

INTERACTION AND COLLABORATION IN NARRATIVE POSTPRODUCTION

Rens Machielse

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Bournemouth University, director of studies: Neal White
Utrecht School of the Arts, leader research group Music Design: Jan IJzermans
Bournemouth University, supervisor: Stephen Deutsch
Utrecht School of the Arts, supervisor: Jan IJzermans

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Abstract

Audiovisual storytelling has changed significantly during the last decades. Narrative conventions have developed over time. New conventions are still being developed by filmmakers such as Lynch, Tarantino and many others. The transition from analog to digital technology was one of the major developments in film industry which enabled these narrative conventions to evolve.

The methodology of filmmaking was defined about a century ago through the development of the so-called Hollywood studio model, which focussed on optimising the integration of production, distribution and projection in the most efficient way. One of the characteristics of the studio model was a linear and sequential postproduction process. A process in which - after the introduction of sound - sound and music postproduction was placed after visual postproduction with no actual collaboration between the disciplines involved.

Digital technology has opened up the possibility for a more interactive, iterative and convergent postproduction process. This thesis maps the key issues for designing such a process by exploring the interaction and collaboration between the disciplines (directing, editing, music composition and sound design) in today's narrative postproduction. This mapping leads to insights and recommendations for interaction and collaboration that are relevant for the disciplines involved.

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List of accompanying material

DVD *Interaction and Collaboration in Narrative Postproduction*

- set of interview questions;
- audio recordings interviews;
- text of one interview (Paula van der Oest);
- CV's of all interviewees;
- film and clips *Joy Meal*;
- film and clip *Novemberlicht*.

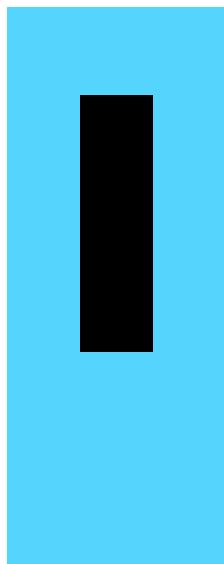
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Collaboration is not simply marching in more or less the same direction in parallel and virtually never talking to each other. It's only when every craft informs every other craft and something is synthesised out of that interaction that real collaboration is happening.

*Randy Thom - sound designer
(Sider, Freeman & Sider 2003, p. 137)*



Introduction

In 1995, I was working as a composer on a fifty minute film for Dutch television called '*Het leven is kort*' (de Pimentel 1995). I was provided with a VHS-cassette with the final cut of the visual track that included an edited dialogue track. Based on this final cut, I had several meetings with the director discussing possible music and its placement in the film. Our discussions were supported by MIDI-demos I composed during this process and by pieces of existing music. When we agreed on the music, I composed the final music and produced it in stereo using a combination of real instruments and samples. During this process there was no contact with the sound designer.

Only eight years later I was working as a composer on a ninety minute film for Dutch television called '*Novemberlicht*' (Oosthoek 2003). I started composing musical ideas that I uploaded to a server as MP3 files during the first weeks of the shoot¹. Ideas that were based on script readings, on discussions with the director during preproduction and on attending a PPM².

At the same time, the editor would assemble scenes using the shots that were delivered to him by the camera department on a daily basis. He would upload those scenes to the same server as Quicktime movies. From day one we would download each other's material and a process of interaction and communication started that continued till the final cut.

¹ Shoot, the abbreviation for 'shooting period', refers to that specific part of the production where the actual recording of visuals and sound on the set takes place.

² PPM stands for Pre Production Meeting, a start-up meeting for the crew involved in the actual shooting of an audiovisual production.

One week after the end of the shoot, the director joined us in this process. At that time there was a first version of the film with music that was either composed by me as a result of the interaction with the editor or assembled by the editor using the music sketches I had uploaded.

This version was the start of a period of interaction between the director, the editor and myself that led to changes in editing and in music. Once we agreed on the music, I composed the final music and produced it in 5.1³ using a combination of real instruments and samples. During this process I had several meetings with the sound designer to discuss ideas and exchange material.

These two examples from my twenty-seven years as a composer for film and television exemplify some of the changes in narrative postproduction due to the transition from analog to digital technology. The mere difference in the number of words I had to use in describing the two examples, illustrates the change in postproduction from a relatively simple, linear and sequential process into a more complex, interactive and convergent one.

In the beginning, digital technology did not change postproduction much, apart from speeding up the process due to time savings⁴. Thanks to specific collaborations with two film directors⁵, I was able to experiment with the role and functionality of the composer in the postproduction process⁶. These experiments awakened my interest in the postproduction process as a whole, as I observed colleagues and other professionals in the media industry try to find new ways to organise postproduction; ways that would benefit from the digitisation of music and media not just in the area of time savings but through opening up possibilities for experimentation and new ways of storytelling. Digitisation not only involves the actual audiovisual material but it also enables other forms of interaction and collaboration between the disciplines involved in

³ 5.1 stands for five sound reproduction systems with a full frequency range and one limited sound reproduction system - the so called subwoofers – that transmits frequencies only below 80 Hz.

⁴ The central advantage of digital postproduction is instant random-access that enables time saving postproduction processes or as Walter Murch expresses this:

The quickness of electronic systems comes about for many reasons, mostly through the instant random-access to the material (Murch 2001, p. 83).

⁵ Eric Oosthoek (www.imdb.com/name/nm0649009/) and Pieter-Rim de Kroon (www.imdb.com/name/nm1450395/).

⁶ One of the experiments is described in the case study in chapter 5.2.

postproduction i.e. the director, the editor, the composer and the sound designer⁷. It allows them, through this interaction, to explore different combinations of sound, music and moving images. In other words, different ways of storytelling by altering combinations of sound, music and moving images can be explored. These combinations can only come into being through other forms of interaction and collaboration instead of, for example, putting the audio departments (dialogue, sound, music) at the very end of a narrative postproduction.

My research focusses on this interaction and collaboration as it is my strong conviction that the key to new ways of storytelling is in this collaboration between these disciplines and in the interaction between the material they create.

