

# **Exploring a New Type of Interaction in Interactive Video**

Design report

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# 1. Defining the problem area

Before getting started with this design project, I had to decide the area to design for. Obviously, there are endless of current areas and design problems to work on. I had several ideas, based on my interests and even some ideas that I had developed earlier and that I wanted to carry on. I will present some of the early ideas and problem areas that I had.

## 1.2 Simplistic design and usability

Simplistic design in digital media has been one of my biggest passions in the field. The design choices where the designer chooses to not design a certain function or a certain element, have been something that has triggered my interest for a long time.

The Laws of Simplicity (Maeda, 2006) is a book that outlines how to achieve simplistic design when creating new artifacts. The book shows what is fascinating about simplistic design and the advantages of designing with the laws of simplicity in mind. Obviously, this is an area that offers a lot of possibilities to formulate a research question. My biggest concern in this area was to study the relation between usability and simplistic design. I believe that the amount of options and choices in a system, is directly related to how user friendly the system is. Less options would result in a system that is easy to use, but that is not that powerful. In this context, it would be interesting to study the limits, and how far the designer can go in terms of simplicity.

## 1.3 UI animation

Another area of interest that I discussed in a previous stage of this project, was UI animation (User Interface Animation). The topic has fascinated me for a long time as I've worked within the field of interaction design and digital media. Among the use qualities of digital design (Löwgren, 2002), there are some qualities that could be caused by the use of UI animation. UI animation has lately become a big part of digital design, mostly within mobile applications. The use of certain animation techniques has become more common and been a base for the use of UI within digital design. All these techniques, and the behavior of the animation is based on classic animation techniques that were used since the time of cartoon series (Chang et. al 1993).

What I thought was interesting about this subject, was the use of UI animation in prototyping, and how this part of the design experience was transmitted to the user in early stages of the design process. I believe that there is no established method to demonstrate UI animation, and that it is not that common to focus that much in that particular area of the design. It would be interesting to see how users react to different types of animation in different contexts, and how that affects their experience of the design in a prototyping phase.

## **1.4 Interactive film**

The two areas that I have most experience in, are film and interaction design. When blending those areas, the result is interactive film. Interactive film has been around for more than ten years, without breaking through or making too much noise. The format is not optimal for the users and the filmmakers do not see the possibilities of blending interaction and film. It is problematic when two fields are merged in that way. Filmmakers are rarely interaction designers, and interaction designers are rarely filmmakers. Which leave us with a result where the designer or the filmmaker, has not taken advantage of all the possibilities of the format. The filmmakers will not think about the aspects of making the interaction intuitive, interesting or user friendly. They will mostly focus on the story, and what it transmits to the user.

That has probably been the problem with interactive film, that it has been hard to merge the two disciplines in the design process. Therefore, there is a margin to improve the format and designing an artifact that focuses more on the interaction would definitely challenge this format, that seems to have been forgotten.

I finally decided to work on the field of interactive film, since I saw that there was a possibility to innovate and do something different. The topic offered many several options when it comes to formulate a research question since interactive video is an unexplored field in that sense.



## 2. Problem area

Interactive video is the platform that blends traditional linear film with some type of interactivity. The format has increased in popularity since 2005 due to the implementation of video to Adobe Flash and the increased amount of online users, among other factors. However, interactive video has never been a real competitor of linear video, and the format is mostly used to create particular online experiences.

Interactive video is nowadays mostly used in advertising campaigns, e.g giving the user the possibility to click on objects showed in the video and be linked to a shopping website where to buy the object. Interactive video is also used as a form of entertainment, giving the user the power of choice in the storyline of the video. In 2008, Youtube implemented new functionality, allowing annotations in the videos. These annotations could be used to add links, text boxes, and in that way add interactivity to the video, opening for the possibility to create interactive stories where the user could choose the next scene in the story (Google, 2016).

The problem area taken on in this report is about exploring new types of interaction within interactive video. As I mentioned, interactive video, as format, has taken a place behind the more common online experiences and is not among the most common activities of the users online. It is not trendy. I believe that very little has been done to explore and develop the possibilities of the format. The design project described in this report has the purpose of exploring the interaction within interactive video and how that affects the levels of immersion and experience of the video. The report is going to describe the design process, the results and finally I will discuss different research questions that could be solved with the design that has been produced in this project.

