008, p. 33). One of the most prominent examples is *The Blair Witch Project* (Myrick, Sanchez, 1999). "The aesthetic style of "DV Realism", utilizing the technology's immediacy and intimacy predicated upon the digital look in its various connotations of authenticity and credibility." (Landesman, 2008, p. 34).

As this visual style is definitely a strategy to try to accentuate authenticity in fiction films and hybrid forms, in non-fiction filmmaking authenticity can't simply be a production aesthetic term, but rather a "term of a Reception Effect" (Berg-Gangschow, 1990, p. 85). The authenticity of documentaries depends more on a communication activity and a contract between filmmakers and the audience. The audience has to be able to read the film and its depiction of the socio-historical world. One important aspect of this is credibility. It is achieved when the audience trusts the filmmakers and their methods that they are respecting the implicit contract between them and the audience. "This trust may be warranted or not, but it isn't necessarily unwarranted unless the filmmakers are deceptive, dishonest, or incompetent." (Platinga, 2013, p. 44). Therefore, if the audience doesn't trust the pictures they view,

the cause of the film is lost. Authenticity and credibility help to build trust in the contract between filmmakers and viewers, especially in documentary films.

There is not much research done particularly on visual aesthetics and camera technology in non-fiction films but there are a few that look at similar aspects like *Gadgets, Phones and Drones*. Jürgen K. Müllers dissertation addresses the influence of DV camcorders in German-speaking documentary films from the mid-90s to around 2008. He concludes, that DV Camcorders helped to democratize non-fiction filmmaking, since they were, on the one hand cheap and on the other hand easy to use. Since they looked like amateur video camcorders they could also be used in places, where professional equipment wasn't allowed. That combination led to films, that wouldn't have been made otherwise. Hence the DV camcorders were also used as political weapons. On the aesthetical side of this technology, Müller speaks about the *DV look* but differentiates that he would only speak about a unique aesthetic when the filmmakers consciously employ the lightweight technology and its artifacts for a unique visual style (Müller, 2011, p. 281).

Further, the practiced based short paper by Per Erik Erikssons looks at the appearance of DSLR and digital cinema cameras in non-fiction filmmaking. His small experiment of 2012 on the effects the DSLR picture with its small depth of field and higher image quality has on the audience shows that the truth claim of the picture of conventional cameras with a smaller sensors is higher than of the picture of DSLR Cameras. His conclusion is: "The issue here is that convergence cameras are cultural expressions and cultural codes of big-budget filmmaking and turn the documentary into a receptor for fiction film associations, and, apparently, some videographers / producers are unaware of the powers of fiction signifiers." (Eriksson, 2012, p. 303).

3 Interviews

For *Gadgets, Phones and Drones* ten semi-structured video interviews with documentary film directors (Jean-Stéphane Bron, Thomas Imbach, Samir), cinematographers (Severine Barde, Patrick Lindenmaier, Pierre Mennel, Sophie Maintigneux, Eric Stitzel) and festival directors (Ally Derks, IDFA, Daniel Sponcel, Dok.fest Munich) were conducted. The goal was to find out, how and why filmmakers use different camera technologies and what their views on visual aesthetics and narrative perspectives are.

3.1 Today's state of documentary films

From the perspective of the filmmakers interviewed, documentary film today is part of a complex media landscape that has become much more diverse and sophisticated than it has been thirty years ago. It also has become more popular. For Daniel Sponcel one of the key films for this development is *Bowling for Columbine* (Moore, 2002) because it managed to address a socially relevant topic in a very entertaining way (Sponcel, Interview 2018, 4:30). With that also the demands on documentary films have increased. Not only do viewers have a higher aesthetic demand, the content also tends to be questioned more critically. Ally Derks the former director of IDFA (International Documentary Film Festival Amsterdam) especially notices this with the audience of the festival. "They want more explanation. 'How did you shoot it, why did you shoot it?' and 'this is your point of view and I do not agree with you' because

of course my point of view is different, and ‘you didn’t shoot that’ and ‘why are you telling this story and not the other story?’ So it’s more demanding, more critical.” (Derks, Interview 2018, 18:30).