1.1. Context

The context of this research is the film industry. The research is restricted to postproduction in narrative film productions. Postproduction in this industry had been based on the traditional Hollywood studio-model or its derivatives that uses a linear or sequential approach in postproduction. When digital technology emerged, it opened up other possibilities. In the American film industry, however, this did not cause a major change in narrative postproduction as the production process was and still is organised in an industrial way that encourages demarcation. In contrast, the European film industries were organised in a less industrial way.

As the big, expensive film studios are gone in Europe, we actually are more innovative than the United States as we have developed a practical way of working that gives much more room for discussion, experimentation and interaction with other disciplines (sound designer Pieëte 2011).

Directors, producers and their collaborators had the opportunity to develop different approaches, approaches that are of interest for this research.

Also important for the context of this research is the increase in interest and knowledge regarding audio in audiovisual media. This is illustrated by the growth of publications (from academic articles and magazines to how-to-books and fan sites) about the narrative qualities and possibilities of audio in film and television. An example of the new possibilities opened up by digital technology is digital multitrack sound in film with a full dynamic and frequency range where the soundtrack used to be monophonic or stereophonic with limited possibilities in terms of dynamics and frequency. This

⁷ There are obviously more disciplines involved in film postproduction, both from the executive end (e.g. producers) and the filmmakers end (e.g. visual effects), or disciplines that have a certain impact on film postproduction (e.g. previsualization). I however restrict this research to the four disciplines mentioned above as I will explain in chapter 1.2.

‘emancipation’ of sound in film has opened up new options for the structure of postproduction, as it is no longer evident that visuals dominate audio in film.

Lastly, I wish to address the target group for this research. I hope to give some insight into the interaction and collaboration in narrative postproduction to the direct and indirect participants namely the director, the editor, the sound designer, the composer and the producer; the latter not least, as the producer (though he will not figure in this study as I will explain in chapter 1.2.) can be the very person to actually design the postproduction process and provide it with the right conditions.

1.2. Definitions and restrictions

In this explorative study, I will only look at the major elements and disciplines that are actively part of narrative postproduction: moving images assembled together by the *editor* in the *visual track*, audio that is dialogue, music and other sound produced by the *composer* and *sound designer* for the *auditive track*.

The term ‘postproduction’ needs some redefinition, as in the Hollywood studio model postproduction was defined as the general term for all stages of production occurring after the actual end of shooting. Nowadays, with the advancement of digital technology, it is possible to start postproduction as soon as the first visual and sound material has been shot⁸. In principle it is possible to start editing after day one of the shoot (as my second example in the introduction showed). The material of day one (sound and visuals) can be digitised (if needed) and transferred to the digital edit system for other possible participating disciplines such as sound editors and composers. Ken Dancyger notes:

The editor comes into the process once production has begun, making a rough assembly of shots while the film is in production. In this way, adjustments or additional shots can be undertaken during the production phase. If a needed shot must be pursued once the crew has been dispersed and the set has been dismantled, the cost will be much greater (Dancyger 1997, xvi).

Postproduction is hence defined as starting as soon as the first visual and sound material has been shot.

⁸ The line between Shoot and Post has become indistinct. In a sense, the Shoot may now extend far into what was traditionally called the postproduction period. Increasingly, we not only finish and even “fix it in Post”, we actually *create* it in Post (Benedetti et al 2004, p. 3).

The disciplines that are involved in postproduction are represented in this study by a person that might be – in practice – the representative of a group of practitioners within the specific discipline. The *editor* might be the supervising editor of a team of editors, the *sound designer*⁹ might be the supervising sound designer of a team that includes dialog editors, foley artists etc. A similar situation can be found looking at the *composer* who might lead a team of orchestrators and sub-composers. The last representative is the *director* who is, in general, one person. In this research the director has to be seen as the person who is responsible for the final product from a creative point of view. Financial matters of all kind are left out in this study so the role of *producer* is, in general, not taken into account here.

This dissertation focusses on postproduction in narrative film productions such as feature films and shorts. TV series and other comparable productions are left out as the related postproduction processes have a different structure.

Another restriction is the focus on narrative films that are made up of the material shot during production. Due to digital technology, a live action film can be produced entirely in postproduction as characters and locations can nowadays be computer generated. This type of film is left out of this research as it demands a very complex production and postproduction process that is a mixture of animation, live action film and computer technology.

1.3. Defining the research and the related methodology & structure

A postproduction process can vary from a linear and sequential process like the Hollywood studio model to an interactive and convergent process; they both can be seen as the ends of a spectrum. Where the linear and sequential process puts the creation of the visual track first, followed by the auditive track, the interactive and convergent approach builds upon the interaction between the visual and the auditive track and between the related disciplines. Interaction in an iterative process that converges towards the final result.

The exact position of a film project within this spectrum will depend, among other things, on personal preferences and relevant conditions such as deadlines and budget. To take an informed position, it is important to have a broader perspective than just the

⁹ Sound design and the sound designer are used as “a loose but overarching label for the artistic components of the audio post-production process, including (among other tasks) developing the soundtrack’s arc across an entire film, creating unique sounds and effects, and deciding which sounds will go where in the multi-channel soundscape (Kerins 2011, p. 11)

regular and well known linear and sequential approach. This research explores for that reason specific topics that are related to the interactive and convergent type of the postproduction process.

The research on these topics is based on my own experience as a composer for film and television, as I have witnessed this type of postproduction in some of my collaborations. I contextualize my practice through a number of interviews with relevant disciplines in the Dutch media industry and through a literature review. The interviews will be either part of the main text or can be found as foot notes or as ‘illustrations’ in separate text boxes.

The interviews were conducted using a specific set of questions that was, over time, extended following the results of previous interviews and developing insights. All practitioners interviewed are at the top of their field in the Dutch, and sometimes international, media industry. Some of the interviewees had collaborated with each other, which offered me the opportunity to question them about shared experiences. The literature review includes the narrative qualities of sound, music and moving images, previous studies on collaboration in media and descriptions of daily professional practice. In addition, two specific examples from my own work are included as case studies, following the guidelines described by Yin in *‘Case Study Research: Design and Methods’* (Yin 2003). Considering the above, the research can be regarded as practice-led research.