## 3. Design process

The design process is primary based on the methods in the design inquiry well described in the bootleg bootcamp by D.school (Institute of Design at Stanford).

## 3.1 Empathizing

As part of the empathizing phase in my design inquiry (D.School, p.1), I started to search for interactive videos, different types of interactive videos, to get familiar with the problem area. I also asked people in my circle of friends about their experiences with interactive videos, getting a generalized response of unawareness about the format. As I mentioned before, interactive video is not trendy. Another particular conclusion was that some of the people identified the format as “videos where everything stops and you can choose what to happen”, which seems to be the most traditional kind of interactive video.

In my search for interactive videos, I started to look for different types of interaction; Interactive videos that experimented with interaction. I will present some of the outstanding findings.

### 3.1.2 Interactive video controlled by voice

Released in April 2010, the movie “13th street - The Last Call” promoted itself as the first interactive horror movie in theaters (This is not advertising, 2011). The viewer in this interactive film can communicate with the character in the movie and help him/her make decisions in the different scenarios of the film. The phone numbers of the viewers in the cinema are stored in a database, the system selects a phone number to call and that viewer gets in contact with the virtual character in the movie. The answers that the viewer gives to the character in different situations, are transformed into commands that are connected to certain scenes in the movie. In that way, the viewer controls the actions of the character in the movie and also the storyline.

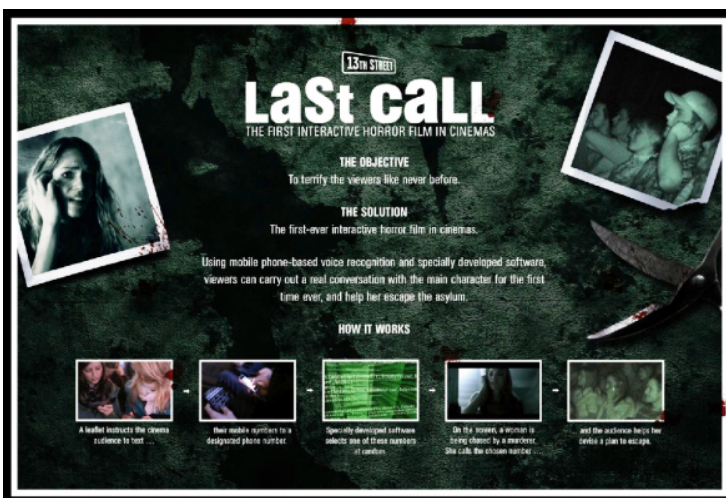


FIGURE 1.

### 3.1.3 Interactive video controlled by tracing

The short film “Five Minutes” (Filmakadie Baden-Wurttemberg, 2014) is an interactive film where the user interacts by tracing different shapes (circles, triangles etc) that appear on screen at several points during the film (figure 2). The film stops and the shape to be traced appears, if the user success the film continues, otherwise the user gets a couple of tries to try again till the films starts over again.