Two of the reasons for this development is that today much more non-fiction films are produced and that they are much easier accessible through the Internet, TV or film festivals/cinema. The basis of this development is the electronic and digital progress in camera, editing, and distribution technologies. In accordance with Kay Hoffmann the filmmakers constitute that especially the cheap and easy to use semi-professional video cameras that emerged in the late 80s and 90s changed the documentary filmmaking process profoundly. The cameras and editing systems became so affordable that almost everybody could become a filmmaker. “Filmmaking was democratized, financially viable, and became a global phenomenon.” (Hoffmann, 2006, p. 68). Today this is more true than ever. With the dissemination of smartphones, everybody can capture filmic documents. “Above all, this led to the fact that the amount of film material and the amount of films produced has increased exponentially.” (Imbach, Interview 2018, 28:35). It also means that today most people are used to moving images and their capturing process. Furthermore, they are also very much aware of the possibilities of digital manipulation of images, as well as the manipulative techniques of filmic storytelling. People are more media educated than they were 30 years ago.

3.2 Transition Film to (digital) Video

For most non-fiction filmmakers who started out shooting on film, the biggest upside of electronic or digital video cameras was the possibility to shoot for a much longer time. With 16mm film you had to change the roll every eleven minutes or every 4 minutes with 35mm film. Moreover, film is very expensive while video is cheap and you could record 40min or longer. Technically it was also easier because the camera was always ready and the filmmakers didn’t need to worry, what film material and ASA they had in the camera.

All this lead to a new approach in documentary film making because there were little restrictions and one could shoot for hours on end. Thomas Imbach describes that for his film *Well Done* (Imbach, 1994) he was able to be on the lookout much like a hunter waiting for something to happen while recording the whole time. “And of course, you can also use it aesthetically, for example, one of the advantages we used, is: shoot so excessively that you can get rid of it in the editing without much pain. Well, that was one of our mottos that we made up in the 90s.” (Imbach, Interview 2018, 28:30) This kind of shooting style also led to a change in the editing process. In order to cope with the enormous amount of material most editors no longer first put a film together in a montage style approach, as they used to do, but rather proceeded according to content. The story has to be found in a vast amount of material and then put together in the editing process (Samir, Interview 2018, 22:10). That leads to the perception of many filmmakers, that the importance of editing increased.

The change in working methods and the possibility to carry the camera around easily led to shooting situations that weren’t possible before. Very often they were handheld and had very dynamic camera movements “this means that an aesthetic was created that was even closer to the subjects, even more dynamic than was previously possible

with 16mm.” (Sponsel, Interview 2018, 32:35). In its most radical form a “home movie” aesthetic developed, that was later also referred to as “amateur chic”.

The aesthetic was on the one hand marked by poor picture quality compared to 16 or 35mm film and on the other hand by amateurish photography. Because the technical and financial barriers of video palmcorders were so low, anyone could start filming. As a result, many people who weren’t schooled in professional photography shot films. Aesthetically they often looked similar to home videos. Only later was “amateur chic” consciously used to acquire a more authentic feeling for a film (Lindenmaier, Interview 2018, 2:09:01).

Then again the video and DV technology allowed filmmakers to shoot alone without a crew and often without big funding. The result was an increase in small, intimate films which were often family-related (*Silverlake Life: the view from here*, Friedman, Joslin, 1993. *Ma famille africaine*, Thümena, 2004. *Petite conversation familiale*, Lapiower, 1999). “I think that during the nineties the main thing was intimacy (...) going with your camera where you were not allowed to film at the time.” (Bron, Interview 2018, 2:30). Also, Daniel Sponsel believes that part of the reason why films were closer and more intimate was because of the video/DV Video Equipment. „Mini DV and the following technologies greatly increased the possibilities. I believe that documentary films are particularly brilliant when they contain scenes, in which the camera is actually there and very close.” (Sponsel, Interview 2018, 55:45).

3.3 Depth of field

The variation of the depth of field in documentary films over the last 30 years is very much associated with the development of the camera sensors. With the emergence of portable consumer video cameras the sensor sizes decreased. Sensor size is one major aspect of depth of field. The smaller the sensor the more depth of field (everything is in focus) is emended in the picture. So with the emergence of the small sensor video cameras and the 2/3” ENG cameras for television in the 1980s and 90s, the typical visual aesthetic of a documentary film shifted towards a picture with great depth of field/deep focus. When the DSLR Camera Canon 5d in 2005 and the Red One camera in 2007 hit the market, that started to change. Over the last decade, more and more cameras were produced, which have 35mm or even larger sensor. Since the imaging technology around these digital film cameras became cheaper, they were more often used in non-fiction films. Today cameras with 35mm sensors are the standard for independent documentary filmmaking. These cameras tend to have a shallower depth of field, which generates a picture with a more cinematic look as we are used from fiction films.

