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# Improving post-production feedback process

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### **Abstract**

The process of producing entertaining video and films is complicated and time consuming. One of the complicated parts of post-production of entertaining content is getting feedback and reviewing the draft edit. After the filming process of a series or a film completed, the editors start working on the cut materials. This is a stage in the process where the editor will get their cut reviewed and receive feedback from different teams on the rough-cut or editor cuts. Today the review and the feedback between the editor and reviewer is done online directly through email.

This paper is about enhancing the feedback process in post-production and developing a design solution to improve it. The methods used in this thesis include literature studies, evaluations of other review tools, interviews, prototypes. Four people who work in different field of post-production have been interviewed. The results are suggestions on a collaboration review tool prototype that can be developed in the future.

Keywords: user experience (UX), user interface (UI), interaction design (IxD), graphical user interface (GUI), design, usability, collaboration tools, feedback, review tools, post-production process, collaboration, guidelines, framework, media, Codemill, entertainment, streaming companies, online collaboration.



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# Chapter 1

## Introduction

At the end of the 1960s, producers of television shows were using massive quad decks (an analog recording video tape format [1]) to be able to record videos. Back then, editing was even more out of date, someone had to ‘cut’ shoots out and stick them together. Nowadays, anyone at any time and anywhere who has a smartphone can record, edit and create a film in a matter of minutes, It has been tremendous changes in digital technology in the past ten years [2]. More new tools are available for film production, to solve some of the problems that editors face every day [2][3][4].

In the age of digital technology there has been many development changes, especially when it comes to post-production tools. At the beginning TV post-production began with editors splicing segments together by using digital splicing blocks and a particular brand type of adhesive tape. Fast forward to this day, and there has been a massive amount of improvements and development in software and hardware. Now editing can be done with full bandwidth HD in a desktop processor technology. This technology has had an enormous impact and made tremendous changes in the post-production industry [5][6].

Now companies compete to make better editing tools. Today NLE (non-linear editing) technology provides editors with a seamless real-time workflow supporting all video formats with real-time, multi-track, mixed-format HD or SD editing, compositing, titling, and timeline output capabilities. Production companies became successful by focusing on human source and enhancing workflow engineering. Since large amounts of content is produced every day, there is a massive need for better editing applications and enhancements in the workflow process [5].

Some parts of the post-production process have been replaced by automation. Some of these parts of post-production that have been impacted by automation are instant sub-clips, project organization, and fast editing. Not everything is replaceable by automation, such as creativity. Today, the post-production process is different from ten years ago [7][8], but some things have not changed, the editor still has to work. The editors have a significant impact on the whole project, they continuously make creative decisions and get feedback on these decisions that affect everything about their project, which cannot be replaced by algorithms [7][8].

## 1.1 Codemill

This thesis was written in collaboration with Codemill, a digital product development company located in Umeå, Sweden. They focus on developing post-production service platforms. The company has produced many products. One example is a product called Accurate Video.

## 1.2 Accurate Video

Accurate Video<sup>1</sup> is a digital product that was founded by Codemill. Accurate Video was designed specifically around the challenges within the process of delivering digital media. It is developed to meet the direct requirements for post-production, broadcast, and media professionals. Accurate Video features frame-accurate playback across all major browsers and platforms, progressive download or adaptive bitrate streaming, multiple audio tracks support, full annotation support, QC/QA, subtitling/closed captions, and rough-cut functionality. Accurate Video is a collection of different products such as QC, Logger, Editor, Review (see Figure 1.1 at page 4) Accurate Player is a HTML5-based, frame-accurate player, and is the main player for all Accurate Video products. [9].

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<sup>1</sup><https://accurate.video/>

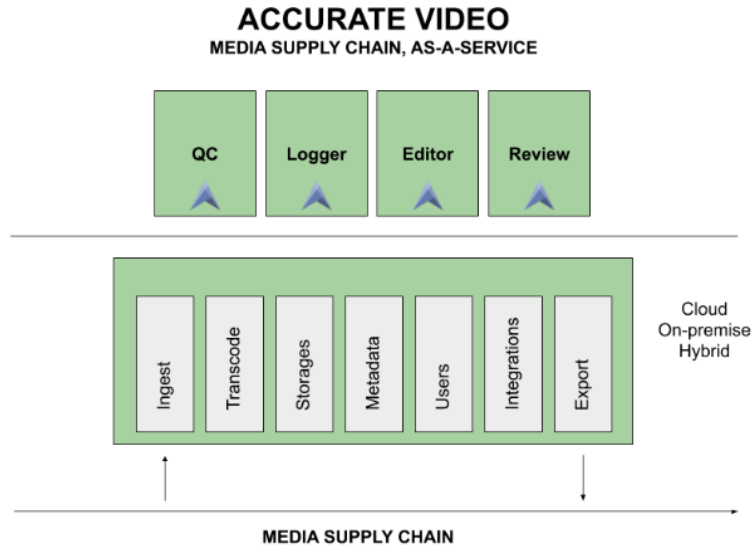


Figure 1.1: Overview of Accurate Video products.  
(Graphics by Codemill)[10]

### 1.3 Problem

The process of producing entertaining content is time consuming. One of the complicated parts of post-production is getting feedback and reviewing the draft edit. After the filming process is finished, the editors start working on the cut materials. This is a stage in the process where the editor will get their cut reviewed and receive feedback on the rough cut or editor cuts. Today the review and the feedback between the editor and reviewer is done online directly through mail. The editor will share a draft version of the edits with their team, and then a long chains of emails begins between teams in post-production [11]. This process could be improved. There are many possibilities that can enhance and create a better workflow for the post-production process.

## 1.4 Thesis Objective

This work aims to research and investigate how to build a collaborative review tool for post-production that will make the process easier and more efficient. An interactive prototype will be developed and tested.

This study researched and identified which factors and features were essential to consider when it comes to building a collaboration review tool. A literature study was conducted in the field of the post-production workflow. Qualitative interviews was conducted to gather insights on the user's review process on their project.

The research questions were:

- How does the workflow for post- production look?
- What kind of problems do editors face today?
- How do editors collaborate with others?
- Which tools do editors use to receive feedback and send feedback?
- What kind of problems do editors face today with feedback process?

## Chapter 2

# Theoretical Framework and Background

### 2.1 Entertainment streaming companies

A large number of big streaming companies, Netflix<sup>1</sup>, Hulu<sup>2</sup>, and HBO<sup>3</sup> are competing to get the consumers' attention by producing more content [12]. It was reported that Netflix spent 12 billion dollars on original shows and movies in 2018 [13][14].

In the past, viewers had to watch a specific show at a particular time, the network had more control over which content people were going to watch and at which time they were going to watch it. However, today, in the digital streaming era, people watch whatever they want, whenever they want. These days people have more control over what content they want to watch, they have endless content by using the device that suits their pockets, streaming companies have to step up and produce high-quality content and more content [12]. People have limited time to watch entertainment content, the question today is which show, or what content they should watch. Streaming companies focus on building better recommendation algorithms, better performance, and better user experience in streaming digital platforms [12][14].

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<sup>1</sup><https://www.netflix.com/se-en/>

<sup>2</sup><https://www.hulu.com/welcome>

<sup>3</sup><https://explore.hbonordic.com/>



## 2.2 Post-production process workflow

Post-production takes place after pre-production. The process can be different depending on what type of content that is going to be produced. There are differences between post-production for documentary filmmakers and Hollywood productions but the workflow is almost the same [15][16][8]. In this section, the pre-production and post-production workflow is explained in depth. There are different stages in the production workflow [11][17][16][18][8]. These stages are:

- Capture
- Prep
- Edit
- Conform
- VFX
- Color
- Sound
- Delivery

The pre-production has two stages, which is Capture and Prep. The post-production workflow has these stages: Edit, Conform, VFX, Color, Sound and Delivery[11][19].

### 2.2.1 Capture

The first step in pre-production is to capture footage. What kind of camera is going to be used to capture the content is a significant commitment, as cameras offer several options for how to record content. Choosing a camera for a particular project will define the post-production workflow [11][17][18].

After choosing the camera and the codec, the next step will be deciding whether to record in log (Log image profiles apply a mathematical function to the output of an image sensor [11]) or not. Recording video in log has an essential benefit of quality to retain more color information than non-log video, particularly when it comes to the highlights and shadows [11][17].

One of the benefits of using log is that it gives more room for the colorists, where they have more freedom to make changes in the color grade. Another benefit of using log is operating with raw footage, which also gives flexibility in color correction. The problem of using log is the footage comes out low contrast and desaturated. The issue is solved by using programs such as LUT (Look Up Table), a program that will add contrast and saturation to the footage [11][17].

### 2.2.2 Prep

The second step of pre-production is prep. After choosing the camera and the settings, when the shooting of the footage is done, everything is saved on a memory card or SSD. One of the crucial steps is to save the footage in multiple places. By using specialized software to run backups, the software uses a checksum, which is basically like a digital fingerprint. The checksum ensures that files on the backup hard drives are precisely the same as the files on the memory cards. The footage that comes from the camera is called “Camera negative” [11][17].

## Dailies

The footage that comes from the shots is called dailies or rushes. The DIT (Digital Imaging Technician) makes sure the footage is ready to be sent to the producers. They will view and start editing the footage. Before the DIT sends the footage, several things has to be done, such as organizing the footage [11][17].

Beside organizing footage, sound must be synced, syncing audio and video is an essential step that the DIT is responsible for. Even though cameras can record audio and video on the same file, it is still common to record audio separately, something called dual-system sound. Another element that needs managing is metadata. Metadata is data that comes with videos like the location notes, script notes, card labels, and log notes. The metadata is documented by a script supervisor [11][17].

The footage that comes from the camera is typically not suitable for editing, it can be hard to playback the footage on a typical computer, the footage will need to transcode(transcode is a process that convert files from one codec into another [11]). The DIT will be accountable for transcoding the files into several formats, one version for the editors, and another version for the producers. The process starts when dailies are ready to go to two different teams, the editorial and the review, which consists of producer, director and client [11][17].

Most of the time, the editorial and the review team do not work together. In the past, the editorial and the review team worked closely together, they usually start watching dailies together by projecting them in a theater and start exchanging opinions between each other. Today each team can review the dailies separately online. Each team leaves feedback and comments on the files they get, which is usually done online. Most of these comments are sent by email today. When the dailies reach the editor teams on a hard drive or over the internet, the assistant editors starts preparing for the next step, making sure that everything has arrived and nothing is missing in the files, making sure that audio and metadata is correctly synced. The assistant editors will copy the dailies files to their central shared storage. The assistants and the lead editor will work tightly all through the project, and both will need to access the same files [11][17].

Each member of the editor team will need to keep their copy on their external hard drive unless there is a shared storage that holds the files in one place [11][17].

Before the editing process starts, the footage needs to be converted to an edit-friendly codec. The most significant benefit of using offline editing is allowing editors to edit smoothly on low-priced computers. When the file is transformed into the central shared storage, the assistants will start arranging them in the NLE (editing software) according to the system that the lead editor prefers. Depending on what the editors needs, if they need metadata in the editing process, then the assistants will make sure to tag and categorize the new footage to ease with the editing process [11][17].

Another task that the assistants will make is building stringouts, where they create a timeline and arrange different clips for each scene. The editor starts working on the footage by watching through each take and making notes by positioning markers on the timeline or choosing their most liked takes on a different track or timeline [11][17].

### **2.2.3 Editing**

Some workflow involves collaborative editing where editors work together on the same project, it could be some challenges, for example, that none of these editors are allowed to work at the same time on the same files [11][17]. When the first editor finishes their work, they "lock" the set of files. The other editors can take a look at these "locked" files, but they are not able to edit them [11][17].