The actual context for the research is clearly the Dutch media industry as my own practice and the practices of the major part of the interviewees is orientated towards the Netherlands. I have found, however, in my literature study many similarities between the Dutch media industry and the ones in other Western countries when it comes to general principles regarding narrative postproduction. These principles that are not that culture- or location-specific¹⁰ so my conclusions and recommendations should therefore apply to any Western-oriented media context.

As the primary model for postproduction was developed as an element of the Hollywood studio model, I discuss in chapter two the establishment of the Hollywood model and its implications for the postproduction process. In chapter three, I take a close look at the actual content of the postproduction process: the construction of the

¹⁰ I did a survey on collaboration in postproduction in the Bollywood film industry. It is one of the biggest films industries in the world. There were no noticeable differences however I do not think it is appropriate to have my conclusions and recommendations apply to all media industries (including non-Western) as I did not specifically research possible cultural and social influences.

narrative through the shaping of both the visual and the auditive track. In chapter four, I examine current practices based on my own practice, the interviews and the literature study. In doing so, I address the variables to be used in designing an interactive, iterative and convergent type of postproduction process. In addition, I bring forward in the penultimate chapter two case studies from my own practice as a composer and I use the variables determined in the preceding chapter to analyse the cases.

Conclusions, recommendations for further research but also concrete suggestions for designing a more interactive and iterative process are included in the last chapter.

The research is based on the assumption that narrative postproduction *includes* interaction and that the conditions in narrative postproduction *allow* different types of interaction and collaboration to occur. Another assumption is that the characteristics of sound, music and of moving images *allow* different types of interaction and collaboration. A first step in this research is to take a closer look at these assumptions.

1.3.1. Narrative postproduction includes interaction and collaboration

In the following excerpt of ‘*The Conversations*’, Michael Ondaatje (O) and Walter Murch (M), picture editor and sound designer for films like ‘*Apocalypse Now*’ (Coppola 1979) and ‘*The English Patient*’ (Minghella 1996), discuss two kinds of filmmaking:

O: Somewhere you draw a distinction between two kinds of filmmaking: the Hitchcock idea that a film is already complete in the creator’s head - “I invented it in my solitude, and I now just have to go out and make it” – and the Coppola concept that thrives on process, where one choreographs and invents and gathers during the process of filmmaking. Do you see one kind of filmmaking taking over from the other as technologies improve? [...]

M: [...] Both approaches involve a process. *But the most important distinction is whether you allow the process to become an active collaborator in the making of the film, or use it as a machine and try to restrict its contributions.* [...] [italicised by the author] (Ondaatje 2002, p. 216-217).

This distinction lays the foundation for this research. Film in itself is a collaborative art and therefore it should be common practice to design this collaboration in such a way that all participants can contribute to the film in the

I have the strong impression that if you involve people in the process to a greater extent, you also get input and feedback from them to a greater extent. You can imagine and act, as a director, everything on your own but making a film is also about getting the best out of other people and lifting the project towards a higher level. As you will remain responsible for the outcomes, you better take advantage of the input from others
(director van der Oest, 2011).

most effective way possible. This means you have to design the way people collaborate i.e. you have to design the process. This is exactly what happened in the past when the so-called Hollywood studio model was developed:

When film historians talk about the ‘studio system’ they are referring to the domination of the large film corporations from the early 1930s to the late 1940s but also to the special production process that was developed within this structure. Film production was organised in a kind of assembly line system based on extreme division of labour in all phases, from the time the script was written until the film was edited. The individual production companies, or studios, were organised as strictly hierarchical enterprises divided into departments led by department managers all of whom reported back to an omnipotent managing director (Larsen 2005, p. 85-86).

The difference is however that the Hollywood studio model was not developed to get everything out of every possible collaborator in the most effective way. The studios at that time were looking for a way to develop content for their own chain of cinemas (as they were also part of the studio system) in the most efficient way: films and other audiovisual content had to be produced as inexpensively as possible. Important however is the understanding that ‘the process is an active collaborator in the making of the film’ as Walter Murch explains in the quote above and it needs to be designed for that reason.

1.3.2. Conditions in postproduction which allow different types of interaction and collaboration

The Hollywood studio model is, to this very day, still a very common model practised in all varieties of the media industry. One of the basic assumptions in the model is the linear or sequential approach where in the postproduction phase ‘visuals’ are tackled first and ‘sound’ is second¹¹; a fully understandable assumption as technology simply would not allow any nonlinear or interactive approach at the time of the constitution of the model.

In the last decades there has been a shift from analogue to digitally-driven technology that had and still has enormous implications for film production in general and for postproduction in specific. From an economic point of view there is a direct link to main

¹¹ Examples are a.o. to be found in ‘Bringing Process to Post Production’ (La Rosa, M., ter Hofstede, A.H.M, Rosemann, M. and Shortland, K. 2008, fig. 4) which shows, among other things, a very detailed model for music and sound editing that has the ‘temp picture cut’ as a starting point. Or in ‘Creative Postproduction’ that expresses the same attitude as it says “once the visual aspect of the film is fixed (when the **cut** has been **locked**), work begins on the auditory elements of the show” (Benedetti, R.P.G.A., Brown, M.A.C.E., Laramie, B. and Williams, P. 2004, p. 3).

selling points such as “increased speed, reduced cost and fewer people” as Walter Murch describes in ‘*In the Blink of an Eye*’ (2001, p. 82-83). Digital technology has also opened up the way to “multiplying creative options” (Murch 2001, p. 87):

Instead of “speed” digital systems would be more honest to advertise “increased options”. They will allow the work to remain flexible longer, which is to say that the moment of decisive commitment can be delayed (Murch 2001, p. 111).