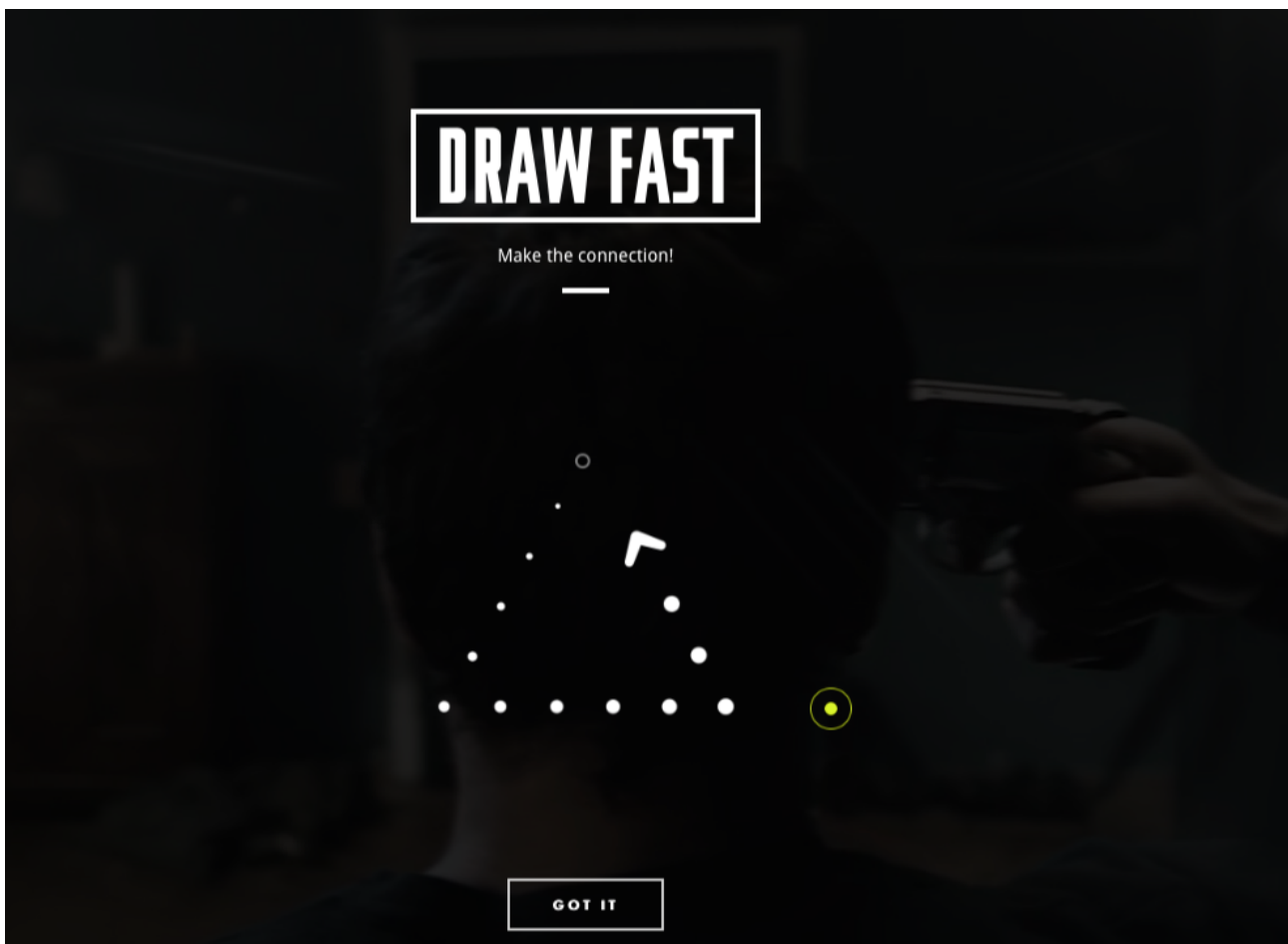


FIGURE 2.

### 3.1.4 Interactive video controlled by clicking between parallel perspectives

One of the most popular forms of interactive video, that is used in several advertising campaigns, is interactive video that allows the user to click between different perspectives. The user can, at anytime, select the perspective from the view of a certain character, or an alternative side of the same story. The awarded music video, “Like a Rolling Stone” (Interlude, 2013), is a good example

of that technique. In the video, the song “Like a Rolling Stone” is played inside a television. The user can at anytime, change the channel and see how the song is performed by different characters in different channels, with the song still playing all the time.

## **3.2 POV**

After empathizing and getting familiar with the format, I went on with formulating a POV, my point of view (i.e problem statement) (D.School, p.2). I found out that it is possible to experiment with different types of interaction within interactive video. It has been done before. However, none of the mentioned examples has managed to become such an established format compared to traditional linear video. This should not necessary mean that the projects are useless or not user-friendly, but it is a sign that the products have not been completely accepted by the community as a new way of watching video, or as a new innovative interactive experience.

When testing the different forms of interaction, and comparing interactive video that uses parallel perspective with interactive video controlled by tracing, I found that the flow gets lost when the film stops. Making the film stop to give the user time to make a choice, is also one of the disadvantages with interactive video.

Interactive video needs a new type of interaction, that is intuitive to its users and that doesn't stop the video and the flow of the experience.

