FROM DIFFERENT ANGLES: EXPLORING AND APPLYING THE DESIGN POTENTIAL OF VIDEO

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ABSTRACT
Recent developments in both hardware and software have brought video within the scope of design students as a new visual design tool. Being more and more equipped with cameras, for example in their smartphones, and video editing programs on their computers, they are increasing using video to record their research activities or present their design ideas.
In design education, however, the full potential of video as a rich and contextual design medium is yet to be explored and developed. This paper presents a course, in which design students are trained to explore, experience and apply the possibilities of video in their design process. In three assignments, which cover different design stages, they take on different roles, from user researcher to interaction designer to video producer, to create videos that serve different design purposes.
The paper first presents a brief overview of the role of video in design, developing from a secondary medium used to more or less objectively register certain events to a primary, expressive design tool, which can be used to drive the design process forward. Resulting from this overview three main principles are formulated, which were used in building the course. Next the set-up of the course is presented, describing each of the three assignments in detail to clarify how the guiding principles have been implemented. The paper concludes with a short discussion, reflecting on the first results of the course from an educational perspective.

Keywords: Video, design ethnography, design conceptualization, experience design, service design

1   INTRODUCTION

In recent years video has truly become a medium for the masses. Nowadays, ordinary computers are powerful enough to process video at reasonable speeds, editing software has become mainstream, compression techniques have dramatically improved and hard drives hugely expanded, while at the same time, with the exponential rise of smartphones and other digital equipment, video camera's have become almost ubiquitous. Being provided with these tools, consumers have massively turned themselves into moviemakers, the results of which can be found on sites like YouTube or Vimeo, varying from clumsy homemovies to semi-professional, Hollywood aspiring productions.
All these developments have brought video within the domain of design students as well. More and more they are using video to record or present different aspects of their design process, such as user research, usability testing or experiential prototyping. In most of these cases, though, the production process of the video itself and its resulting qualities are hardly considered beforehand or analyzed afterwards. Rather than the single output of a dedicated assignment, the video is mainly a by-product, constructed as a vehicle for presenting design findings or results in an appealing way. Although being an excellent medium for creating vivid and compelling presentations, it is felt that the inherent narrative structure of video and its visual and auditory richness offers much more potential for design.
For user research purposes video is able to capture much of the contextual richness of everyday life by recording ordinary people in real-life situations. Seeing these people cope with or respond to day-to-day circumstances would enhance the empathy of the designers with their user group, while an in-depth analysis of the video footage might lead to the discovery of new design opportunities. Video also offers possibilities to explore and express qualities of user-product interactions. Through its potential to combine images, music and sounds in a dynamic way, strong feelings, expressions and emotions can be articulated. Such videos would convey experiential effects, emotions and feelings in ways that could inspire, confront or provoke a design team. Finally, video is a powerful design medium to show the richness and detail of future contexts of use, though its ability to mix concrete

images, people and sensations with virtual elements. Specifically for the upcoming domain of service design, which deals with the relationships and interactions between people, artifacts and activities, video offers great possibilities to conceptualize, formulate and visualize solutions that are not yet available.

This paper describes the elective "Video for Designers", in which (industrial) design students are trained to understand, apply and experience the potential of video in different stages in their design process. In three assignments, in each of which the students go through the stages of pre-production, production, and post-production, a short video is created for different design purposes. The paper first presents a brief overview of the role of video in design, developing from a secondary medium used to more or less objectively register certain events to a primary, expressive design tool, which can be used to drive the design process forward. Resulting from this overview three main principles are formulated, which were used in building the course. Next the set-up of the course is presented, describing each of the three assignments in detail to clarify how the guiding principles have been implemented. The paper concludes with a short discussion.

2 VIDEO IN DESIGN

Using video for design purposes is not a new concept. Already in 1989 a special issue of the SIGCHI Bulletin was dedicated to the use of video as a research and design tool [1]. Based on a CHI workshop, the papers in this issue addressed several topics, mostly related to using video as a research instrument in human factors. However, although the introduction to the issue states that both video and computers are at the time becoming prevalent, it is only recently that these two means have become integrated to the extent that designers have access to the full potential that this combination has to offer.

With the rise of new design approaches such as user-centred design and experience-driven design, designers had to widen their perspectives, going beyond the product itself to design for less tangible aspects, such as contexts of use, user experiences, cultural values and product interactions. Video, with its ability to capture and present the richness of life as it unfolds, seems to be an excellent medium to both register the world as it is now and visualize the world as it could be. Ylirisku and Buur, who have written an excellent and pioneering book about designing with video, thus propose two possible roles of video for design purposes [2]:

1. *Video as designer clay*, which focuses on the generative and expressive qualities of the medium, which allow designers to create rich narrative structures that can convey non-tangible aspects of product use, such as personality, atmosphere or vision.