At the basis of these increased creative options is the random and non-destructive access to all material (visual and auditory) and the possibilities to preserve different versions of a film in a very easy and non-destructive way. In addition “digital techniques naturally *tend* to integrate with each other because of their mathematical commonality” (Murch 2001, p. 141). Characteristics like these offer, in principle, a wide spectrum of possibilities with regard to interaction and collaboration in postproduction.

1.3.3. Characteristics of visual and auditory material which allow interaction and collaboration

Taking a closer look at film production, it is clear that a film is made up of a huge amount of separate elements like art direction, script, photography, sound, acting, props etc. Knowing this, a relevant question is whether there is a specific order to deal with all these elements. Or to put it more precisely (as this research is restricted to postproduction): does film need a specific order or sequence to deal with visuals, sound and music? Or in other words: is film perceived in such a way that it justifies a specific approach in constructing the narration?

Owe Svensson, creator of the soundtrack of a.o. Andrei Tarkovsky’s last film, ‘*The Sacrifice*’ (Tarkovsky 1986), argues that:

I see film as a homogenous product. And none of the components can live on their own: they are all interdependent. If you consider an edited film without the soundtrack, it’s only a sketch. Pictures in their own right can be beautiful and emotional in many ways, but they cannot gain depth without sound. Sound is an emotional experience. It heightens the feelings. Film, in its highest sense, is a total experience of sound and vision (Sider, Freeman and Sider 2003, p.117).

Approaching narrative film this way will need a design and production process where the elements described above will have to meet and interrelate with each other. Seeing film as a “homogenous product” means that there is no specific reason to design the postproduction process as strictly linear as in the Hollywood studio model. When used

in a consistent way, this approach should also address the other phases in film production. This leads to the notion that thinking about the role and function of sound and music in a narrative should already start during scriptwriting or:

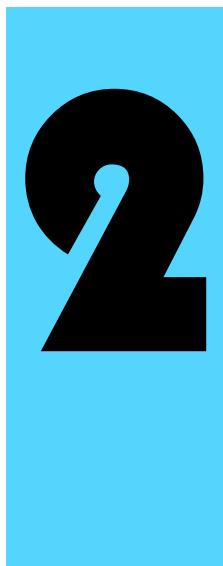
at least very early on in the production process, when there's still time for sound ideas to percolate up and have an affect on creative ideas in all the other crafts. Because if that *doesn't* happen, and still today most often it does not happen. Filmmakers really only begin to think about sound in serious terms during what's called post production. By that time decisions have been made and implemented in all the other crafts, and this has made narrower and narrower the number of possibilities available to the sound people to participate in the story telling. And so, finally, on each project sound finds itself in a creative straightjacket in which the only thing it can attempt to do is to decorate what already exists, decorate what's a *fait accompli*. As far as I know there are no great film sound tracks that have been done that way. Great sound design is not something that you apply cosmetically to an existing piece of work. The question is how to address that. How can you take sound seriously from the beginning? Even starting from the screenplay? (Thom 2011, p. 103).

Further research is clearly needed to answer these questions¹², research that is beyond the scope of this thesis. The questions (and their answers) however are important when structuring the interaction and collaboration in postproduction. When there is an underlying

I like to get involved at a very early stage. As far as I'm concerned this can be even before the scriptwriting so I can simply grow along with the project and I may influence the script writing process (sound designer Schöpping 2010).

concept for the role of sound and music in the script, it should also have an effect on collaboration in postproduction. This collaboration will have to be designed in such a way that it enables the disciplines involved to actually address this underlying concept.

¹² A good example of such research is to be found in *Collaboration and Integration - A method of advancing film sound based on the Coen Brothers' use of sound and their mode of production*, Randall Barnes 2005.



The Hollywood studio model

2.1. Standardisation and differentiation

Looking at Hollywood film in the first half of the twentieth century, “films” manufacturers intended to produce films to make a profit” as it was simply put in the extensive and seminal study of production processes in ‘*Hollywood, The Classical Hollywood Cinema – Film Style & Mode of Production to 1960*’ (Bordwell, Staiger and Thompson 1985, p. 88). In order to do so, the Hollywood film companies focussed on the integration of production, distribution and projection: “the important thing was to control all stages in the movement of a film from script to cinema, which is why they established their own distribution companies and bought up cinemas all over the country” (Larsen 2005, p. 85).

Examining the film industry from this point of view, two principles - and the natural tension between them - were of importance for the development of the Hollywood film industry and the related studio model: *standardisation* and *differentiation*.

Janet Staiger describes these principles within the context of the film industry:

Standardisation was a dual process – both a move to uniformity to allow mass production and a move to attain a norm of excellence. Standardising stylistic practices could make the production fast and simple, therefore profitable. However, differentiation was also an economic practice, and advertising sought to use the qualities in the films as a ground for competition and repeated consumption. Thus, difference and ‘improvement’ in film practice was also necessary. (For this reason filmmaking did not achieve the assembly-line uniformity prevalent in other industries) (Bordwell, Staiger and Thompson 1985, p. 108-109).

The standardisation of work practice was developed through a number of organisations in the early decades of the twentieth century where three types were most present: trade associations, the professional engineers' association and the labor associations.

Examples were the founding of *The Society of Motion Picture Engineers* in 1916 with the objective of developing theory and practice of motion picture engineering and the standardisation of the corresponding procedures and the founding of *The Academy of Motion Picture Arts and Sciences* in 1927 that was focussing on the standardisation of film technology and related practices and “attempted to hold the industry's growing trade-unionism in check” (Cooke 2008, p. 67-68).

At the same time, film practitioners also established a range of labour associations that focused on the organisation of their practices. Apart from the standardisation of the film making process, a side effect from the establishment and activities of the labour associations was a strong and almost rigid division of labour that showed in very distinctly dictated job boundaries.

On the other hand, Hollywood encouraged innovation and even materially rewarded innovative practitioners as long as the results provided profits. The advertisement industry used every possible and distinguishing innovation that was present in a specific film production to promote the film in question. These innovations could be technological in nature but they could also relate to the manner of acting, the character of the story, the presence of a specific movie star or the amount of realism used. What they all had in common however was their usability for the advertisement industry in distinguishing a specific film from other films.