## **3.3 Ideation**

With a defined POV I started to brainstorm and sketch on several ideas based on the known issues within interactive video. For this phase I also took inspiration from interactive online services that were popular at the moment and generally used by the community.

### **3.3.1 Social video**

One of the first thoughts that crossed my mind when thinking about implementing interactivity in a video, is actually to implement the kind of interaction we are used to at the moment; social interaction online. I thought of other services, like music, and studied how these services implemented social interaction. One good example of this is the music streaming service, Soundcloud (Soundcloud, 2016). Soundcloud has the function of allowing the users to comment on

different points of a song. Users can see what others had commented on the chorus, or the intro, and even contribute with their own opinion. The only thing that I did was to think about how it would look like to have the same function on a video (figure 4). It is obviously a simple thing to do, but it is also a simple way to implement interaction we are used to. However, the idea is not that challenging when it comes to explore interaction within interactive video, and I'm not sure how accepted this would be if we think about the factor of surprise that we want to have when we watch a video. If we already know that a certain scene is going to take place at minute 2:38 because a user commented on that point of the video, the factor of surprise is most probably gone.

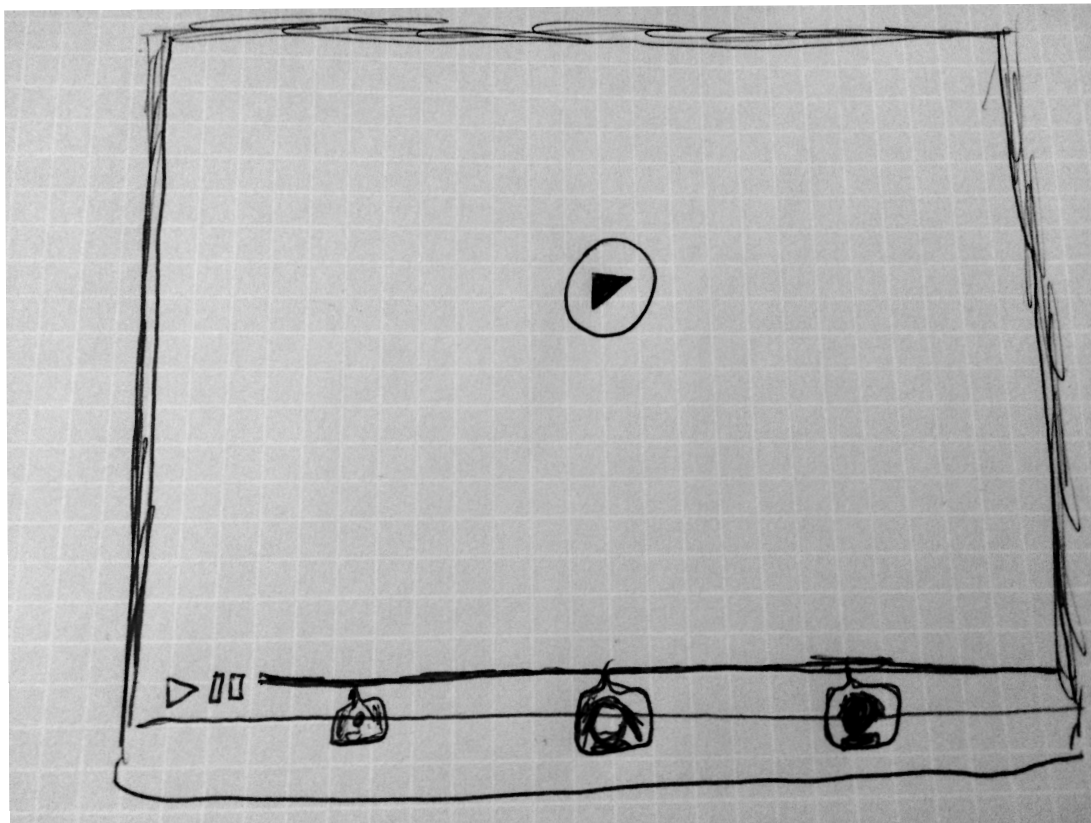


FIGURE 4. SOCIAL INTERACTION INSPIRED BY SOUNDCLOUD.