And since today very often the same camera technology is used for fiction and documentary filmmaking, the image quality of non-fiction films with regard to resolution and dynamic range caught up to the technical standards of fiction films. “In the late 90s, well into the 2000s, you went to the cinema and didn’t need to know anything about the film. The screen opened, the film started and it was immediately clear if it was a documentary or a feature film because one was shot on 35mm and had really beautiful postproduction and the other was, in the worst case, shot on miniDV and then blown up. That means you saw it immediately. And today you do not see it anymore.” (Sponsel, Interview 2018, 8:30).

Not only from the audience's point of view of a nicer image, but also from the perspective of the filmmakers the development in sensor technology was embraced. Today filmmakers and cinematographers are happy to have once again the visual tool of depth of field to work with. For most of them, it is a formidable tool to guide the audience's attention and therefore tell the story with less distraction. But they also see a certain danger of over or not adequate use in very shallow depth of field. Not always is shallow depth of field desirable, since it often isolates the subject from its surroundings. Especially in documentary films, the surroundings of the subjects are part of the story and when they are too much blurred, the picture loses vital information. It can be a visual honeytrap. It is easy to create a pleasing picture but is often not an adequate tool to tell the story or portrait a subject. Many of the filmmakers are very aware of that and see an overuse in shallow depth of field in non-fiction films. The goal to visually look like a fiction film can distract from telling the story properly.

When asked if the more cinematic picture with a shallow depth of field decreases the feeling of credibility or authenticity the interviewed filmmakers had different opinions. Many enjoy the new aesthetic possibilities and believe that since viewers have gotten used to it, it is no longer the case, that a picture with a large depth of field contributes to perceived credibility. Others disagree and think that the viewing habits of the last thirty years are still dominant.

3.4 Multiple Cameras

The progress of camera technology, especially in the consumer segment, took the next step from 2011 onwards, as GoPro introduced the Hero2 Camera which for the first time could record HD video. At the same time, the first HD video recording was achieved on a smartphone and by 2013 the first devices were able to record 4K. Around the same time, the first consumer drones with HD Video appeared on the market, making aerial pictures affordable for low budget filmmaking as well.

The influence of these devices on documentary filmmaking is different. All have been used, but with various popularity. GoPro Cameras are the market leader for action cams and are one of the most popular cameras seen on YouTube. Small, cheap, easy to use, and almost indestructible they took over sports filmmaking. For most people, their aesthetic is directly linked to action sports. Since they are very easy to mount on people or vehicles it is a quick way to grab spectacular images. However, most of the interviewed documentary filmmakers are careful to use GoPros because their action sports aesthetic doesn't usually fit well into the overall camera concept of the movie. For Jean-Stéphane Bron a GoPro Camera is a device to prove something. "You want to prove that you are there [...] I think that is the main goal of the GoPro. I was on the mountain, I was flying [...] I was a policemen, I was arresting this guy. [...] But I haven't seen a good movie with a GoPro so far, maybe one." (Bron, Interview 2018, 51:05). That is also the way GoPros are mostly used in documentary film productions - a camera that shoots by itself mounted on a person or device like cars. They are rarely the A-camera but mostly the second or third camera. As one of the few examples that use GoPros exclusively the ethnographic film *Leviathan* (Castaing-Taylor, Paravel, 2013) vividly portrays the savage life on a fishing boat. As Colorist Patrick Lindenmaier remembers, the directors started to shoot with different cameras first, but after they lost two of those on the boat decided to only use GoPros because