2. *Video as social glue*, which focuses on the analytical and realistic qualities of the medium, which afford multiple interpretations and supports in-depth discussions between different stakeholders in a design process, such as clients, users, researchers and designers.

Rooted in the Scandinavian tradition of collaboration and participation, Buur has applied video in several studies [3, 4, 5], focusing mainly on recording work activities or routines, the results of which were subsequently used in participatory design sessions. Video here is mainly utilized as a registration tool, taking as much as possible an objective position. As a consequence, the people in the video are not performing or acting, suggesting an unmediated view of reality.

An example of a more subjective and impressionistic use of video can be found in the work of Bas Raijmakers on design documentaries [6]. Applying approaches from documentary filmmaking, such as observation and intervention, he uses video to construct short films that should bring to life personas that resulted from previously conducted user research. The films were then presented to a team of designers to inform and inspire them, thus taking on a role as social glue as well. Since his films were building on previously conducted interviews with users, Raijmakers mixed material resulting from these interviews, such as photos, posters and audio files, with custom-made video footage. As a result his films are much more staged than those made by Buur, with the people in it performing according to a predefined script.

Taking this even further are videos produced to envision a future scenario of use. Large technology- or design-driven companies, such as Apple [7], Microsoft [8] or Philips [9] have since long used video as a means to present ideas about the application of new technologies and products in future contexts at a stage where these technologies and products are still very much in development. Usually crafted by professional moviemakers, the intention of these movies is to demonstrate the company's innovation power. Key to this is the creation of a compelling story, that is worked out into a high-quality video that involves convincing acting, professional shooting and cutting-edge post-processing.

While video thus gradually has made an impact in both design research and design industry, its role in design education has so far been mainly restricted to its use as a presentation means. Now that video has become accessible for design students, however, a need was felt to make them aware of and train them in exploring and applying the full design potential of video.

3 SET-UP OF THE COURSE

The "Video for Designers" course is a 3rd year elective for bachelor (industrial) design students. The total course load is 7,5 ect (210 hours), distributed evenly over a period of nine weeks. Rather than a general course on how to make appealing movies, it is focused on creating 'videos for design', which have a particular value in the design process, whether it be on a research, experiential or visionary level, thus addressing both roles of video as distinguished by Ylirisku and Buur. To do so, the course tries to integrate basic film making techniques and skills within the context of a design process.

In setting up and structuring the course the following main principles were therefore used as leading:
- **Different design stages**

The course should cover the entire design process, having the students experience the value that video could bring at different moments in the development of new products, systems or services. Thus they should be able to apply video throughout their process, addressing the specific needs and goals of each stage.
- **Different design perspectives**

Building on the first principle, the course should have the students take different design perspectives in using video. Rather than sticking to the well-known use of video as a presentation tool, they should also be trained in its use as a research tool, to document reality or discover design opportunities, as a generative tool, to express future interactions or as a visionary tool, to show future scenarios or services.
- **Different designer roles**

Finally, following the first two principles, the students should experience the differences in role that the use of video in different stages for different perspectives, brings with it: from being a researcher, looking for patterns, hints or clues, to being a designer, exploring and probing different design ideas, to being a director, envisioning and staging the future.

Based on these principles, three main assignments were constructed, each addressing a different stage in the design process, a different design perspective and a different designer' role. To equip the students with the necessary technical skills, the first two weeks of the course were complete dedicated to learning and applying the basic principles of filmmaking: camera techniques, framing, storyboarding, editing principles etc. In these two weeks the students also received their first training in working with Adobe Premiere, a video editing software application and Adobe After Effects, a digital motion graphics and compositing software application, which are both heavily used in industry in the post-production process of digital videos.

To practice these skills, the students were given two small training exercises: 1) to create a video of about one minute, that would explain how to get from A to B on campus, and 2) to create a commercial of exactly 30 seconds of a product of their choice. In both exercises emphasis was put on exploration: playing with different camera angles, trying out different frames, creating a storyline, applying graphical effects etc.

4 ASSIGNMENTS

Following the first two weeks of introduction, the remainder of the course was structured around three main assignments, each involving a distinctive pre-production phase, in which the necessary preparations were made and documented; a production phase, in which the raw video footage was shot; and a post-production phase, in which the final video was edited and graphical effects were added. In each of the assignments the students worked in teams of three or four. Each assignment was preceded by a guest lecture of a design professional who used video for the specific purpose that was central to the assignment.