Another way to implement social interaction in video, is to add the twitter feed (or any other feed from social media) to the online service, and put it side by side to the video (figure 5). This setup is based on the function that is implemented on smart TVs. For some reason, when we watch movies in our living room, we take our phones and start scrolling on our feed. Maybe we should use this behavior and turn it into something acceptable. In smart TV's, the idea is not that user -friendly if we think about the fact that users don't use to write twitter posts with their remote controls. But if we instead applied this to a youtube video, or a video online, maybe it could be an usable function. This idea doesn't challenge new ways of interaction either, and it would actually be too similar to an already established function such as the comment field that is usually placed below the video.



FIGURE 5.

### 3.3.2 Ambient of the video controlled by live data

Many great interactive experiences can be created now with html5 and some rows of code. With the javascript library P5.js, it is possible to import live data that can be displayed on a video (McCarthy, Lauren). The library gives the user the possibility to interact with the video and change the color of a shape that appears on screen, or adjust the size of that same shape. This library is only an example of what

can be done and definitely not the only way to go. What is interesting here is that there are feasible ways to make a video interactive in a different manner. With this in mind, I also started to think about other popular services within interactive video that are usable and that people like to use. Named as “app of the year” by Apple’s app store, the mobile application Periscope has grown tremendously in only a year (Pramuk, 2015). Periscope offers the possibility to broadcast live wherever the user is, and allows other users to watch and interact by writing comments. My personal believe is that the success of this application is based on our desire, as people, to be somewhere else, to be transported to some other place. We can use this, and implement it in interactive video.

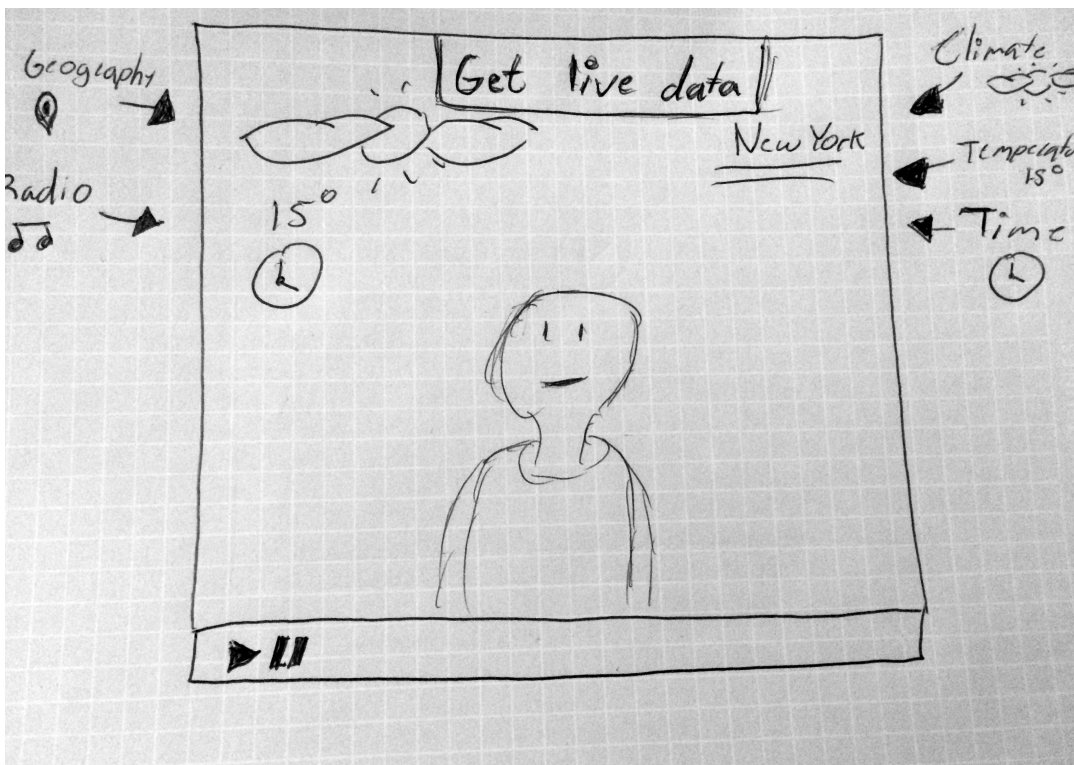


FIGURE 6.