#### **Stages of the editing process**

The stages of the editing process can be different based on what type of content that is being produced. For instance, editing short films can take between 1-2 weeks, feature films can take up to 5-6 months, while editing a documentary film happens at the same time as production is running. The next stage is reviewing the edited footage and receiving feedback. The director or the producers come directly to the editor's workplace and give their comments on the edited footage [11][17].

Today, it is still common that the feedback the editors receive can be implemented on the spot, which is a disadvantage since the reviewer does not reflect on the entire editing process. Which can make most of the editors feel frustrated since the reviewer stands over their shoulders. However, now online feedback is becoming more common, which helps when uploading the drafts of the work in progress edits. Most of the collaboration editing work is done by uploading the draft into a storage site or a sharing site. Then the feedback will be sent by email back and forth between the collaborative team, which makes the process challenging and time-consuming, mainly when it is a big group of collaborators [11][17].

It is common occurrence that the team is spread around multiple cities. The editor could, for instance, be located in LA while the color corrector is in New York and the VFX in Toronto. Sending off the locked edit to another editor is more challenging than sending it to the colorist. The colorist only needs to access the clips used in the final project, meanwhile the editor needs to access all of footage, which makes it difficult to send 400 hours to another editor. The best way to send this footage is over mail by sending hard drives. Another challenge with online collaborations is staying in sync with the editor teams. The assistants and editors work closely together, and they need to sync as well. One of the most common tools that are used in post-production is NLE(non-linear editor). NLE offers many functions to complete edit for a video or full-length film. NLE offers organizing clips, creating timelines, and then cutting and moving clips around in the timeline [11][17].

## **Editing Software**

There are even more functions that NLE offers to make the editing workflow much more comfortable and more efficient, but when there is a lot of footage that needs to be edited, it gets more complicated. Most of the everyday things done in NLE tools are color correction, sound editing and mixing, VFX, and delivery. NLE offers the essential functions to complete an edit of a video or full-length film but there are many tools that have more advanced functions [11][17].

### **2.2.4 Conform**

After the editing is finished the next step is conform. Conform has the roll of taking the locked edit from the edit team and converting it to a format that the color and audio team can use in software. The conform is to make sure that everything with files is error-free, particularly the metadata. This stage is the most crucial because it is about preparing materials and files forward to the other teams. The editing team sometimes does this stage, but the colorist usually does it [11][17].

### **2.2.5 VFX**

After conform comes VFX (visual effects), most of the films and tv shows use VFX today, where it can fix small errors that have been missed on the set [11][17][20]. Different stages need to be done under the VFX stage, these stages are:

- Planning.
- Editorial.
- Handing off.

The process of Planning for VFX begins in pre-production, meaning VFX starts before shooting [11][17]. Under editorial and VFX stage, the editing and adding VFX starts, the VFX team will begin working on the footage by selecting the takes that need VFX. They will make the first draft of the footage in the NLE. After that, the editor will take a look at the first draft to make sure the desirable effects are achieved. When the editor is satisfied about the VFX placement in the footage, the VFX team will continue working on the footage. When the VFX is done, the VFX team will start rendering the footage and send it back the team [11][17][20].

### **2.2.6 Color**

After the edit team and VFX finish their work, comes the color correction. In this step, the colorist begin working on making adjustments and adding enhancement to the footage [11][17].

### **2.2.7 Sound**

The next step is sound. There is a team that specializes in audio post-production only, the team begins by refining the project. Sound plays a significant role in telling the story of the film [11][17].

### **2.2.8 Delivery**

In the final step, every piece of media is packaged and optimized for a different medium, such as web, broadcast, theatrical or mobile [11][17].



## 2.3 Online collaboration

The use of collaboration tools online is increasing. The approach of using online collaboration in different fields could be in education, the business fields, and many more. Collaboration reduces many obstacles with the help of technology. Nowadays, there is a large number of products that can boost collaborative work in different fields [21][22].

Countless products have been enhanced today to assist collaborative work for teams who can work anywhere anytime. Data and files can be shared online, and the team can access these files and edit them. With technology today, various teams can work on these files at the same time. Version control gives the ability to multiple users to see where the last changes were in the files. There is even the possibility to revert these changes [21][22].

There are plenty of ways for contributors to share their work, for example, screen sharing and web conferencing applications, which is a replacement for in-person meetings. More functionality has been added to collaborative products, but several challenges appear with the user interface. Besides the cost of the collaborative products, these products have removed some obstacles for teams especially when it comes to teams who collaborate work in different locations [21][22].

Some companies prefer to work remote. Meaning companies are transferring towards the remote work model, working outside the office rather than face-to-face methods [23].

There are several types of work models [24]:

### **Office-based**

Employees work only from the company office. Some companies have a strict policy that employees only work office hours.

### **Office-based with a work-from-home option**

Employees have the opportunity to work from home one day per week.

### **A remote team, in a single time zone**

Where everything is done remotely, many startup companies work in this model, where employees can work at the same hours of the day but at distance.

### **A worldwide remote team spread across numerous time zones**

Where employees can work at different hours of the day but at distance.

### **A fully distributed team with nomadic team members**

In this case, employees work fully remote, and individual employees are traveling. It became more popular in many companies to use the remote-only model even though the employees work in the same place, for example, arranging a meeting can be done online as an alternative of using a conference room. Working with the remote-only model have both benefits and disadvantages [21].

The benefits of working with the remote-only model are allowing multitasking and giving more flexibility for employees. The remote-only model provides many possibilities with the help of technology today. It gets rid of many barriers. However, the biggest disadvantage of working in the remote-only model is removing human interaction. It is removing the tiny human interaction that happens between people before the meeting, such as chatting before meetings or in between agenda items [21].

When meetings are done in the remote-only model, there is less human interaction and more formal structure in these kinds of meetings, and it is time-limited, which makes building professional relationships not accessible. In a face to face model where there is human interaction, there are still a few moments that give the possibility to create professional relationships. Meetings that are done with the remote-only model are more productive [21].

For example, emails have a specific structure of communication. There are no human interaction opportunities. Another example such as business phone meetings/calls, the chances are high for misinterpreting, just like emails. Phone calls for most people could feel awkward and uncomfortable, which makes the possibility to collaborate with others low. There are slim chances to collaborate in these remote model meeting. About 75 percent of people who have face to face meetings, intends to disengage with meeting and transfer to the relationship- first model. This model leads the way to produce new projects and bring more energy to people to collaborate [21].

### 2.3.1 Definition of collaboration

One way to define collaboration is by taking Wikipedia <sup>4</sup> as an example, Wikipedia is a representation of collaborative work on the web. Collaboration can be between two or more people. In collaboration, people work as a group towards a goal, allowing them to share their knowledge and experiences [25][26][27].

When it comes to building a better collaboration tool, there are a few things to consider [25]:

- Promote communication
- Share a diagram, photograph, paper, or similar objects.
- Allow natural interaction.
- Be easy to use and learn.

Today collaboration tools provide collaborators to share work, editing files and getting the latest update, some of these tools have micro-interaction, for example screen sharing or phone calls which allow for receiving pieces of information about a collaborator's work. Collaborative tools are the tools that allow interaction on a shared resource, yet some factors define tools as collaborative tools and others as communication tools [25][28]. Here are a set of factors that tells collaborative tools apart from communication tools:

#### **Strong Communication Capability**

Tools have to provide robust communication capacity, for example, videos, audio, or just a simple text. The essential attribute of a communication tool is making it easier to communicate and interact with each other for users [25][29].

#### **Easy-to-Understand Interface**

The collaboration tool should be easy to use and easy to learn how to navigate in the tool. The user should be able to use and adapt to it [25][29].

#### **Capability and Expectations of Collaboration**

The collaboration tool should anticipate input from users, It should be clear when it is expected to collaborate in the tool, for instance an online presen-

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<sup>4</sup><https://www.wikipedia.org/>

tation, users expected to make a reply and interact with the presentation [25][29].

### 2.3.2 Collaboration tools today

New innovations are popping up every day, and the range of collaboration tools are growing. These tools can be groups and categories depending on which kind of functions they provide for the users:

- Immediacy
- Enhanced voice communications
- Ambient communications

#### Immediacy

IM (Immediacy) is a platform that provides user synchronous text communication connecting two users or more by using computers, referred to as chat or text chat in a collaboration tool, should be reachable, and collaboration tools should provide it. A large number of chat applications provide besides text chat, audio chat, video chat, file transfer, and desktop sharing. IM can be found in a lot of applications like Gmail <sup>5</sup>, Facebook<sup>6</sup>, Yahoo<sup>7</sup>, and many other services, most of these services have IM built into their interface. To be able to use IM, users have to have accounts in these services to be able to use IM. As soon as users acquire accounts in the service, they can use text chat with other users at any time, anywhere in the world [25][30].

#### Enhanced Voice Communications

With collaboration tools today, users can make phone calls or have a voice and video conference with multiple users at the same time, users can share files and documents and record conversations. For instance, Skype<sup>8</sup> is one of the most popular tools that can offer users the opportunity to collaborate over video calls, users use the applications by downloading it on their computers, which lets them use their computers as phones. Skype applications are considered to be VoIP (Voice Over Internet Protocol) applications. By providing free calls for Skype users, removing the distance between collaborative and opening a lot of doors and possibilities for collaboration [25][30].

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<sup>5</sup><https://mail.google.com/mail/>

<sup>6</sup><https://www.facebook.com/>

<sup>7</sup><https://yahoo.com/>

<sup>8</sup><https://www.skype.com/en/>

## Ambient Communications

Many collaboration tools allow users to share knowledge or request help at any time despite users' locations. Twitter<sup>9</sup>, as an example, let's their users ask questions, make conversations with anyone across the whole world. Twitter provides micro-interactions for its users. Twitter has a community that allows them to share thoughts, opinions, and bring their users closer. Twitter allows its users to follow each other and keeping up with the latest updates of influencers and actors across the world where they can share files, photos, URLs [25][30].

## 2.4 Online Community

The online community has been developing for many years now. There are many online communities, such as social communities (e.g., Facebook, LinkedIn), a creative community where individuals or groups can produce and collaborate to create content, Youtube<sup>10</sup> or Vimeo<sup>11</sup> or any other platform. Knowledge sharing is the core of collaboration. In collaborations, people provide and share their knowledge and experiences which are crucial elements when it comes to the online community. There are many examples of online communities, it comes in a wide variety of shapes and forms, such as Wikipedia.com which has been mentioned earlier, another example of an online community is music. Individual contributed music and produce remix such as Soundcloud<sup>12</sup>. Github<sup>13</sup> is another example of an online community where developers can share their project and contribute to others [31] [32][28][27].

Faraj, Jarvenpaa, and Majchrzak mention in their paper "Knowledge Collaboration in Online Communities" [31] that there are fundamental elements that have a powerful impact on knowledge collaboration in an online community [31], these are:

- Passion
- Time
- Socially ambiguous identities

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<sup>9</sup><https://twitter.com/>

<sup>10</sup><https://www.youtube.com>

<sup>11</sup><https://vimeo.com/>

<sup>12</sup><https://soundcloud.com>

<sup>13</sup><https://github.com/>

- Social embodiment of ideas
- Temporary convergence

### 2.4.1 Passion

Passion can have both positive and negative impact on the online community. The positive impact of passion can lead individuals to join and put a lot of effort into developing their community. Passionate individuals spend a lot of time and effort in the construction of the community [31][33][34].

Passionate individuals can have a significant influence on other individuals, which can lead to growth in the online community. Passion can contribute to new ideas and open many collaboration opportunities in the online community. Passionate individuals motivate others to share new ideas, knowledge, and information. However, there is a downside to passion. Passionate individuals can create conflicts on how to proceed or the correct way to do things [31][33][34].