As the Hollywood film industry was flourishing and the number of films was rising each year, the “overall expansion of the number of employees, subdivision and separation of knowledge began to proliferate, and work functions coalesced into departments” (Bordwell, Staiger and Thompson 1985, p. 123). Between 1910 and 1920 the Hollywood studios reorganised their system into a large number of departments that included all relevant activities such as production, direction and laboratory.

2.2. Narrative conventions

At the same time, *narrative conventions* for film were developed. Conventions that were based on one of the most basic formalistic principles of storytelling that is the triad “beginning (stability), middle (disturbance of stability) and end (restoration of

stability)" (Pisters 2004, p. 64) [translation by the author]. Causality and motivation became important elements in film narration. Another element of importance was the concept of continuity in film editing, a concept that was developed by Edwin S. Porter being "a projectionist at the Eden Musee in the late 1890s that led him to the practice of continuity editing" (Cook 2003, p. 20). The concept "stood for the smoothly flowing narrative, with its technique constantly in the service of the causal chain, yet always effacing itself" (Bordwell, Staiger and Thompson 1985, p. 194-195). When editing developed and the so called cut-in was introduced, the breakdown of a scene in multiple shots brought up the question of screen direction ('axis of action' or '180° rule'). This maintenance of screen direction from shot to shot has become one of the basic principles filmmakers still use to orient the audience to the story action. Other editing principles like 'crosscutting' (editing which moves between two simultaneous events on different locations) and 'parallel editing' (where the two events intercut are not simultaneous) were also outcomes in the process of developing narrative conventions for film. At the end of the twenties, Hollywood filmmakers had a clear concept with regard to their editing system: editing constantly organises the spectator's attention¹³.

Narrative conventions such as these found their way into the script which started to function as "a blueprint detailing the shot-by-shot breakdown of the film" (Bordwell, Staiger and Thompson 1985, p. 135), which enabled the construction of the film in a much more efficient way. It also affected camerawork, acting, and other relevant film disciplines, and up until today most of these "conventions are still in operation in mainstream films, not only in the United States but in most of the Western world" (Larsen 2005, p. 86).

2.3. Sound in film

Another important development in Hollywood that affected postproduction, was the introduction of sound. In the silent film era, musical accompaniment was present from the very beginning as "on 28 December 1895 a Lumière programme in Paris had piano accompaniment" (Reay 2004, p. 5). The effect of producing synchronised sound i.e. music, dialogue and other sounds such as sound effects was:

¹³ "The various continuity rules – establishing and re-establishing shots, cut-ins, screen direction, eyelines, SRS, crosscutting – served two overall purposes. On the one hand, they permitted the narrative to proceed in a clearly defined space. On the other hand, they created an omnipresent narration which shifted the audience's vantage point on the action frequently to follow those parts of the scene most salient to the plot" (Bordwell, Staiger and Thompson 1985, p. 213).

to create new subdivisions in the work process, the most usual way that the mode of production accommodated any large-scale technological change. Dialogue coaches and directors, speech experts, and dance directors are obvious examples of new roles. Studios added departments to select, compose, arrange, and orchestrate the film's musical accompaniment. These work processes were placed after editing, a position deplored by musicians but consistent with that allotted to musical accompaniment in the silent era (Bordwell, Staiger and Thompson 1985, p. 246).

The production model for the sound film was constructed from the production model for the silent film by simply adding sound and music departments that were placed in line after the editing of the film. The new departments had a similar construction to the older ones and showed the same type of hierarchy. The connection between the sound department and music department was restricted to a minimum: sound technicians would record and mix the film music and decided how the music was mixed and positioned in the final soundtrack without consulting the composer¹⁴.

With regard to the narrative conventions that were developed by that time, the introduction of sound did not bring along dramatic changes in film narration:

The clearest example of the assimilation of sound to classical norms has always been music. The chief difference between silent and sound film composing was quantitative, in that less music was needed for the dialogue film. [...] The music could enter only in short passages, bits and pieces to tie together in a montage sequence, connect scenes, or underscore an action or line of dialogue. Hence the chief formal device of film composing continued to be the leitmotif, the tag that identified characters or situations. [...] Although it became more fragmentary, film music in the sound era still functioned as a factor in narrational continuity. Coming at the last phase of production, music became the glue that joins scenes, the polish that brightens a point, or what Bernhard Herrmann called 'a kind of binding veneer that holds a film together' (Bordwell, Staiger and Thompson 1985, p. 303).

In this way, sound and its related techniques were confirming with the conventions of the silent film and "one finds a highly coherent set of analogies between image and

¹⁴ "The composer wrote the music in sketch form, as a kind of expanded piano score, using only a few staves. The rest of the process was passed on to others. The sketches went to an arranger, who indicated how the music was to be orchestrated. On the basis of the arranger's indications on the sketch, the copyists wrote out the orchestra parts. The music was then recorded by an orchestra led by one of the studio conductors, and finally it was mixed by sound technicians who had the right to change and edit it – or scrap it. Erich Korngold is said once to have remarked: 'A film composer's immortality lasts from the recording stage to the dubbing room', a statement that implies the dissatisfaction of the employee with this labour-divided process (Larsen 2005, p. 92).

sound, between the visual and the auditory construction of narrative space and time” (Bordwell, Staiger and Thompson 1985, p. 301)¹⁵.

2.4. Summing up

The Hollywood film industry focussed, in the first half of the twentieth century, on the integration of production, distribution and projection. Standardisation was a means to control all phases in this chain of production, distribution and projection. Within this approach the so called Hollywood ‘studio model’ or ‘studio system’ was a logical model for the actual film production process as every aspect of film making was dealt with in a clear way:

- there was a system of conventions that indicated “how one is to organise a narrative in a clear, effective way, and how one edits the film in such a way that the spectators forget the actual process of narrating and can concentrate on the action” (Larsen 2005, p. 86). Within these conventions, there were clear and defined functions for image and sound (i.e. dialog, music and other sound) as sound was brought into conformity with the conventions of the silent film;
- there was a clear linear structure for the film making process from script to film premiere;
- within this linear structure, sound and music postproduction was placed after visual postproduction i.e. editing;
- within every phase of this structure, there was a clear and extreme division of labour;
- this division of labour was organised through the use of departments, which were managed in a strictly hierarchical way;
- there was no actual interaction or collaboration between the departments involved in postproduction (editing, music, sound).