It is possible to combine the technical possibilities that, for example the P5 library offers, with the human desire of experiencing another part of the world. I came up with the idea of using live data, to control the setting of the video we are watching. This interactive video would let the user decide the place where the story is going to be unfold. The place, chosen by the user, should be shown as it is now, with the weather at this particular time. Even the music could be taken from a live radio station to complete this live interactive experience (figure 6). Let the ambient in the film be affected

by live data. The only reason that made me not go on with this idea was actually the lack of resources for this project.

### 3.3.3 Connecting the virtual world with the real world

One of the steps that have been taken to improve our experience when watching film, is the development of 4D cinemas (Cable, 2015). Shaking seats, smells, blowing wind, three-dimensional space, etc. Those are some of the elements that are going to improve the viewers experience at cinemas. However, the technology is costly, and many manufacturers question if it is worth the investment since 4D cinemas are still not a standard among the consumers (Ritman, 2015).

The key element of 4D cinemas is to connect what happens in the movie, with the reality. If it is cold in the movie, let the user feel cold as well. I thought of this principle, and how interactivity could be added to this. I came to the the conclusion, “if the user/viewer does something, let it happen in the movie as well”. With this starting point, I developed the idea and thought of things like “if the user/viewer turns off the lights, the lights get turned off in the video as well” (figure 7). With certain physical objects that call on to action, the user could affect the video. It could be a light switch, as mentioned, but even other things. If the user drinks coffee, let the main character in the film feel alert, if the user drinks alcohol, let the main character feel dizzy, and so on. Actions with physical objects in reality, controls the video.

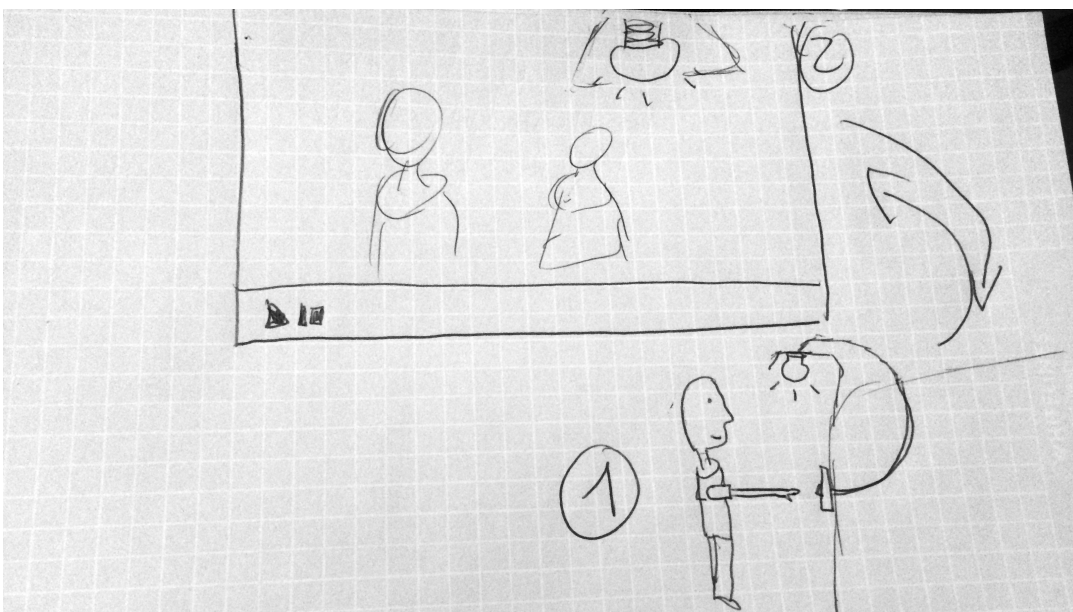


FIGURE 7.



This was basically the idea that I decided to develop, not exactly with the purpose that I mentioned, since it wouldn't feel practical to have different objects at hand when watching a video. But interacting with physical objects could still be a type of interaction worth to explore within interactive video.