4.1 Video for design ethnography (2 weeks)

The first assignment focused on the use of video as a research tool in the early phase of the design process. With the advent of user-centred design, design ethnography has become an important activity

in many design processes, informing design by revealing a (deep) understanding of people and how they make sense of their world. It involves studying the everyday activities of potential users in their natural environment and the interpretation and communication of its findings. Video offers design ethnographers a way to capture the richness and detail of existing contexts of use, depicting concrete images and sensations by showing real people performing real actions in real situations, while expressing real feelings, concerns and emotions.

One of the challenges in design ethnography is conveying its main findings into a presentation format that should communicate the results of a usually extensive analysis in an efficient and meaningful way. These could be diagrams, sketches, storyboards, video's etc. One format that is particularly popular in interaction design, is a persona, which is a fictional character that is created to represent different user types that might use a site, service or product. Typically a persona is depicted through a 1-2 page textual description that includes behaviour patterns, goals, skills, attitudes, and environment, together with a few fictional personal details as well as a photograph. Although this way of representing is rather efficient in terms of information density, it also tends to produce rather superficial and lifeless characters. Video, with its dynamics, visual and auditory richness and inherent narrative structure, could offer design ethnographers the possibility of giving their persona more context and depth, thus enhancing to its believability and communicativeness.

The following brief was given to the students:

"You are hired as a team of design ethnographers by a company to identify and explore new contexts that might offer possibilities for introducing new (interactive) products. After a brainstorm session you decide it would be fruitful to concentrate their research on people that are really passionate about something, whether it be on an amateur or professional level. Imagine your company to be active in an area related to the activity of your choice, so for example cooking utensils, sewing equipment, etc.

For both educational and practical reasons you will not be conducting an extensive field study with multiple participants in this course. Instead you are asked to conduct a single, semi-structured interview of about 60-90 minutes with someone who has a real passion for as well as substantial knowledge and experience of a specific topic.

The entire interview should be recorded on video. After analyzing the data from the interview, the team is to come to several understandings and conclusions, which are to be communicated by means of a video persona of about two to four minutes. You may only use footage from the actual interview, so you are not allowed to go back a second time to shoot some additional material.

During the pre-production and production phase of this assignment the team worked together. In the post-production phase, however, each team was split up into two teams of two students. In this way, two versions of the original raw footage were created, providing different perspectives of the same material.

4.2 Video for design conceptualization (2 weeks)

The second assignment focused on the use of video as a generative tool in the ideation phase of the design process. Getting a grip on the desired character of product-user interactions, requires envisioning the intended relationship between product and user instead of focusing on either the product or the user in isolation. This provides designers with a different perspective on their design situation, enabling them to express and indentify which qualities the interactions between product and user should have to actually induce the intended experience [10]. Video, through its potential to combine images, music and sounds in a dynamic way, offers a powerful medium to articulate strong feelings and emotions as well as to show and reveal the interactions that evoke these experiences.

The following brief was given to the students:

You are working as a team of designers for a company on a new line of products for the home context. To give these products a unique character that makes them stand out from the competition, you decide that the interactions with these products should evoke certain emotional expressions or responses. To explore such 'emotional interactions' you decide to use video as a generative design tool.

Attached you'll find a list of 24 negative and 24 positive emotions, from which you should select two negative emotions and two positive emotions. For each emotion, make a movie of about 60-90 seconds, that articulates the specific interaction qualities that make up for this particular emotion.

The challenge of the assignment is not to rely on facial expressions, but to find dynamic behaviours and interactions that embody these emotions. What kind of gestures are typical for the emotion; what kind of movements and what kind of interactions (with materials, products, and/or people)?

During the pre-production phase of this assignment the students worked as a team, exploring the specific qualities of the selected emotions using various techniques, such as brainstorming and play-acting. Then each student individually went through the production and post-production phase, resulting in four videos for each team.

4.3 Video for design experiences (3 weeks)

The third and final assignment focused on the use of video as a visionary tool in the later phases of the design process. Video also offers designers the possibility to create future experiences or scenarios that show in a controlled way how a new design idea could potentially affect people's lives. By carefully staging an imagined context of use, the functioning of a proposed design can be detailed as well as the value it should bring to this specific context can be shown. Video can not only depict the tangible parts of the design idea, such as a physical product, but also show the intangible parts, such as people's responses and emotions. Compared to computer animations, video brings a greater sense of realism to the story, which makes involvement with and acceptance of the design idea much more likely.

Service design is an emerging field dealing with the creation of well thought through experiences using a combination of intangible and tangible mediums. These experiences should be from the customer's point of view, useful, profitable and desirable, while they are effective, efficient and different for the provider. Service designers try to conceptualize, formulate and visualize solutions that are not yet available, focusing on the relationships and interactions between people, artifacts and activities.