¹⁵ “In particular, many of the 1930s sound improvements aimed at a clearer articulation of the voice in relation to music. [...] Such innovations were governed by the assumption that music must support the expressive human voice, the sonic equivalent of the face” (Bordwell, Staiger and Thompson 1985, p. 302).

3

Narration through image and sound

3.1. Film narration

A first remark with regard to the narrative possibilities of the visual and auditive track is that both elements are capable of storytelling as the silent movie and radio drama demonstrated. This is in itself not a particularly amazing finding but looking at film theory throughout the years, it is clear that a large amount of studies focus on the visual track as the auditive track is either ignored or considered as being supportive to the visual track¹⁶.

More recent views are to be found in studies like '*Narratology: Introduction to the Theory of Narrative*' (Bal 1997) and '*Film Narratology*' (Verstraten 2009) that can be seen as an extension of the study of Bal. Verstraten recognises the narrative force of the sound channel and regards it as being of equal importance to the visual track as both are capable of storytelling though in different ways. Verstraten sees the so called filmic narrator as a combination of a narrator of the visual track and a narrator of the auditive track:

Apart from a sequence of moving images, film can also contain title cards, spoken words, sounds, music, and so forth. The main function of a filmic narrator is to show moving images (possible with printed text) and to produce sound (possible in the guise of spoken text). Since images and sounds can each tell a different story, I propose to divide the filmic narrator into a narrator on the visual track and a narrator on the auditive

¹⁶ In the past many different views (and related studies) about film narration were expressed by, amongst others, David Bordwell, Edward Branigan and Seymour Chatman. Some of them are based on a structural approach, others have a more cognitive view. Despite the differences, they all ignore the auditive track or regard it as being supportive to the visual track. There are of course well known theorists like Michel Chion and Claudia Gorbman but I consider them to be film theorists that approach film from an 'auditive point of view'. 'Neutral' film theorists have been, as said, disregarding the auditive track.

track. I proceed from the assumption that the narrator on the visual track is essentially deaf to all sounds, just as the narrator on the auditive track is blind to all visual influences. It is up to the filmic narrator to regulate the interaction between both sub-narrators (Verstraten 2009, p.7-8).

In exploring film narration, this research uses Verstraten's definition of a story as a starting point:

I use the representation of a (perceptible) temporal development as the basic definition of a story. A transition from one situation to another takes place, and that change is brought about by a (non-)act affected by someone or something (Verstraten 2009, p.13).

In addition, Verstraten, and many other film theorists¹⁷, state that “time, space and causality are the main principles of narrative cinema” (Verstraten 2009, p.16). All three principles can be defined through both the visual track and the auditive track of a film. Due to experiments by filmmakers with the narrative triad of time, space and causality, a fourth element in film narration has been developed over the years that is the film viewer himself:

In this type of cinema, multiple storylines can be adroitly combined according to a pattern of causes and consequences [...]. If we transpose this to the ‘classic’ variant of cinema, we would get a formula that says, ‘We know, or will soon know, why the characters are where they are and at what time they are there.’ The triad of time, space and causality is therefore a basic ingredient of narratively inclined cinema. Nevertheless, filmmakers have thankfully used the many opportunities to violate these classic conventions. Psychological motivations for someone’s actions can remain unexplored, leaving the possibility of enigmatic reasons for a certain deed unresolved. In several (European) art films, moreover, it is more or less impossible to fit the pieces concerning time and space together. The clear reconstruction of when what took place is barred. Although these films are a challenge to narrative rules and make it impossible to ascertain a coherent fabula, they are nonetheless narrative (Verstraten 2009, p.16).

Increasingly films are built up of suggestions and initiatives that have to be completed and rounded off by the film viewer themselves. What to think of the frog rain in ‘*Magnolia*’ (P.T. Anderson 1999) or the mystery man in ‘*Lost Highway*’ (David Lynch 1997)? Viewers blogs on the internet are filled with all possible interpretations and explanations of films.

¹⁷ Bordwell and Thompson, for example, state that “all the components of our definition - causality, time, and space - are important to narratives in most media” (Bordwell and Thompson 2010, p.79).

Reception theories argue that the viewer plays a decisive role in the making of meaning. Which part of this creation of meaning is due to the film itself and which part is due to the film viewer is a question difficult to answer and leads to a conclusion formulated by Verstraten:

The conclusion to be drawn here is that narrativity in cinema is created by an interaction between the narrative agent and the viewer. In classic cinema, which spells out the developments according to a clear pattern of causes and consequences, the narrative agent is so emphatically directing the story that the viewer need only follow. When this often psychologically motivated pattern becomes less obvious, the viewer can accept the invitation to put in some effort himself (Verstraten 2009, p.25).

So *time*, *space*, *causality* and the *film viewer* himself can be considered as basic elements within film narration. How the visual track and the auditive track can contribute to film narration and the related elements is to be seen in the next paragraphs.

3.2. The visual track

As this research focusses on postproduction, the starting point for creating the visual track is the material that has been shot on the set. Based on this material, the visual track of a film and its contribution to film narration comes into being through the editing process:

The craft of film editing is the joining of two pieces of film to yield a meaning that is not apparent from one or the other shot. The meaning that arises from the two shots might be a continuity of a walk (exit right for shot one and enter left for shot two), or the meaning might be an explanation or an exclamation. The viewer's interpretation is clarified by the editor practicing her craft (Dancyger 1997, p. xiv).