### **3.4 Empathizing (again)**

When I had decided which idea to develop, I realized that I needed more background and more facts about the users that I was designing for. People that have internet connection watch online videos, so that is a large target group, but people that watch movies at cinemas is a more narrow group that could give me insights about their experience when watching films at the cinema. The method that I chose was to interview since I thought that it was an effective and practical way to get deeper insights and opinions about an experience. I went to the closest cinema to interview people that were on their way to watch a movie, or that on their way out. I interviewed a family with two kids, a group of three male adolescents, and a teenage girl. I stopped interviewing people when I considered that I had a conclusion and that I had found a relation between the answers.

The basic questions in the interview were about the experience at the cinema, what could improve that experience, which objects the participants bring to the cinema (I was thinking about the interaction with objects) and what the participants do at different points of their experience. I reached several general conclusions:

- The participants in these interviews thought that cinemas were good as they are, they are pleased with what they get and they wouldn't make any bigger changes.
- When discussing 4D cinema, they thought that it could be "a little too much", too much going on.
- Viewers are always immersed in the movie when they watch films at the cinema, they don't get distracted or restless.
- Pop corn (or snacks) are basically the objects they have at hand. They eat during commercials or during the less interesting parts of the movie.

## 4. Design result

Based on the conclusions from my interviews, I started to shape the concept of my design. I had earlier opted for the interaction with objects, which I considered was challenging enough and also feasible to develop. Interacting with physical objects would challenge the common idea of interacting with mouse and keyboard in interactive video, clicking on options, clicking on virtual objects and so on. Some of the other options from my brainstorming phase, could have become usable and intuitive designs. However, the conclusions from the last interview gave me a good insight of what people need, and what the users would like. In that way, I managed to shape a product with a clear idea of why to use it, but also a product that tries something new when it comes to interaction within interactive video.

### 4.1 Concept

My concept is an interactive video controlled by the common objects we have at hand when we watch films; snacks. The user would interact every time he/she comes in contact with the objects that are in front of him/her. It was important for me (as I mentioned in the POV) that the video doesn't stop or freeze. In my opinion, this breaks the illusion of the experience. For this reason, I chose the option of parallel timelines rolling on; different videos playing at the same time as alternative stories. But still, only one video playing in front of the user. Coming in contact with the physical objects (the snacks) in front, would change the video that is active to one of the alternative stories, i.e one of the other videos that were running parallel.

The purpose of my concept is to allow the users to interact in a way that they use their "natural" behavior when they watch films. It is not only about interacting with objects but also interact with the behavior. Using the behavior as a type of interaction is a subtle way to make users interact while they are watching films, and is something that could be explored further in this particular area. The way we sit, our face expressions, are other examples of the behavior and data that could be used in interaction design within interactive video. The interaction would not be that apparent and the user would not be that aware of his/her interaction compared when he/she has to click or select options of a video. I believe that this is definitely something to explore and experiment with.

But what would happen with the video when I grab the object in front of me? The interviews unfolded the fact that viewers at cinemas eat their snacks during commercials or during the less important parts of the movie. This behavior could be used in interactive video. If the viewers eat snacks when they experience the movie as not that interesting, let the movie get more interesting when they eat snacks. This is a way to implement personalization and enhance the personal experience of the viewer. If it is possible analyze how the viewer experience the video, we can use that data to change the video and improve the experience.

When the user grabs the object (the snacks) that are at hand, the video would change to the parallel video that is more captivating. The experience is improved, the user is interacting, and the flow is not lost since the video doesn't stop.

## 4.2 Prototyping

In my prototype, in order to show how the design works, there are two different films, one with a soothing tone and one with a lively tone. When the user grabs a popcorn package, the film goes from the soothing tone to the lively tone. When the user puts the popcorn back, the film goes back to the soothing state.