### 2.4.2 Time

Time plays a significant role in the online community, and how much individuals can spend on the online community to share ideas and knowledge requires time, which has both positive and negative effects on the online community. The more time individuals invest in an online community, the more ideas can develop. The negative side of time, members who spend much time on the online community could offend new members, which can lead to a split in the online community [31][34].

### 2.4.3 Socially ambiguous identities

Socially ambiguous identities also have positive and negative effects on the online community. Individuals who identify themselves, such as name, location, and expertise, can affect the role of an online community. The positive effect of socially ambiguous identities on an online community is that individuals who have ambiguous identities can enlarge communications and performance [31][34].

As Faraj, Jarvenpaa, and Majchrzak discussed in their paper [31].

“Anonymity is related to factors that may promote collaboration more generally.”

Anonymity can have a downside as well, it may bring down information and knowledge contributions if individuals concerned about not getting credit for their ideas [31].

#### **2.4.4 Social embodiment of ideas**

The goal, ideas, and suggestions can become independent of their creator. The online community enables one to combine and recombine ideas unlimited by conventions of social interaction. The positive effect of the material embodiment of ideas is a combination and recombination of ideas which can be done effortlessly. Ideas can be presented in parallel rather than in succession [31][33][34].

#### **2.4.5 Temporary convergence**

For instance, in a mobile movie community, individuals upload and share their videos which they created with their mobiles. The converge can happen here when individuals make remix of these videos together. The benefit of temporary convergence is letting ideas to develop, creating new directions and goals. Despite that there are some downsides of the temporary convergence, the absence of convergence can negatively affect the process for collaboration.

Technology plays a big role in knowledge collaboration. Individuals contribute and share their ideas by interacting with a technology platform. The technology platform becomes a good spot for individuals to interact with each other and have discussions [31][33].

## Chapter 3

### Review tools today

There are a few review tools for video collaboration on the market that lets users easily send and deliver videos and clips to clients in a cohesive way. This section will analyze and demonstrate how they work, which advantages and disadvantages they have.



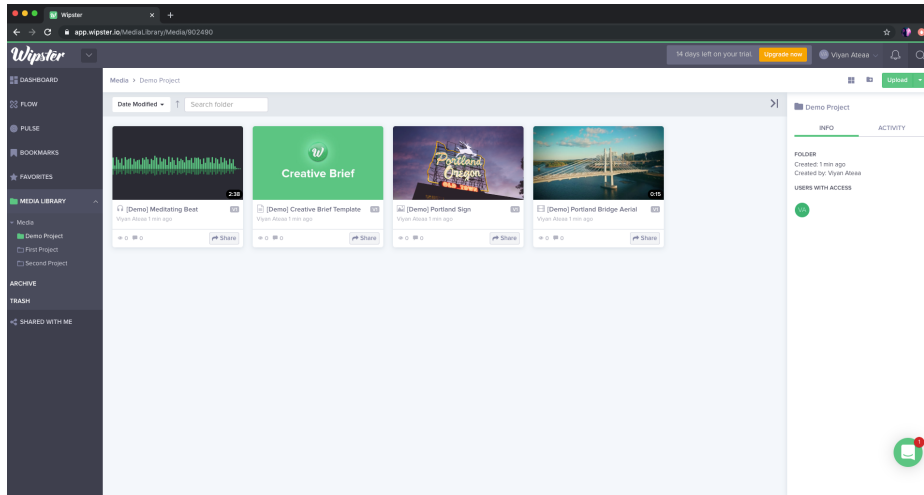


Figure 3.1: Screenshot of Wipster  
(Wipster interface by Wipster)[36]

### 3.1 Wipster

Wipster<sup>1</sup> is a web application that allows users to upload their videos and files by simply dragging and dropping into the web application, the application lets users share their videos for review, approval, and preview. Wipster lets users share their files securely by sending links to the reviewer. When the reviewer opens the link to the Wipster applications, they can add comments directly to the video by clicking on top of the video or selecting the area that reviewers need to add a comment. Another thing that Wipster offers is version control. The web application will keep track of the changes that are made on the files, which lets users have more control over the files. Wipster can be a plug-in to Adobe Premiere<sup>2</sup>, which makes it easy to use directly in Adobe Premiere (Adobe Premiere is a video editing software) [35].

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<sup>1</sup><https://wipster.io/>

<sup>2</sup><http://adobe.com/>

As Figure 3.1 at page 23 shows the Wipster application, the application is divided into three parts, the first part is the menu on the left-hand side. The menu contains:

- Dashboard
- Flow
- Pluse
- Bookmarks
- Favorites
- Media library
- Shared with me

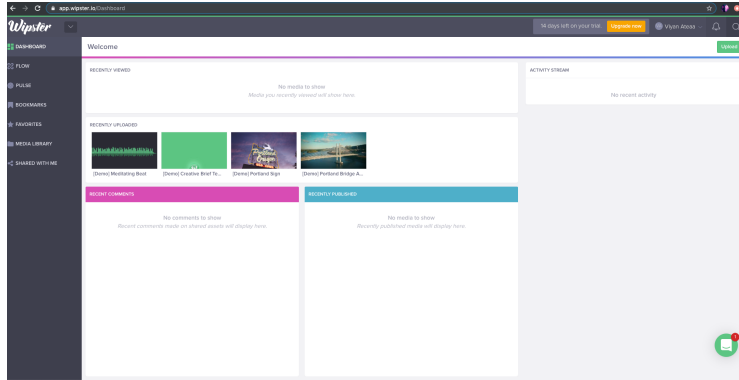


Figure 3.2: Overview of Wipster dashboard  
(Wipster interface by Wipster)[36]

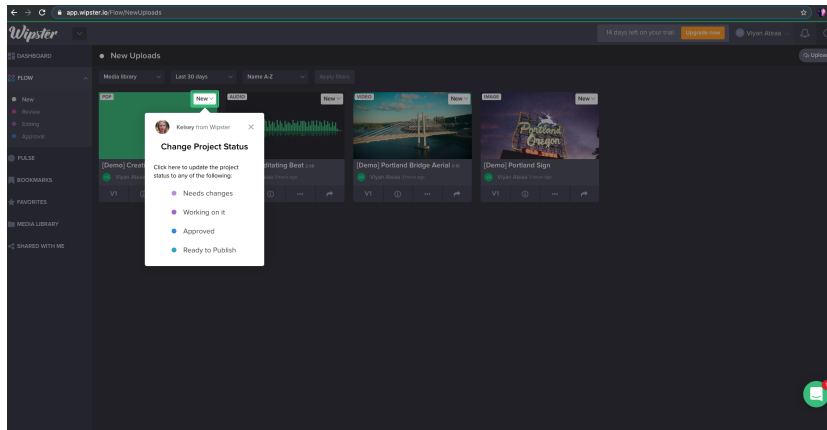


Figure 3.3: Overview of Wipster flow.  
(Wipster interface by Wipster)[36]

### 3.1.1 Dashboard

The dashboard allows users to upload clips and see the latest changes, latest comments, and reviews on different projects. Activities stream is placed on the right-hand side (see Figure 3.2 at page 25). It shows that other users have done the activity. These activities could be comments and reviews as the Figure 3.2 at page 25.

### 3.1.2 Flow

Under flow the user can see which project or clips are in different stages. The stages are the review stage, approve stage, and editing stage. as Figure 3.3 shows at page 25.

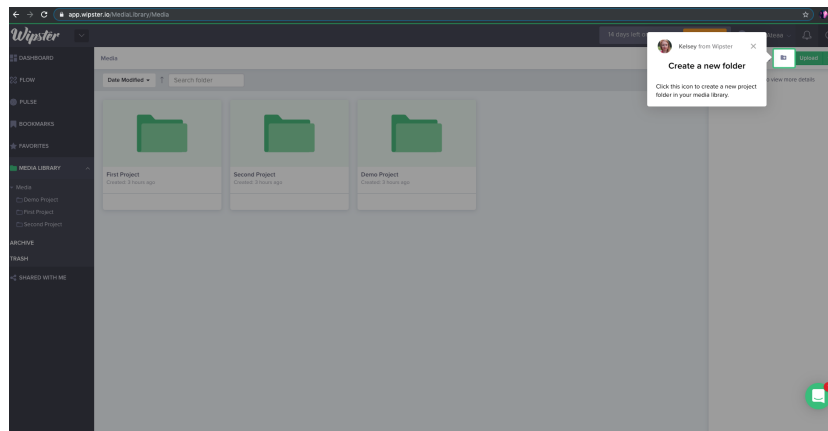


Figure 3.4: Overview of Wipster Media library  
(Wipster interface by Wipster)[36]

### 3.1.3 Media library

Figure 3.4 at page 26 shows the media library, where it shows how to create a new folder and adding clips and videos to the folder into Wipster. The user gets to see the different projects and scroll through and see different scenes as the Figure 3.5 at page 27 shows.

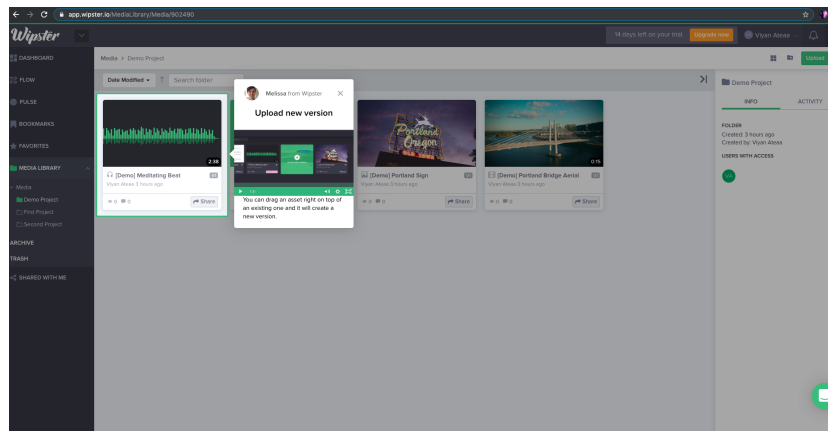


Figure 3.5: Overview of Wipster Media library  
(Wipster interface by Wipster)[36]

After uploading projects, Figure 3.7 at page 28 shows how users can share their work by generating an URL to the project that they are currently working on. Every project has three stages:

- Review:  
At the early stage of the project, other users can leave comments on the project.
- Approval:  
When the project is close to the end, users can see if the final version of the project is approved.
- Preview:  
Under preview, users can see a preview of the final project.