The following brief, which was initiated by an actual service design agency, was given to the students:

"X is a service design agency, specialized in connecting the disciplines of branding, design and innovation. Recently X has founded a business club for change agents within large organizations that are making the transition towards more human-centred, design thinking approaches to value creation and service innovation. In the business club meeting its members developed opportunities for new value networks revolving around Amsterdam Airport Schiphol. As a result, three new service design concepts were developed. For each of these concepts a customer journey is proposed, that describes the service from the first to the last contact moment.

You are hired as a video production team by X to visualize the experience of one of these future service design concepts by means of a short video (under 5 minutes). The video should clearly show the interactions with the service as well as the different stakeholder perspectives. To convincingly demonstrate how the service will affect people's lives, you could bring real life actors into your production."

In this assignment the whole team worked together to create one final video. Besides video, additional techniques such as animation and chroma-keying, using a green screen, were applied by some of the teams as well.

5   DISCUSSION

In the first edition of the "Video for Designers" course 33 students participated, producing a total of 59 videos. In the educational evaluation that was conducted after the course the general response of the students was very enthusiastic. They all reported to have experienced the added value that video could bring to their design process and were eager to apply their newly developed insights and skills in future projects. As in in-depth discussion of the resulting videos is foreseen for later publication, this paper will conclude by discussing some educational issues that became apparent while conducting the course.

The biggest issue raised by the students was that they were lacking a clear frame of reference to judge the quality of their process and the resulting videos. The rather open and conceptual character of the assignments combined with the richness of the video medium turned out to be experienced by many student as being somewhat overwhelming or even intimidating. This feeling was strengthened by the fact that, this being the first time the course was conducted, examples of previous work did not yet exist. As a consequence, students were asking more than in regular courses for confirmation whether they were on the right track, even though each assignment was proceeded by a lecture in which tips and pointers were given and weekly meetings were conducted to discuss the work in progress.

Although this issue is acknowledged by the staff, however, it is also felt that the rich and exploratory nature of both assignments and medium made it very hard to determine upfront whether things 'will

work' or not. Thus after each assignment a plenary session was held, in which all videos were shown and discussed. These sessions thus turned out to be very important learning moments in the course. Watching each other's work and comparing the choices being made, the perspectives being taken and the techniques being used, provided the students with a much requested context to assess the quality and value of their own productions.

Another challenge turned out to be dealing with the balance between design value and technical value. Making the students address an assignment's specific design goals and discussing with them the implications of these on the production process and technical qualities of their work, provided for many stimulating discussions. These transitions from 'what' to 'how' are, however, crucial moments in the course, since they represent the creative leap that is the core of any design process. For the next edition of the course more attention to these transitions is therefore intended.

REFERENCES

[1] Harrison, S. Minneman, S., Stults, B. and Weber, K. Video: a design medium. *SIGCHI Bulletin* 1989, 21(2), pp. 62-67.

[2] Ylirishu, S. and Buur, J. *Designing with video,* 2007 (Springer-Verlag, London).

[3] Buur, J., Binder, T. and Brandt, E. Taking video beyond 'hard data' in user centred design. *Proceedings of the Participatory Design Conference 2000*, CPSR.

[4] Buur, J., Fraser, E., Oinonen, S. and Rolfstam, M. Ethnographic video as design specs. In *Proceedings of the 22nd Conference of the Computer-Human Interaction Special Interest Group of Australia on Computer-Human Interaction* (OZCHI '10), 2010, ACM, New York, NY, USA, pp. 49-56.

[5] Buur, J., Binder, Th. and Øritsland, T.A. Reflecting on design practice: exploring video documentary of designers in action. In *Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques* (DIS '00), 2000, ACM, New York, NY, USA, pp. 450-451.

[6] Raijmakers, B.; Gaver, W.W. and Bishay, J. (2006), Design documentaries: Inspiring design research through documentary film. In Proceedings of the Conference on Designing Interactive Systems,University Park, PA, USA, June 2006, pp.229 –238 (ACM Press, New York).

[7] Apple's Future Computer: The Knowledge Navigator (1987), available at: http://www.youtube.com/watch?v=9bjve67p33E (Accessed 28 February 2012).

[8] Microsoft Productivity Future Vision (2011), available at: http://www.youtube.com/watch?v=a6cNdhOKwi0 (Accessed 28 February 2012).

[9] Philips Vision of the Future (1996), available at: http://www.youtube.com/watch?v=hvGb-o2Y_Xo (Accessed 28 February 2012).

[10] Pasman, G., Boess, S., Desmet, P. Interaction Vision: Expressing and Identifying the Qualities of User-Product Interactions In *Proceedings of the 13th International Conference on Engineering and Product Design Education*, 2011, Glasgow, The Design Society, pp. 149-154.