I used two parallel timelines, two parallel films. One with a soothing tone, and one with a more lively tone. To achieve that contrast, the soothing video has music with a slow tempo and cold colors, while the other film has music with a faster tempo and much warmer colors. The films are played at the same time, with only one video being active on a HTML-page. With the help of some javascript code I managed to add the functionality that when one key on the keyboard is pressed, the lively film is shown. When the key on the keyboard is released, the film goes back and the original film (the film with the soothing tone) is shown instead. What I did is that I replaced the key on the keyboard with a popcorn package, with the help of a Makey Makey (Joylabs, 2016). The Makey Makey allows to change the keys on the keyboard, with physical objects. I connected the Makey Makey to the pop corn package and the computer with the two films, and made it possible to change the film when grabbing the pop corn.

In the prototype, the change from one film to the other is very obvious. It is evident to the user that something happens when he/she grabs the popcorn, this is to show how the design works, but in

further explorations the change could be more subtle to not make the user that aware of the change between one film to the other. Some tests should be done on this prototype to observe the effects that the interaction has on the users and which changes that can be done to achieve a more usable state.

The design at this moment solves the problem statement described in the POV. The design challenges interaction forms in interactive video, in a way that is intuitive and still keeping the flow in the video and the experience.

## **5. Discussion around research contributions**

This design project suggests a new way to interact within interactive video. I believe that the design could lead to several research questions in different areas, but the major contribution of this concept is the innovation when it comes to interaction, and that is what should be exploited in further research. Changing the type of interaction within interactive video, is part of the interaction design field and interesting tests could be done in this area, with the help of this design.

### **5.1 Subtle interaction**

I explained earlier how this design encouraged to a more subtle way of interaction. It would be interesting to explore the differences between a more obvious and conscious interaction, and a more subtle interaction. What are the effects of “hiding” the interaction and not letting user be aware that he/she is interacting? In terms of video, and film, it would be interesting to explore if the levels of immersion get affected by these parameters. A hypothesis here is that the user gets more immersed in the video if he/she is not aware of the interaction. And maybe, that is the way to go to popularize the format of interactive video, since it would be more similar to the established way of watching films.

### **5.2 Interaction and experience**

Another question that could be raised is how the interactions affects the experience in an interactive video. I mentioned the factor of immersion earlier, within interactive video, but the experience is of

course also a parameter to take into account when talking about interactive services. Making a comparison between interacting with keyboard and interacting with physical objects, could reveal which interaction that brings the best experience within interactive video. Is there really a need to challenge the established ways of interaction when making interactive videos? Maybe the experience of the user would remain the same regardless of the type of interaction.

### **5.3 Behavior as interaction method**

The design described in this report, explores how the behavior could be used as interaction method. It would be interesting to study the possibilities of using this type of interaction within other fields, and how our behavior affects the response of different systems. I believe that is not that unusual to implement outcomes based on actions that we normally do, or that are part of our natural activities. Which other systems react to those activities without our awareness? It is hard to not think about the ethical issues within this area, but also the possibilities to control systems in an automatized way and that satisfy the needs of the user. The behavior of the user is showing signs of fatigue, let's make the system offer coffee as a solution to that, for example. When contributing to the field of interaction design, it is also relevant to ask how this type of services would count as interaction or not.

### **5.4 Personalization**

It is slightly touched, in this design work, how personalization could be used to improve the experience of the user and satisfy certain discovered needs. Personalization is not uncommon in current online services. Facebook, Google, Spotify, Netflix and other services use personalization to offer suggestions to the user on what he/she would like to consume. The system reads the needs and offers a solution. In which way could film benefit from personalization? Is this a way to improve our experience when watching films? It is definitely a question that could be connected to the evolution of film, film consumption and entertainment consumption.

## **6. Conclusion**

Even though interactive video has been forgotten as a format, the design work described in this project, has opened up new possibilities to explore. A new way of interaction has been taken on, without losing the purpose of producing something useful for the community based on contemporary online services and current needs when watching films.

There has not been too much research about interactive video, and the research libraries do not contain massive research papers about interactive video. However, interactive video could still be developed and research questions could be raised around this topic. There is not only space for research when discussing interactive video as format, but also when discussing interaction design. Based on the interaction used in this design work, I have discussed suggestions on research questions within the field of interaction design.

There are possible areas to be explored such as behavior as an interaction method, personalization in film, subtle interaction vs conscious interaction, or how types interaction affects the experience. Those could all be linked to interactive video only, but also be part of the interaction design research.

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