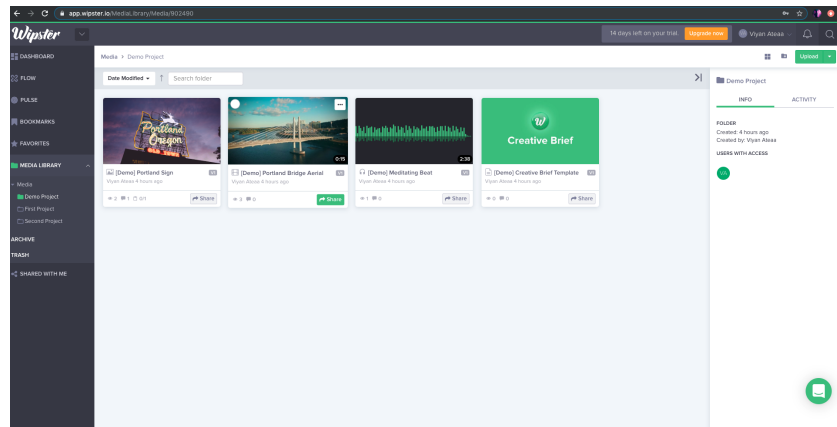


Figure 3.6: Overview of Wipster Media library (Wipster interface by Wipster)[36]

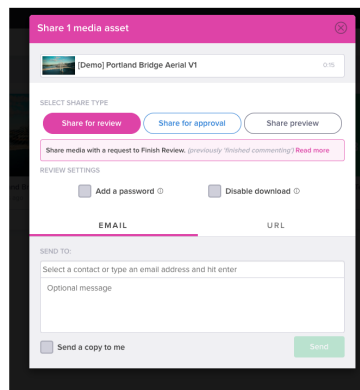
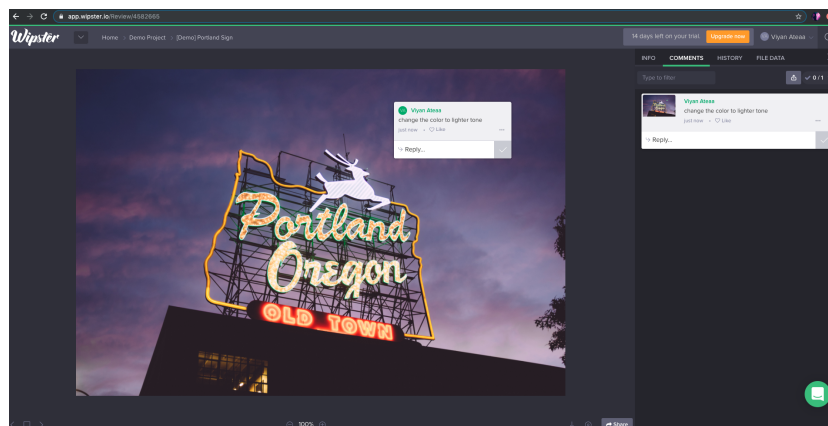


Figure 3.7: Overview of Wipster share (Wipster interface by Wipster)[36]



When Wipsters users share their project with others, it has another application design for those who get a review of the project like Figure 3.8 at page 29 shows. These reviewers can leave comments and feedback directly in Wipster by clicking anywhere on the video. Reviewers can choose any frame of the video by clicking on the timeline of the video. These comments are integrated inside Adobe Premiere when editors go back and start working on the next version, they get to see these comments directly inside Adobe Premiere. Adobe Premiere shows these comments on the video timeline.

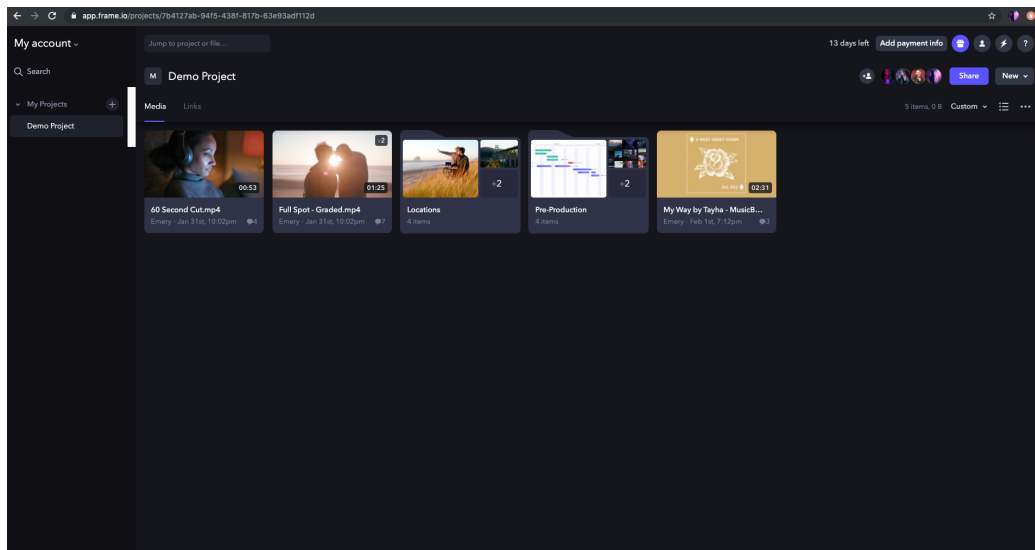


Figure 3.9: Overview of Frame.io review  
(Frame.io interface by Frame.io)[37]

## 3.2 Frame.io

Frame.io<sup>3</sup> is another collaboration platform for video approval, reviews, and more, see Figure 3.9 at page 29. Users can create a new project in Frame.io by clicking the plus button that place on the left-hand side under "My account" menu, see Figure 3.9 at page 29. Frame.io allows users to upload videos and other files by dragging and dropping into the web application. Frame.io offers a plugin to other editing softwares such as Adobe Premiere, Adobe After Effects and Final cut pro. Users who use this editing software can upload directly to Frame.io by using Frame.io integration. Hovering over videos in Frame.io lets users give an instant preview.

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<sup>3</sup><https://frame.io/>



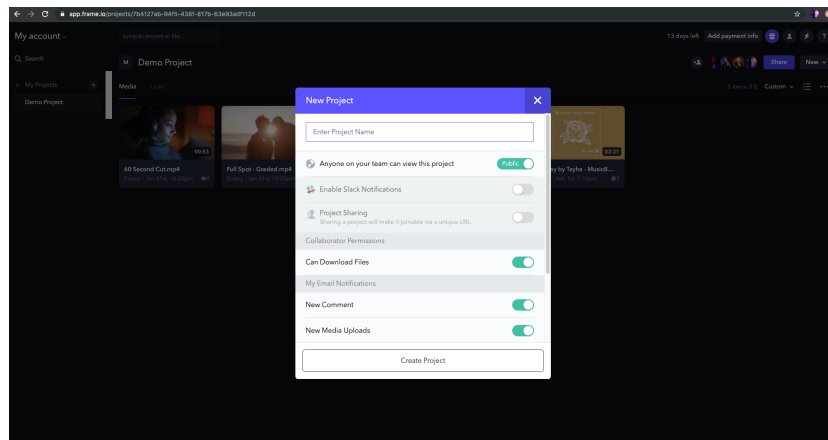


Figure 3.10: Overview of creating a new project in Frame.io  
(Frame.io interface by Frame.io)[37]

Frame.io offers sharing video and projects by adding people to the project. Reviewers can leave comments and feedback in Frame.io, as the figure shows. Reviewers can draw directly on the video frames, see Figure 3.10 at page 31 [38].

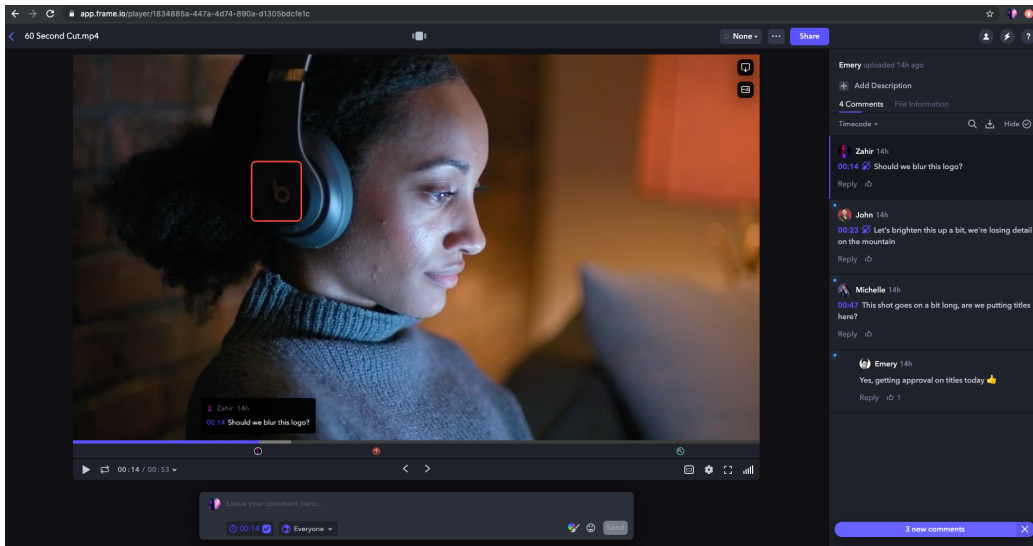


Figure 3.11: Overview of leaving feedback for a project in Frame.io  
(Frame.io interface by Frame.io)[37]

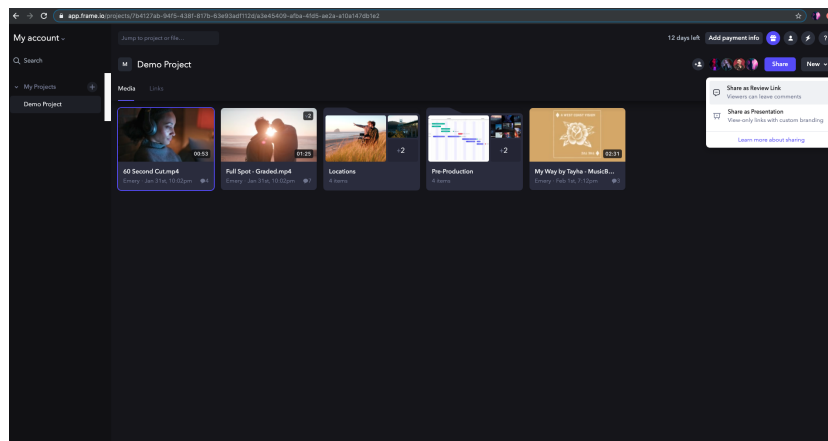


Figure 3.12: Overview of sharing a new project in Frame.io  
(Frame.io interface by Frame.io)[37]

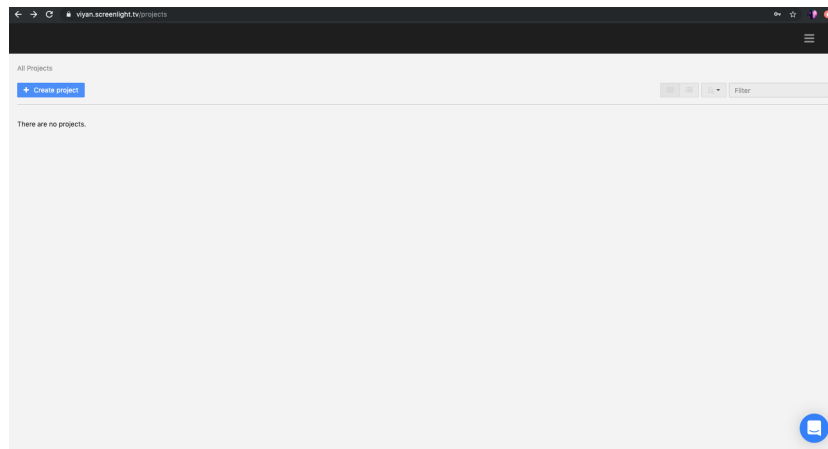


Figure 3.13: Overview of Screenlight.tv review  
(Screenlight.tv interface by Screenlight.tv)[40]

### 3.3 Screenlight.tv

Screenlight.tv<sup>4</sup> is another review and approval platform for video professionals. This platform provides many features, Screenlight.tv allows users to leave comments and add feedback on videos. Users start a project by uploading a video to the platform, (as Figure 3.13 at page 33 shows). When users share their project with other users by inviting them to the project, they can leave feedback and comments on the video, which in turn will create a marker onto the timeline and log those comments on the right side of the screen. Reviewers and the editor can create conversations to discuss these comments as Figure 3.14 at page 34 shows [39].