It is the responsibility of an editor to find a "narrative continuity for the visuals and the sound of the film and to distill those visuals and sound shots that will create the dramatic emphasis so that the film will be effective. By choosing particular juxtapositions, editors also layer that narrative with metaphor and subtext. They can even alter the original meaning by changing the juxtapositions of the shots" (Dancyger 1997, p. xvii).

This definition of editing implies that the editor is not only involved in arranging visual shots in a particular way but also in arranging sound. This is of importance as this research explores the collaboration in postproduction between the editor, sound designer and composer. Both the sound designer and the composer will not be involved in

arranging visual shots so the position of the editor in postproduction is of a different nature compared to the ones of the sound designer and the composer.

Looking at the editing process from a slightly wider perspective, the process can be broken down in two phases: the grouping of the shots into a rough cut and the fine-tuning or pacing of this rough cut and transforming it into a fine cut.

The first phase of the process starts with the individual shot:

When you're putting a scene together, the three key things you are deciding, over and over again, are: What shot shall I use? Where shall I begin it? Where shall I end it? An average film may have thousand edits in it, so three thousand decisions. But if you can answer those questions in the most interesting, complex, musical, dramatic way, then the film will be as alive as it can be (Walter Murch in Ondaatje 2002, p.267).

One basic assumption is that editing never should confuse the audience; it should always keep the audience informed and involved in the story. This basic assumption seems to relate to the principle of continuity as developed in the Hollywood studio model. The two are however not exactly the same as they are referring to different frames of reference. Continuity in the Hollywood studio model is referring to a linear and realistic way of storytelling. Editing that never confuses the audience is not specifically referring to such a linear and realistic type of narration as these traditional narrative conventions were expanded through time and new conventions were developed by filmmakers like Godard, Tarantino and many others as discussed in the paragraph above. Also television in general and videoclips in particular influenced storytelling when it comes to topics like realism and pace¹⁸.

¹⁸ There are numerous examples of changing and new insights with regard to narrative conventions to be found looking at the history of filmmaking: Agnes Varda believes in 'narrative by association' (Crittenden 2006, p. 60),

Roberto Perpignani:

I am trying to understand if we can make ourselves free of naturalism, because the storytelling is established and we know there exist many other ways to tell a story.[...] We are living a continuous time but we are also living a vertical time – with the memory, suggestion – everything we saved as significant and it's a continuous interaction – it's something to develop (Crittenden 2006, p. 106),

Milenia Fiedler:

'Hollywood' filmmakers deal with the audience, European film makers deal with reality. In the first case the goal is to tell a story – people have always loved to hear stories because story is a structure that helps us to understand reality, it gives sense to a stream of events experienced by a human being. When you present a film you always say, 'Hey look, life is like this'. And you can give an explanation to the phenomena of life recovering the chain of reasons and results, recognising a man by his actions – simply, telling the story. But that doesn't explain everything. So instead you can focus on what's beyond the story. And that is what non-Hollywood film-makers do. It makes editing much more difficult. There are no ready solutions, there are no schemes and there is nothing except your own mind to direct you' (Crittenden 2006, p.220).

Today, editing is about continuity, referring to a much wider narrative frame of reference than the Hollywood studio model. It is “the practical challenge of the director and the editor to work with some number of shots to create a continuity that does not draw unnecessary attention to itself” (Dancyger 1997, p. 295). Referring directly to the parameters of film narration, editing of the visual track can cause a change in time, space and causality. Through manipulation in the editing as, for example, in flashbacks, one can change the order in the story. Another possibility is elliptical editing that “presents an action in such a way that it consumes less time on the screen than it does in the story” (Bordwell and Thompson 2010, p. 233). And with regard to space, one can observe that “editing permits the filmmaker to juxtapose *any* two points in space and thus imply some kind of relationship between them. The director might, for instance, start with a shot that establishes a spatial whole and follow this with a shot of a part of this space” (Bordwell and Thompson 2010, p. 231).

Assembling shots into a scene can be done in a variety of ways depending on the craftsmanship, experience and personality of the editor in question and the context he is operating in. An illuminating example is to be found in the practice of Walter Murch as he is one of those rare people who combines the profession of editor with the one of sound designer:

When I assemble a scene for the first time, I turn off the sound. Even if it's a dialogue scene. I look at the people's faces and imagine what they're saying and read their body language. Significantly, this envelope of silence allows me to imagine the mix the way it will finally be. I'm allowing the space for these sounds in advance. Even though I'm not sure exactly what they will be.

I find this method essential, because the only sound that's recorded at the time of filming is dialogue and it's sometimes quite rough. You can become mesmerised by the particularities of that sound, which is not the way it's going to be when it's all cleaned up and it has music and sound effects running along with it. It's important for me, when I first assemble a scene, to imagine the music and the sound and the dialogue working together in some ideal dynamic form.[...]

I look at it solely as a piece of silent film, imagining the music and sound as much as I can. I construct the whole scene silent, run it back silent, and make revisions in silence. Does it work? I turn on the soundtrack and confront the reality of what is now added by the dialogue. Sometimes it's exactly the way I imagined it. Other times, fortuitous things have happened that are much more interesting than what I could have ever achieved intentionally had I been listening to the sound.

Of course, there can be mistakes. I might select a take that is good visually, but without knowing it I was imagining the reading from another take, which is smoother. So I make a correction: I'll use the good sound from that other take and superimpose it over the good visual, so the actor is saying one thing, visually, but the sound is coming from another take. Because that's what I heard in my head when I was putting the scene together (Walter Murch in Ondaatje 2002, p. 271-272).

What Walter Murch actually is expressing, is the fact that sound can influence the perception of a visual scene to a great extent. Murch developed the strategy to edit a scene purely based on its visual content and develop an imaginary soundtrack based on personal ideas and associations. Next step in his methodology is to use chance: what happens when the sound is turned on? Are there any surprises that are useful or that put things in a different perspective?