they were water-resistant and cheap. “And with him [Castaighn-Taylor] it is also so that he sees what he has and lets the film be extremely influenced by the shots. So the feedback is extreme in the film. The feedback of the shots, what he has, and what the pictures say and what the film becomes in the end.” (Lindenmaier, Interview 2018, 39:57). The unique visual aesthetic of the film is directly linked to the new technology of GoPro cameras. It wasn’t intended first but developed through the process of filming on the fishing boat. Michael Unger draws the same conclusion in his paper on *Leviathan*: “I will explore how the aesthetics of *Leviathan* constitute a form of sensorial knowledge that is both site-specific and derived from the experience of the filmmakers encounter with the ethnographic site rather than a formalist approach for its own sake.” (Unger, 2017, p. 5). The multiple odd camera perspectives of the film constantly draw the viewers' attention to the placement of the cameras. The non-anthropomorphic viewpoints of the images create a double meaning: “It defamiliarizes the subject matter through its cinematic representation and also makes the viewer aware of the aesthetic choice. [...] One could argue that experimental documentary [*Leviathan*] acts as reflexive response, sharing similar concerns to those paramount in reflexive documentaries where the traditional structures of documentaries are deconstructed and made evident as such to the viewer.” (Unger, 2017, p. 10). The classic approach to documentary filmmaking tries not to draw much attention to the camera and the way the film is made. They try to render the encounter with the subject invisible and therefore diminish this double meaning in order to strengthen the filmic space. With GoPro Cameras that approach is almost impossible because they are almost exclusively used for unusual perspectives.

Another rather obvious reason that not more films are shot with GoPros is the lack of visual control over the picture. It has a wide-angle lens with a fixed focal length which is not changeable. “I can't play with space, I can't play with depth of field, I can't use all the things that are inherent in a cinematic picture anymore, so to speak. I can't focus, I can't emphasize, I renounce very many things.” (Mennel, Interview 2018, 24:34). Smart Phones have the same visual limitations. If your shots are always the same wide-angle it doesn’t make for nice editing. Jumping from one wide-angle to the next makes the cut very obvious for the viewer. That’s why none of the cinematographers or directors interviewed has shot a documentary solely on a smartphone or GoPro. Also, the quality of the picture hasn’t been comparable to video or cinema cameras so far. But that doesn’t mean that smartphones aren’t used in documentary films. Very often footage from smartphones is used when a protagonist films himself or it is a film that works with “found” footage from non-filmmakers who filmed an event or a scene. As an example in *#myEscape* (Elke Sasse, 2016) refugees filmed their hazardous journeys to Europe. It has also the visual aesthetic of non-professional filmmaking, similar to films shot in the “home movie” style with DV Cams, but with multiple perspectives. A film that was only possible because of the widespread smartphone technology and the social acceptance that everybody is filming and documenting with these devices.

One of the most used new technologies in professional documentary filmmaking is drones. Nowadays it is very easy and cheap to get aerial footage. It used to be something special, today it’s almost standard. The technology is so far advanced that consumer drones can be flown by anyone. Like every new technology the filmmakers see overuse of drones: “Of course, like everything new, it is used intensively and excessively, sometimes sensibly, sometimes not. But that doesn't make it a better or

worse film.” (Sponzel, Interview 2018, 1:01:49). They consider drones to be mostly a visual and sometimes also a narrative enrichment. While every other TV report or image film uses drone shots because of the attractiveness of the picture, the documentarist experienced that it is difficult to integrate the images narratively into a documentary film. They often realized that drone footage needs to be very carefully considered and used wisely otherwise it won't make the cut.

With the abundance of small, cheap, and easy to use cameras and the easy access to pictures of such cameras through venues on the internet, the way our social world is perceived changes. Through the possibility to use footage from so many different angles, even unintended viewpoints, documentary pieces can heighten the perceived reality. “And I find that interesting because people are running around with GoPro cameras, others are taking a snapshot with their mobile phones, there's a drone flight of the army [...] And all these things are put together to form a new reality, which is actually an exaggeration of reality that we cannot experience as individuals. And it's interesting that this is only possible thanks to these digital cameras.” (Samir, Interview 2018, 54:00). It gives the filmmakers the possibility to create a filmic reality that exceeds the narrow single camera view - if intended. Furthermore, these new and cheap technologies informalize the process of documentary filmmaking even more than the Video and DV cameras did.

4 Conclusion

The Interviews with the documentary filmmakers confirmed the assumptions of the researchers, that camera technologies have a great impact on non-fiction films. The possibility of camera choices and therefore shooting styles, even mixtures of different camera technologies and styles, increased over the last three decades and not only lead to new visual aesthetics but even push as far as to suggest new perceptions of reality. While some technologies are embraced more widely than others by the filmmakers, filmic documents shot by new technologies are accessible in abundance on internet platforms like YouTube et al. They shape our viewing habits insofar, that certain cameras are given a specific look and meaning. For example, GoPro Cameras are rather shunned by documentary filmmakers, because their aesthetics are so connected to action sports. Other technologies like digital cinema cameras with 35mm sensors are very welcomed by filmmakers because they offer the picture quality and shallow depth of field of 35mm film for an affordable price. They seemingly add production value because their aesthetic is close to fictional films.