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<sup>4</sup><https://screenlight.tv/>

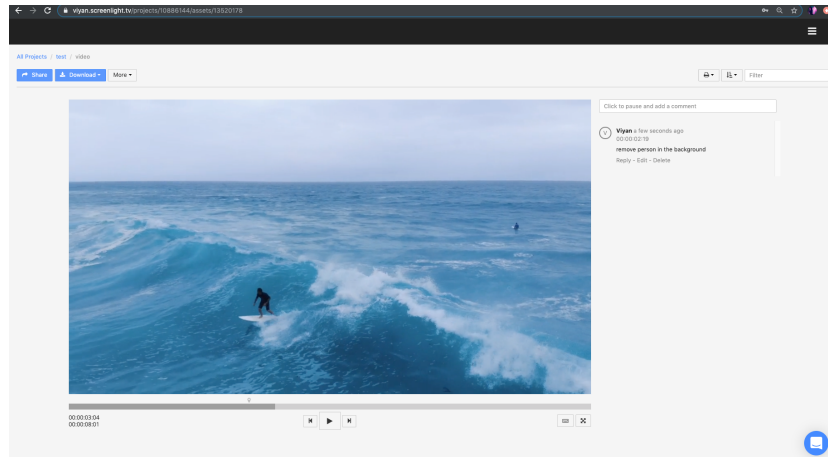


Figure 3.14: Overview of Screenlight.tv review (Screenlight.tv interface by Screenlight.tv)[40]

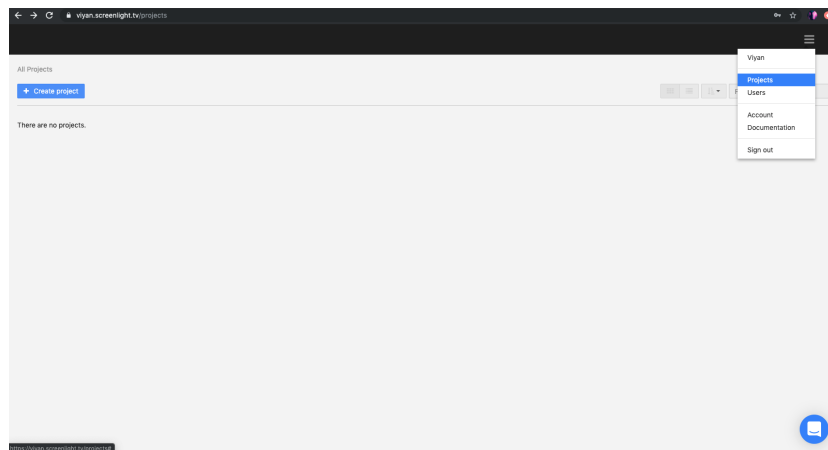


Figure 3.15: Overview of Screenlight.tv review (Screenlight.tv interface by (Screenlight.tv)[40]

The application is simple, it has a menu where users can create a project and find documentation on how to use Screenlight.tv application as Figure 3.15 at page 34 shows.

# Chapter 4

## Method

The methodology of this work presented in this chapter. The chapter is divided into four sections, literature study, user interviews, validation of review tools and prototypes. Below (see figure 4.1) is an overview of the different method steps that were used. Literature review and validation of review tools were done in parallel.

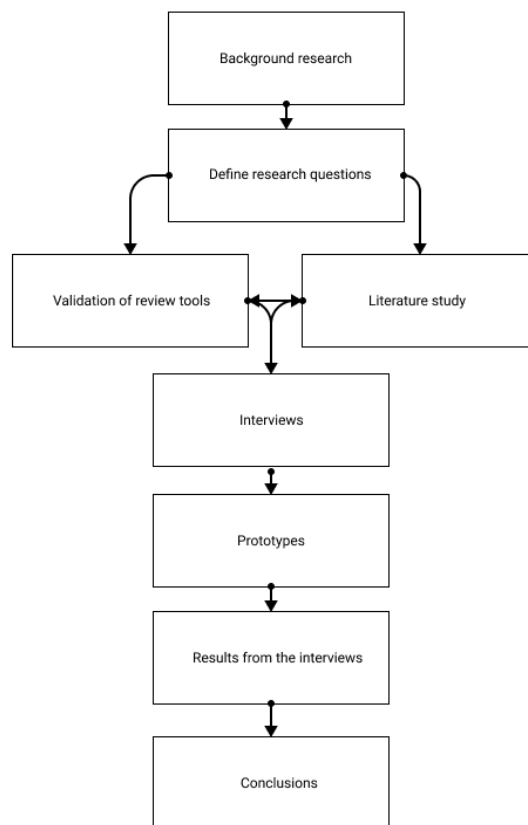


Figure 4.1: An overview of the method steps starting with background research and ending with conclusions.

## 4.1 Literature study

In order to get an understanding of how the post-production process works, a literature study was conducted. The literature study aimed to gain information and data of the post-production work process and how feedback and collaboration look today and understand which obstacles the users face. The research consisted of reports and scientific articles. These articles were found in Google Scholar and the online library of Umeå University.

The articles could be categorized in these different topics:

- Collaboration and feedback
- Post-Production work process
- Review tools

Some of these information were found from other sources. These facts and information were thoroughly checked, by exploring other sources.

## 4.2 User interviews

Qualitative interviews were performed. The participants who were interviewed are working, as of today in, the Post-Production field, see section 3.2.3.

The aim of performing user interviews were:

- Gaining an understanding of the participants' workflow
- Their behaviors
- How they work with their team and other teams
- Which tools they use to get feedback and reviews on their project
- Which obstacles they have today, and how do they manage with these obstacles.

The primary purpose of these interviews was to collect data and gain more information on how participants collaborate with others, what problems they have with the reviewing process and how they get feedback on their project. Conducting interviews are helpful and valuable, interviews allow us to discover users' behavior and give insight on how they think about a problem [41][42].



### **4.2.1 Interview technique**

There are different types of interview models. The semi-structure model was chosen for this study. The semi-structured interview model allows exploration and asking follow up questions to participants, which gives a better understanding of the user's problem. Semi-structure interview model has a document called an interview guide that includes:

- An introduction to the main goal of the topic of the interview.
- A list of the topics and questions to ask about each topic.
- Suggested probes and prompts.
- Closing comments.

The advantage of the semi-structured interview model is providing both quantitative and qualitative data [43][44].

The structure of the interviews was based on the three boxes model [45], which is as follows:

- Introduction
- Body
- Conclusion

#### **Introduction**

Before presenting the questions to the participants, the aim of the interview and topic it should be present in the introduction. In the introduction should be mentioned how the information and data will be used and shared.

#### **Body**

After introducing the topic, questions should be presented to the participants. Questions should be open-ended questions to motivate participants to speak and not using closed questions that can be responded with “no” or “yes”. The participants can be asked about their knowledge in the field if the participant have enough facts on a topic, asking a follow-up or question for instance “Tell me more about that.”

#### **Conclusion**

The participants should be asked if they have anything they would like to share or any information they would like to add.

### 4.2.2 Interview topics

The interviews was structured around the main topics: post-production workflow, reviewing project workflow, review tools, collaborations in the team, and with other teams. The purpose of the topic reviewing project workflow was to understand their workflow and how they review, leave feedback on projects and discovering the user's frustration in review tools today. The final topic aimed to get a better understanding of how users collaborate online and in real life and to investigate furthermore in users' attitudes. The topics and the questions that were asked in the interviews can be found in Appendix A.

The interviews were held in different places since the participants have limited time, and they preferred to be interviewed at their workplace. One interview was conducted over Skype. The interviews were all in Swedish considering that all the participants were native Swedish speakers. The interviews took about 60 minutes. The interviews were audio-recorded after asking the participant approval. The purpose of recording the interviews was to avoid the risk of missing facts and information [46][47].

### 4.2.3 Participants

The total number of participants who were interviewed for this study were four. The gender of the participants were all four male. The participants were reached out via email. All the participants have used some other review tool, such as Frame.io.

## 4.3 Validation of review tools

To understand what is missing with these review tools, these tools will be evaluated with the help of 10 usability heuristics for user interface design by Jakob Nielsen [48]. See chapter Result.

**10 Usability heuristics for user interface design are:**

1. Visibility of system status:  
The applications should always brief users about what is going on, constant feedback for the user.
2. Match between system and the real world:  
The applications should always communicate with the users' language.

3. User control and freedom  
The application should allow users to leave or exist any unwanted state without any complexity. The application should have undo and redo.
4. Consistency and standards:  
The application should allow users to do one action with the same thing.
5. Error prevention:  
When an error occurs in the application, the application messages should be clear and easy to understand for users.
6. Recognition rather than recall:  
The application should have instructions on how to use the system and it should be visible.
7. Flexibility and efficiency of use:  
The application should be easy to use.
8. Aesthetic and minimalist design:  
The application should have a certain amount of information for users, and the information should be relevant.
9. Help users recognize, diagnose, and recover from errors:  
Error messages should be explained for users in plain language.
10. Help and documentation:  
The application should always have documentation that helps users when need it.

## 4.4 Prototypes

Prototypes are the representation of ideas and solutions regardless of medium. The role of the prototype is to describe the functionality that might be useful for users and how it would look and feel. Prototypes are helpful for designers. Designers can communicate their ideas to users with prototypes and evaluate these ideas with users input [49][50].

Prototypes come in different forms and shapes. There are two categories, the first one is offline prototypes and the second one is online prototypes. The Offline prototypes are represented in paper with simple sketches, cardboard mock-ups and illustrated storyboards. The online prototypes are created in software that runs on a computer [51][50].

#### **4.4.1 Low-Fidelity**

Simple offline sketches were made to represent ideas of review tool wireframes. The first step was making sketches were made by using pen and paper. The next step was to create a prototype in Adobe XD based on the paper prototype.

Low-Fidelity prototype is a representation of ideas and solution in sketch form. Sketches are done quick. Low-Fidelity prototype allows designers and users to focus on interaction design and information architecture rather than on details and visual style [52][50][53].

# Chapter 5

## Results

This chapter present results of this work. The Result chapter consist of two main sections: Interviews and Prototypes. Interviews conducted to understand user needs and shown in the interviews section. A simple prototype represented in prototypes section.

### 5.1 Interviews

This section summarizes the interviews that were performed into different topics: Introductions, Project, Workflow, Feedback, and Collaborations. Representations about the participants role and type of work they do presented in the introductions topic. Background about participants project presented in project topic. Participants workflow presented in workflow topic. The participants feedback process and how they collaborate presented in feedback topic, and collaborations topic.

## Introductions

**Participant 1** He has worked with different types of documentary films. He has had various roles, and he has been working as a producer, director, and editor. Sometimes he had to do everything such as color grading and sound. But on bigger projects they had to hire more people to do the grading and the sound. Today his role is mainly focused on post-production for documentaries, films and advertisements. They work with different clients, both international and local. Today the participant works as producer and editor at documentary film, sometimes he gets hired as editor.

**Participant 2** The participant produced music and sound design. He has been working as a music producer since 2013, produces Foley for films, meaning producing sounds such as footsteps, door opening or cloths sound. He even provides voice-over, voice recordings, music productions for short films, logotype sound design, signature songs. The participant often collaborates with others, friends and people who works in the film industry. He has developed software instruments such as simulations for drums and piano. He mostly works by himself and produces everything himself.

**Participant 3** The participant has been working as a graphical designer for 14 years. He worked with film for five years. He works at an advertising agency, and his role is working mainly with film and photography. The advertising agency helps other companies and organizations with everything from creative marketing strategies and long-term change communication to fast deliveries of printed matter and digital content production [54].

**Participant 4** The participant works at an animation studio, and he has media production as an education background. He has been working as a project manager at this animation studio since 2012. His role mainly focuses on planning project, manage clients contact.



Figure 5.1: Overview of a documentary film.  
(Screenshot of the documentary film ) [55]

## Project

**Participant 1** To understand how a documentary film workflow looks. Also, since workflows can vary from project to another, the participant talked about the recent project they have been working on. The team behind this project were nine people, and the participant role was editing. The group consisted of producer, photographer, researcher, graphical designer, sound designer and color grader see Figure 5.1 at page 45.



Figure 5.2: Overview ad film  
(Screenshot of the ad film )<sup>[57]</sup>

**Participant 2** The participant do various projects and his work process can be varied between projects. He talks about two types of project, information film and logotype design sound. He produced sound for the information film "Soja film" (see Figure 5.2 at page 46 <sup>[56]</sup>), and created a logotype design sound for it.