What the interviews also showed is that professional documentary filmmakers are guided by the story they want to tell. They try to choose technology accordingly. It may enable them to do things previously not possible, but it is no substitute for a good story.

For the research project *Gadgets, Phones and Drones* the interviews imply and also confirm that there is ambivalence if certain visual aesthetics are perceived as more trustworthy than others. Also, the question arises if some new technologies are really as difficult to integrate into a narrative structure as perceived by the filmmakers. In the further stages, the project will conduct two practice-based studies for which short documentaries are shot with different looks – shallow vs. large depth of field - and different narrative approaches – single shoulder camera perspective vs. multiple

perspectives with gadget cameras. They will then be empirically evaluated in audience experiments to further gain knowledge about viewers' preferences and the perceived authenticity in documentary films.

References

- Berg-Ganschow, U. (1990). *Das Problem der Authentizität im Dokumentarfilm*. In: Heinz Heller, Peter Zimmermann (Eds.) *Bilderwelten – Weltbilder. Dokumentarfilm und Fernsehen*. Marburg: Hitzeroth, pp. 85-87.
- Caldwell, J. T. (2008). *Production Culture: Industrial Reflexivity and Critical Practice in Film and Television*. Durham: Duke University Press.
- Corner, J. (2003). *Television, documentary and the category of aesthetics*. In: *Screen*, Volume 44, Issue 1. Oxford: Oxford University Press, pp. 92–100.
- Eriksson, P. E. (2012). *Convergence Cameras and the New Documentary Image*. In: *Digital Creativity*, 23, 3-4. London: Routledge, pp. 291-306.
- Hoffman, K. (2006). *Digitalisierung – technische und ästhetische Innovationen*. In: Kay Hoffmann, Peter Zimmermann (Eds.). *Dokumentarfilm im Umbruch. Kino – Fernsehen – Neue Medien*. Konstanz: UVK, pp. 65-74.
- Landesman, O. (2008). *In and out of this world: digital video and the aesthetics of realism in the new hybrid documentary*. In: *Studies in Documentary Film*, Volume 2, Number 1. London: Routledge, pp. 33-45.
- Müller, J. K. (2011). *Grosse Bilder mit kleinen Kameras: DV-Camcorder im Dokumentarfilm*. Konstanz: UVK.
- Nichols, B. (2010). *Introduction to Documentary (2nd Ed.)*. Bloomington: Indiana University Press.
- Platinga, C. (2013). *'I Believe It When I Trust the Source': Documentary Images and Visual Evidence*. In: Brian Winston (ed.). *The Documentary Filmbook*. London: Palgrave MacMillan, pp. 41-48.
- Unger, M. (2017). *Castaing-Taylor and Paravel's GoPro Sensorium: Leviathan (2012), Experimental Documentary, and Subjective Sounds*. In: *Journal of Film and Video*, Vol. 69, No. 3. Champaign: University of Illinois Press, pp. 3-18.

Interviews

- Bron, J. S., Derks, A., Imbach, T., Lindenmaier, P., Mennel, P. Samir, Sponsel, D. (2018). Interviewed by Stefan Dux for *Gadgets, Phones and Drones – Technical Innovation and the Visual Aesthetic of Documentary Film*. Research Project, Zurich University of the Arts, 2018-2020.

Filmography

Bowling for Columbine. Dir. Michael Moore. United Artists et. al, 2002.

Leviathan. Dir. Lucien Castaing-Taylor and Verena Paravel. Cinema Guild, 2012.

Ma famille africaine. Dir. Thomas Thümena. Hugofilm Productions, 2004.

#myEscape. Dir. Elke Sasse. Berlin Producers, 2016.

Petite conversation familiale. Dir. Hélène Lapiower. Margo Cinéma, 1999.

Silverlake Life: the view from here. Dir. Peter Friedman, Tom Joslin. 1993.

The Blair Witch Project. Dir. Daniel Myrick, Eduardo Sanchez. Haxan Films, 1999.

Well Done. Dir. Thomas Imbach. Bachim Film, 1994.