Figure 5.3: Overview ad film for a company  
(Screenshot of the ad film ) [58]



Figure 5.4: Overview ad film for a shopping mall  
(Screenshot of the ad film ) [58]

**Participant 3** The participant works together with another colleague. They share the tasks post-production. He works with pre-production such as filming, storyboard, script, sound, lighting and post-production. The participant has the responsibility for the whole process together with his colleague. The type of advertising films they create at the ad agency can vary. Advertising films can be short films to use for social media or advertising films for companies. The length of these advertising films can be between 10 seconds to 20 seconds. Some of these films length can be between 4-10 minutes.

In the interview, he talked about two cases, and the first one is a short advertising film for social media made for their clients, a shopping mall, see see Figure 5.4 at page 47 . The second case is an advertising film for another company, see see Figure 5.3 at page 47 . In the interview, he explains how they worked together and received feedback from the client.

**Participant 4** To understand the participants workflow, he talked briefly about a project they made a while ago (see Figure 5.2 at page 46 )

## Workflow

What the participants workflow looks like are presented in this section.

**Participant 1** When participant 1 got the film materials on several hard disks, he started by watching the material. He started logging the footage, which means naming the files that describe the film materials. Naming the footage and describing them if they were a bad or good take, describing the scene, if the camera was shaky, or if the scenes were great footage but with lousy sound.

In this series, there were no script to follow, the crew followed the subject without interfering with the matter. This kind of documentary films are more observing and filming the subject the participant explain. The first step of the editing process is creating a rough cut of the first episode. Then uploading the first version to Vimeo, then sharing the link to the clients to receive feedback on the rough cut.

The participant received feedback through mail and telephone on the first version of the rough cut. After that, he started working on version two of the rough cut and adjusting things from the feedback. Then the participant sent version two after that, he met with the client and went through version two to receive feedback. The feedback he got on version two of the rough cut was if there were different scenes to add to the rough cut and to adjust the story. In this case, the team had lost some footage since some of the hard disks got damaged, they were missing two days of footage.

After completing the rough cut, he moves to the next step where the team write down the different scenes on each paper. The aim of this method is moving the scenes around by paper instead of doing it directly in the editing program, which is called **post its production**. Post its production is a method that is extremely common to execute under the editing process.

When the participant had the **locked cut**, which lead to the next step, color grading and sound, together with the team, they move the production to Frame.io, to work with color grading. At this step, the editor, the producer and the colorist work together on the locked cut version in Frame.io, by leaving feedback there.

After color grading comes the sound when the team have a final version of the locked out, they send it by email to the sound crew. When the

sound team has finished with the audio file, they send it by email. Feedback is received by email. "remove the buzz sound at 0.06.30 on the timeline" as the participant explains the feedback they send to the sound team. Sometimes the team, producer, director and the editor book a meeting at the sound team's studio, and give them feedback there.

**Participant 2** His process usually starts when a client sends a request to produce sound for a project. They have a dialogue between the participant and the client via mail or a telephone call. When they agree on the budget, the content of the project, and the time estimate of the project, the participant begins to produce the sound. At first, he starts contacting the voice actors that he usually works with.

The workflow can be different because it needs to be different audio treatments mastering. For producing sound for a tv advertisement then the sound should be tv mastering. For a Radio advertisement, then sound should be a Radio mastering and so on. The length for advertisement is about 20 seconds. To achieve a certain feeling for the voice, the participant often coaches voice actors when they record the script. After recording different sounds, the participant sends different voice samples to the client that matches the descriptions, sending these files via email. Then the client decides which voice is the best for that project.

Sometimes clients are looking for a specific type of music, which either the participant can produce or they can buy a license for a particular kind of music. All the communication and collaborations between clients and the participant happens via email or phones.

When producing sound for a logotype, the participant asks the client for a list of reference to make it easier to understand what type of sound the client wants for their logotype. The list of reference is typically YouTube links for the similar sound the clients want to be produced for their logotype. To produce sound for a logotype could take a long time or short time, depending on how big the client budget is.

The participant usually guides the client on what type of sound they need for their logotype. The sound should reflect, emotions such as a warm feeling or positive feeling.

The participant typically asks the company for the words that represent the image of the company or a mood-board that reflect the company values. After that, he starts to produce the sound for the logotype.

Then he sends the first version by email to his client. After receiving feedback on the first version and adjusting the changes, and then he sends the second version and until the client is satisfied with the result.

**Participant 3** The participant talked about two cases, since the workflow can vary from one project to another.

Case one, shopping mall ad film producing film for their client, their work process begins first when they get a request from the client for a need to create an ad film. The team met the client face to face to understand the brief and asked some question about it. Then the team started to brainstorm ideas that could meet the brief. In this case, their client wanted a film to an ad about the christmas holidays. The team and the client should agree on the idea of the ad film before starting to produce. The team then created a storyboard, moodboard to visualise the concept for the client. Then they met together with the client face to face to explained the idea of the ad film.

The participant, a 3D artist and a project manager, came up with a concept of the post-processed image of the shopping mall location at night, and adding 3D modelling of Santa Claus with reindeer. The participant was responsible for the glitter and image and working with Adobe After Effects<sup>1</sup> and 3D artist was responsible for modelling (see Figure 5.4 at page 47 ).

Under the work process, the team always let the client approve everything. They use a project management tool called Basecamp. Basecamp is used as a tool to validate the idea and everything else.

Case two, ad film for a company.

In this case, the client was not familiar with the post-production workflow, and they had to explain everything for the client and make sure that the client was on board. The team were eight people. They met the client first face to face, talking about their brief, understanding the goal of the ad film, the target group and the need for the ad film. Typically the team start by brainstorming ideas after the first meeting. When they have a concept for an ad film, they meet the client again face to face and present the idea with the help of storyboard, moodboard and the script for actors. When the client approves the concept of the ad film, the team then move to the next step which is producing the ad film.

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<sup>1</sup><http://adobe.com/>

**Participant 4** Most of their projects has a similar workflow. They get a request from a client via email. The client usually has a problem that needs to be solved by a short animation film. The client sends a brief to the project manager. The project manager works together with a team of five or more, depending on the size of the project. Then the team start working and creating a concept for film animation, which is called a creative brief. The team use different tools to collaborate such as Dropbox<sup>2</sup>, Google documents and Boords<sup>3</sup>. Boords is a storyboard script tool on the web where the team can collaborate and work on the same file, which also allows the client to preview the work and give feedback there. After that, they send it to the client via email to make sure that the client agrees on the concept of film animation before production. When the production is done, the project manager contacts the client to collect feedback if there are any.

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<sup>2</sup><https://www.dropbox.com/>

<sup>3</sup><https://boords.com/>

## Feedback

How participants receive and give feedback on others feedback are presented in this section.

**Participant 1** There are different types of feedback, depending on what stage they are in the process. Under the rough cut process, the client and editor are involved. The input they ask from the client early on is feedback on the story, the content, understandable film or mood and tempo. After the rough cut stage, comes the locked cut process. Under that stage, the feedback is focused on the details of the film, such as coloring and sound.

The feedback on color grading and sound always happens online via Frame.io or email. The participant believe it is easier to send feedback on the technical things and showing exactly where on the timeline things need to be changed. When it comes to feedback on feelings, for example, it becomes more complicated. It is way easier to receive feedback face to face.

**Participant 2** The participant communicates and receives feedback from his clients with email and phone. He thinks that it is challenging to explain abstract sounds with words. However, sharing links or a reference list makes it easier to understand what clients want him to achieve. There are still several aspects that needs to be considered, such as melody and rhythm. He believes that working with clients that have little experience and knowledge about sound design makes it challenging to receive feedback. Since he is an expert, he tries to understand what they like about this reference, and makes different versions. Sometimes it takes several attempts to get the sound right. The participant tries to make simple explanations for the client without overwhelming with much information when he asks for feedback.

**"Typically it takes time for us to like the sound if it is new"**

When the participant sends over the sound file for a sound for a logo-type, for example, to his clients, he recommends them to give it few days. Sound takes some time to be liked if they listen to it for the first time. Sound design is subjective, and he adds that some frequency perceived with feeling happy, others perceived with sad feelings.

**"Sound cannot be expressed with words, but I can send sound files"**

When it comes to tools that manage feedback, he believes it is good with email even it is limited. He tries to be as transparent as possible to his client and be more clear early in the work process. The participant typically reflects on the old project and always try to improve his work process.

**Participant 3** When it comes to the feedback for an ad film, it is different.

**"We want to lower and minimise the risk of losing time and budget."**

For approving the concept of an ad film, it has always been in face to face format. It is essential to receive feedback on the idea of the ad film in the meeting since the cost of the ad film is high. However, when it comes to small details that needs to be approved by the client, they use email and other platforms such as Basecamp<sup>4</sup>. In Basecamp they can create a board with a list of tasks or threads. The client has access to the board where they can see the process of the project and approve everything. In case something does not seem right, the client or the team contact via email or phone to send feedback. The participant and his team do not have any system to receive feedback digitally since they work closely together side by side.

**Participant 4** They usually receive feedback from the client via email, phone call or via Skype meeting. However, it depends on the size of the project as the participant added. If it is a big project, then they prefer to meet the client face to face to make sure the client is on board before the team starts producing the animated film.

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<sup>4</sup><https://basecamp.com/>

## Collaborations

How participants collaborate with others are presented in this section.

**Participant 1** collaborates with others when it comes to sound, and they work with a team. They send the locked cut to the sound crew, and they add the sound to the locked cut footage. The sound team send back the footage with sound files by email. They would send feedback by email. Sometimes they visits the sound team studio and work together closely with the team. Because of the sound equipment, it is hard to compare the sound and send feedback when they listen from computer speakers. It is not the same conditions, that is why they have to visit the sound team studio.

Sometimes they rent a cinema to test the film, to see what the sound and colors look like on cinema.

**Participant 2** Some of the participant's clients use Slack<sup>5</sup>, but he still prefers to use email for both collaboration and communication tool.

Sometimes when he works on short films, he gets a link to Vimeo and downloads the film, then create and produce sound for that film. After that, he sends the sound file via email to his clients.

He does not mind even if it is a long conversation with an email back and forth with the clients. However, when it becomes several threads with the same person, then it is worth to use slack as a communication tool.

**Participant 3** In the second case, the participant and his team had a collaboration with a drone filmmaker. They needed footage of a forest from a drones perspective. They met drone filmmaker and talked through the whole concept. Then worked together with the drone filmmaker to make sure they got the shot they needed. They gave feedback to the drone filmmaker when they were shooting the footage to minimise the risk of losing time and budget.

**Participant 4** The team usually collaborate with others when it comes to producing sound for film animation. However, the animation studio he works for, creates illustration and graphics for animations films.

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<sup>5</sup>[www.slack.com/](http://www.slack.com/)



## 5.2 Validation of review tools

As mentioned earlier, these review tools would be validated by using 10 Usability heuristics for user interface design. **10 Usability heuristics for user interface design are:**

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

As it is shown in figure 2.16, some of these review tools do not follow these rules. Rules 5 is not followed in Wipster and Frame.io. Other rules are missing or were not found, such as a rule 9 for Wipster, Frame.io and Screenlight TV. It may explain why users still use email to send feedback via email as mentioned in the problem see section 1.3.

**Review tools List**

Review tools name	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5	Rule 6	Rule 7	Rule 8	Rule 9	Rule 10
Wipster	✓	✓	✓	✓	?	✗	✓	✓	?	✗
Frame.io	✓	✓	✓	✓	?	✓	✓	✓	?	✓
Screenlight TV	✓	✗	✗	✓	✓	✗	✗	✗	?	✓

Figure 5.5: Overview of review tools with validation of 10 Usability heuristics for user interface design.

## 5.3 Prototypes

In this section, sketches of Lo-fi are represented.

### 5.3.1 Lo-Fi

There are four different sketches/wireframes which represent the early stages of the prototype. All these sketches are created by paper and pen. Then later on these sketches were developed in Adobe XD<sup>6</sup>.

After the brainstorming session, some ideas came up. One idea stood up which a simple design layout for a collaboration review tool where users can review each other feedback before submitting to the next team. The idea is based on a scenario case where there are several teams involves in a project. For example, when there are four editors in a team, see chapter Discussion, 5.2 prototypes.

The collaboration review tool is a desktop application and has too few functions. It has a video section, feedback button and comment section, as shown in figure 4.7. Above the video section, is a title that indicates in which stage of the process is. In the videos section, users can add comments directly to the video, which will appear instantly in the Comments section, as shown in figure 4.7.

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<sup>6</sup><http://adobe.com/>

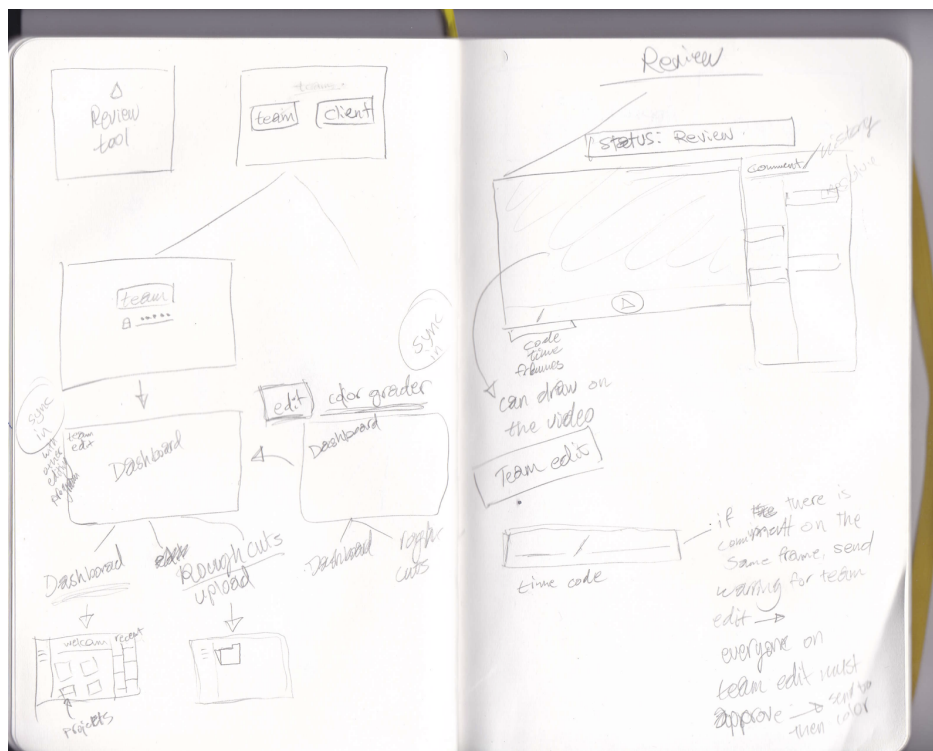


Figure 5.6: Overview of some of the sketches and ideas in the early stage of the review tool.

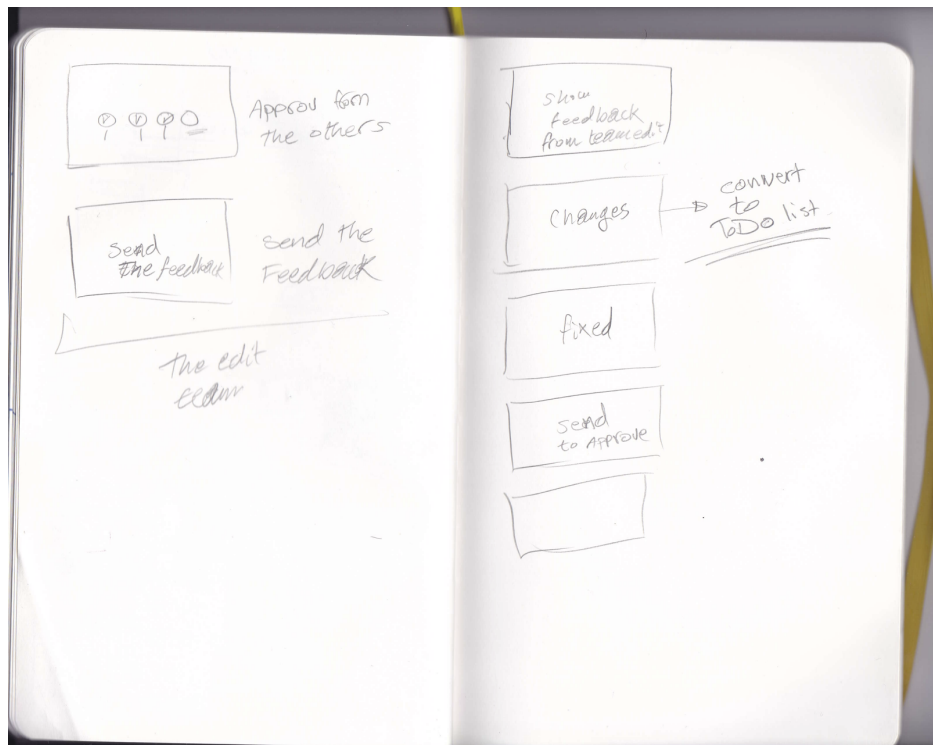


Figure 5.7: Overview of some of the sketches in the early stage

When the first editor sends his or her feedback by clicking on send feedback button. A box appears which shows if the other editor has submitted their feedback, as shown in figure 4.8. When everyone in the editor team has provided their feedback, they can read each other's input before sending it to the next team, as shown in figure 4.9.

When the next team receive the feedback, it will be shown under the comments section and in the video section as well as shown in figure 4.10.

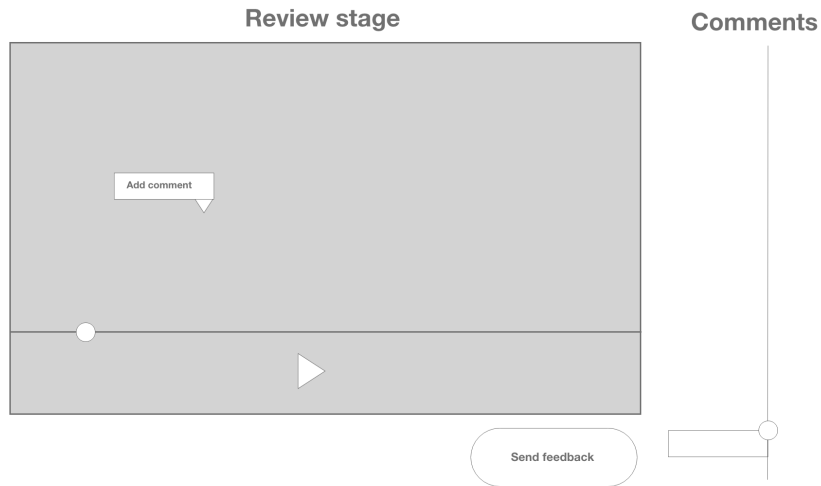


Figure 5.8: This is a simple interface of the review tool, where users can add a comment directly on the video. The comments will be shown in the comment section in the form of a timeline. The time code will be shown with comments which allow the users to click on the time code and the comment appears on the video.

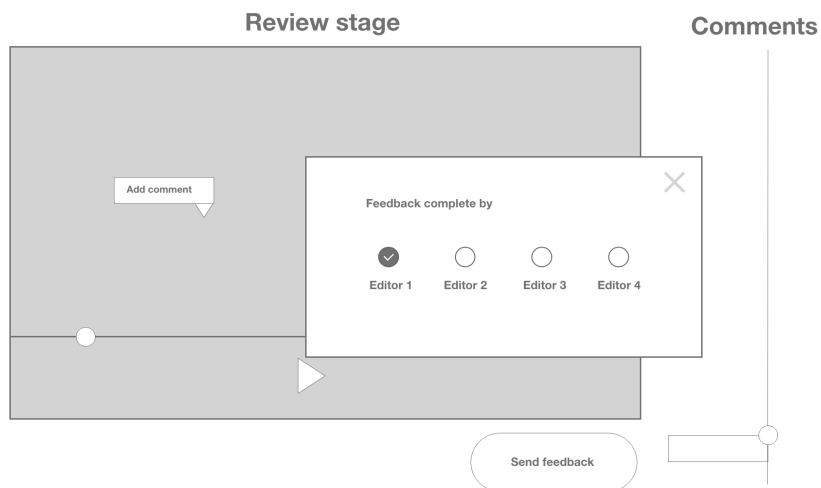


Figure 5.9: When the user clicks on send feedback button, a pop up will show the editor, in this case, has complete his feedback.

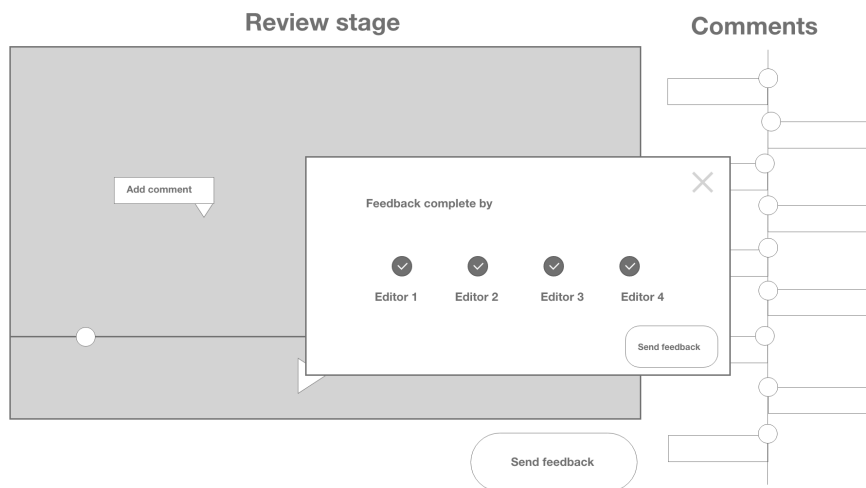


Figure 5.10: When every one of the edit team completed their feedback, then the feedback will be sent to the color grad team.

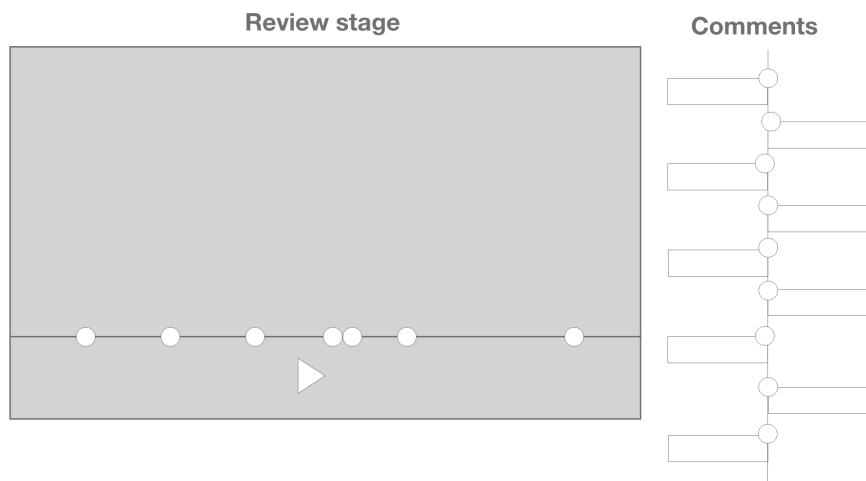


Figure 5.11: When the color grader team receive the feedback on a video, all the comments will be displayed under the comments section.

# Chapter 6

## Discussion

In this chapter, the result from the interviews and the concept of the Lo-fi of thesis are analyzed and discussed.

### 6.1 Result from the interviews

The vision of this study was to understand the workflow of the post-production of smaller size companies. Furthermore, get an insight into how people work in that field and how they collect feedback on their work. Determining the obstacles if they have any, and solving it by sketching and designing a better system for the feedback part.

The interviews gave an insight into the participant's behaviors, preferences and issues. All of these are discussed in this section. The section consists of three main parts: Workflow and Feedback.

## Workflow

When the participants revealed the workflow in the interviews, it was clear that the workflow of a documentary films project can be different from the workflow for an ad film. A documentary film workflow can vary as the first participant explained. Many factors can play a part in how the workflow will be for a documentary film. These factors can be budget, size of the team, the type of client and the kind of documentary film that it is going to be produced.

Yet, there are still in general some similarities in the workflow. It appears that documentary films has a particular workflow. After finishing filming, the editor receive the footage on several hard disks. The editor starts watching the footage to get an insight into what type of scenes the footage contains. To build a story of documentary films, he has to view all the footage. Then the editor starts logging the footage manually, to make it easier for him later when he wants to browse through the footage. The most important part of the editing of any documentary is the story. Building a story of a documentary films takes time and much work. To create a rough-cut, the editor with the rest of the team use post its production method (see results section, interview, the workflow of participant one). Post it production method makes the editing of the rough-cut more efficient and allows the team to have more room for creativity and freedom to build and develop a story to a documentary film.

When the editor has a locked-cut (see results section, interview, the workflow of participant one), nothing can be changed. Then the locked cut is sent out to the sound team. When the sound is finished and added to the locked cut, the next step is color grading, adding film titles and finishing with details, see section 2.2.3.



The same goes for producing sound. The workflow can be different from a project to another, as the second participant explains his workflow, see section 2.2.7. Everything depends on how big the project is, what type of content is going to be produced, and the clients budget. The second participant describes the workflow of creating the sound for an ad. He usually starts when the client emails a description of a project and specifications of the type of sound that needed to be produced for the project. The participant typically asks the client a list of references in order for him to get an idea of what type of audio the clients want.

Usually, the participants get the list of reference by email from the client, and it could be either link to YouTube or files of audio. Then they start a conversation and discuss the details furthermore for the project via email. Then he starts producing audio for the project, after that he send it to the client. All communication is done by email or phone calls, see section 2.3.2. When it comes to producing audio, the participant uses special programs depending on what type of audio is going to be produced. If the ad is produced for Radio then it will need a special audio treatment.

Ad film workflow is different from documentary films workflow, as the third participant uncover in the interview. When an ad agency gets a request from a client for producing an ad film for their company, they always meet the client face to face and go through the request. During the meeting, the team and the client discuss the brief, and examine the need for the ad film.

After that, the agency team starts brainstorming to come up with creative ideas that meet the requirements of the brief. As soon as the team have an idea, they begin putting together a mood board, a storyboard that explains the concept of the ad film. At that point, they meet the client again face to face to present the concept of the ad film. The communication between the client and the ad agency are done all by emails.

It appears that an animation studio has a similar workflow to an ad agency. The difference is that the team in the animation studio usually do not need to meet the client at first. However, if a project is big, then the team need to meet the client before producing an animation film to make sure that it solves the client's problem.

## Feedback

It would seem that from the participants, feedback is highly valuable for the work process. Some of the participants still preferred to receive feedback in face to face. For the documentary film, feedback is essential, see section 2.2.3. However, there are two types of feedback in documentary films. The first one is feedback for the story of the documentary films and the second one is feedback on the technical elements, such as color grading and choosing font for the title of a documentary film.

When it comes to receiving feedback on the story of a documentary film, the participant prefers to receive it on a meeting with the client. No matter how many tools and platforms there are out there, the participant still prefers to receive in the meeting. Creating a story for a documentary film has different elements and a particular structure. For that reason, a story for a documentary film has a big role in making an impact on the audience. The goal of a story for a documentary film is awaken emotions in the audience, whether it is a sad emotion or a happy emotion.

For the editor, it is necessary to receive feedback on the story of a documentary film face to face. He gets the opportunity to see the reaction of the team when he shows them the rough cut version of the documentary film. The editor observes and watches how the team react to certain scenes, do they feel happy about it or sad, if they understand the story of the documentary film. When someone feels a particular emotion, reacting to specific images, it can be complicated to describe that emotion with words and sending the feedback in a program such as Frame.io. Many tools are useful to use when sending feedback on details such as color grading and other technical elements for a film, for instance Frame.io. It seems that Frame.io is useful when there are few people involved in the project. One of the participants mentions that it gets complicated in Frame.io when there are many people participating in the project. For instance, there were two editors and one color grader who work on the same documentary project, see section 2.2.6. When one of the editors gave feedback to the color grader such as "tone down the red color" while the other editor gave feedback "increase the red color ". For this reason, it is not very clear for the color grader. For that, the editors have to agree and discuss things before sending feedback to the color grader.

Frame.io allows people outside of the team to leave feedback on the project. However, the participant believes that even though the function is available in Frame.io, clients still leave their feedback via email. It seems that Frame.io takes time and effort to learn, which clients are not willing to invest their time in, and learning new things to send feedback is not their priority.

When it comes to sound, it is harder to receive feedback according to the second participant. Some of the clients have no experience on how to express their thoughts, meaning it is harder for them to communicate and find the right words to describe their idea. However, the reference list of similar audio helps them to communicate with the second participant.

As for the ad films, the third participant always meets clients at the start of a project. The participant wants to make sure that he understands what the client needs and minimize the chance of misunderstanding. For this purpose, ad agency divides the time into two components. The first one is pre-production, where they represent the concept of the ad film by using moodboard, storyboard and script after the first meeting with their clients. When they get approved on the concept, then they move to the second component, which is post-production. In post-production they produce the ad films, when they make small changes, they usually ask the client for feedback on those small changes. It seems that receiving feedback from participant's client is challenging. Due to lack of communication and feedback skills. It is more accessible for the participant to communicate face to face. For that reason, it is better to receive feedback face to face. However, many tools help with the feedback process and collaborations.

## **Collaboration**

When it comes to collaboration, the participants prefer face to face model, email and phone calls, see section 2.3. They believe it is a more comfortable and faster way to reach others and limit the risk of misunderstanding each other. Even though there are many tools made for collaboration and feedback, the participants still prefer using face to face model, email and phone calls. Since it is easier to use while collaboration tools have a high cost, also participants need to learn how to use them, and their clients need to learn it as well.

## 6.2 Prototype

One of the participants mentioned a problem with feedback that it gets complicated with the feedback process because people communicate in different ways. Also, when there many people who are involved in the team, it gets complicated with the feedback process. This solution is based on that scenario.

The scenario is when there are four editors and two color grader working on a project. The review process starts when the first editor adds comments directly on the video for the color grading team. The comments will be shown both on the video and under the comment section, see figure 4.7 under the result section. The comments will be represented as a circle that is shown in the video. The color grade team will be able to see these circles both in the video and under the comments section, see figure 4.10 under the result section. The user will be able to click on the circles which will show the comment that are made on that time frame.

When the first editor completes their feedback, which he can send by clicking on send feedback button. A box will show on the screen, which will show the other editor who has submitted their feedback, see figure 4.9. The box allows the editor team to read each other feedback before sending it to the color grade team, in case if there is a conflict in their feedback. For example, if the first editor wants the video to have more red color and the other editor want the video less red color. For that, the editors can discuss and agree on the changes they want the color grader to make.

## 6.3 Summary

The focus of this project was to create an efficient tool that enhances and improves the feedback process for the post-production workflow. There were several research questions for this thesis, and the first was to how post-production workflow do look today. This information gained by interviewing four participants that work in video and film production. The four participants work in a different fields, which was a limitation. However, one of the participants(participant one, see section 5.1) was most relevant to this study and had the most important information. It was helpful to get information about the post-production process workflow(see section 2.2) before interviewing participants. Three of the participants had similar workflow, which gave useful insight into their problem and some of the obstacles they face today, which was the second research question. To only have interviewed

four participants is another limitation. More participants and different roles would be more helpful.

The third research question was how the participants collaborate with others. How collaboration happened in these companies was usually via email or phone calls due to time and a limited budget for using collaboration tools. The results also showed support to the literature study mentioned in Section 2.3.1, that collaboration tools should be easy to use and adapt to it. This further strengthens the concept of the Lo-fi sketch, and it has to be easy to use.

The fourth research question was about which tools the participants use to receive feedback and send feedback. This allowed getting an insight into their thoughts about these tools and which problem they faced with these tools. As for the fifth research question, which was about the challenges they face today with the feedback process. Only one participant had a problem with the feedback process. The problem was that the feedback process gets complicated when there are many people who are involved in the team, as mentioned in section 5.2. This information was useful later on for developing design and prototype.

After the interviews were conducted, sketching and brainstorming of ideas started. The focus was to get a simple design for a collaboration review tool. One suggestion for improving the feedback process is the feedback will be sent when every one in the edit team is done reviewing the footage to color grader team. With this, the edit team will make sure that they agree on their suggestions before submitting it to the color grader team, see section 2.2.6.

Evolution of this design suggestion needs to be done, by interviewing participants and some tests should be done on these participants.

# Chapter 7

## Conclusion

The goal of this thesis was to research and investigate how to build a collaboration review tool for post-production that will make the process easier and make it more efficient.

To enable this a literature study was conducted to understand the post-production workflow. Alongside the literature study, interviews with people who work in the field was held. The goal of the interviews was to gain insight in their workflow and understand the problems that they face in the feedback process.

The research questions were all answered through qualitative interviews which were conducted to gather insights on the user's review process on their project interviews. The information from interviews and research created an outline for developing a simple prototype. After conducting the interviews, it became apparent that there is no problem with communications and receiving feedback as long as it is a small team. However, when more people are involved in the group, the feedback process gets complicated. For that, a simple design suggestion was presented, but it needed to be done in several iterative prototyping processes.

The study has a number of limitations, which are mostly due to the time restrictions of the thesis project. The most significant drawbacks are related to the interviews. It was challenging to get in connection with people who work in the field. A total of four interviews were conducted, but more need.

## 7.1 Future work

The design suggestion should be investigated further by interviewing participants that work in a bigger team. Additionally, test and develop the prototype of the collaboration review tool. Validating other review tools in depth, and accomplish a creative workshop with participants.

In the future, it would be interesting to iterate the design proposal on how it is going to improve the feedback process for those who worked in bigger teams. For example, would it be to better if editors review each other's feedback before submitting it the color grading team? It could also be interesting to see what would happen and which obstacles would rise.

## Chapter 8

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# Appendices

# Appendix A

## Interview Questions

### Introduction

- Tell us a bit about yourself, How old are you? Who you are?
  - What is your background; education, previous workplaces?
  - How old are you?
- How long have you been working in this field?
- What type of project have you been working on?
- What is your current occupation?
- How many people do you work with? How big is your team?

### Feedback

- Can you describe your workflow?
- How do you involve others in your work?
- What type of feedback do you receive from your team ? and from clients?
- How do you receive feedback on your work?
- From who do you get your feedback from?
- Which tools do you use today to receive feedback on your work?
- What do you think about the tool that you currently using today to receive feedback on your work?



- What pros and cons of review tools that you are using today?
- What is important for you when want to receive feedback on your work?
- How often would you like to receive feedback?
- Do you have anything you want to add?

### **Collaboration**

- How often do you collaborate with others?
- What type of collaboration? online?
- What kind of rolls you are looking for when collaborations happens?
- What will make the collaboration process easier?