Murch uses this strategy to the extreme, which is understandable as he is one of the few editors who is also an experienced sound designer. Using this strategy throughout the process means an editor will also use serendipity to determine the placement, and therefore the role and function, of music in a film. And this is exactly what Murch does when he is editing the music for a film:

He has an extraordinary grasp of how music works in a movie, and unusually for Walter, it is not a theoretical strategy. He seems to throw music at the film, carving up cues, subverting their intended placement: a savant with the score. Watching him at work with Gabriel Yared's painstakingly choreographed sketches is, for someone who prides himself on being a musician and possessing a musician's ear, entirely destabilizing. I remember having devised with Gabriel a series of rules to organize the composition of the *English Patient* score, with a particular orchestration delineating scenes at the monastery and in the desert. Walter listened to these cues with a certain detachment, while I explained their intended destinations. He then stood, as he always does, at his editing lectern and laid in cues, apparently randomly, using the Avid to stretch and contract lengths, often not listening to the entire piece, and certainly paying no attention to the map I had outlined. The results were often startling, always provocative. [...] the finished score of the movie reflects as much of Walter's sense of how the score should sound as it does mine or Gabriel's (Anthony Minghella in Ondaatje, 2002 p. 274-275).

It is however important to notice that Murch, and with him many other editors, uses the principle of chance only with regard to the dialog as it is recorded on the set and to music that is either temporary music or an originally composed demo or final music

from the film composer involved. Sound in terms of sound design is not part of this strategy. There are exceptions but only to a limited extent as this research will show in paragraph 4.2.3.

3.3. The auditive track

The auditive track is made up of a variety of aural elements that allow for different views and approaches¹⁹. Gianluca Sergi argues that:

Film audiences will perceive music not as a separate identity but as part of a whole. In other words, once they are mixed together, the separate elements of the soundtrack will be inextricably linked and audiences' perception of them will be coloured accordingly (Sergi 2004, p. 83).

Seeing film this way as a “homogenous product” (as described in chapter 1.3.3.) asks for an approach that sees “the combination of all of the aural elements of moving pictures as a coherent entity” (Deutsch 2007, p.3). Deutsch defines the word soundtrack as “*intentional* sound that accompanies moving images in narrative film” (Deutsch 2007, p. 3). I use the word *auditive track* as it is used in the film narration theory of Verstraaten. Both words express however the same view that the auditive track or soundtrack has to be seen as a whole.

Deutsch divides the auditive track in “two different (but not mutually exclusive) elements: *Literal Sounds*, which encourage us to believe what we see, and *Emotive Sounds*, which encourage us to feel something about what we are seeing” (Deutsch 2007, p.4). A visualisation according to Deutsch looks like this:

¹⁹ Approaches can vary from “how to do” to perspectives that focus on perception or on purely acoustic properties of the auditive track.

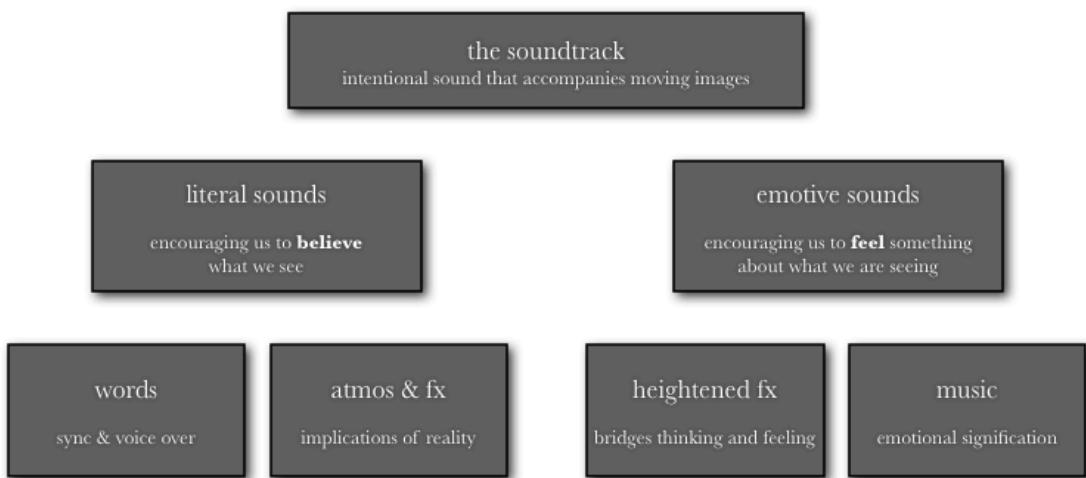


Fig. 1 – representation of the soundtrack (Deutsch 2007, p.4)

Deutsch describes the ingredients of the soundtrack as follows:

Literal Sounds help us to engage with the narrative and to accept what we see as a metaphor for ‘real’ actions and events, defining the physical boundaries of a film [...]. We see someone speak and hear their words in synch with their lips. We see someone move across a room and hear their footsteps on the wooden floor [...]. Sounds that are synchronous with movement and the audience’s expectation of congruence with image help us to enter the ‘reality’ of the narrative. Such sounds can be emotive as well: a baby crying, an unanswered and persistent telephone, shouts and crashes off-camera, etc. In *Point Blank* (Boorman, 1967), Lee Marvin’s relentless anger is carried to us through his footsteps. *Words*, either as voice over or lip synch, act as a link with the diegesis of a film as well as to its emotional implications.

Heightened FX fuses literality and emotion into single gesture. In *Raiders of the Lost Ark* (Spielberg, 1981), the lorry driven by the villain, Major Toht (Ronald Lacey) sounds unremarkably like a lorry. When the hero, Indiana Jones (Harrison Ford) takes the wheel, the confident and regal sound of a lion’s roar is blended subtly into the engine noise; encouraging us to see him differently through our ears.

Emotive Sounds, therefore, encourage us to read film through a visceral filter of varying density. What we feel about what we see can change the meaning of what is being presented to us. A man walks along a street; as he passes a particular house, the music begins, and we are encouraged to invest that moment with a different emotional quality. Perhaps the man will slow down at that point, reinforcing the music with movement (or vice versa), but even if he passes the house without reacting to it, the audience registers its significance, perhaps only subconsciously. Music is almost always an emotional signifier, even if presented as literal sound (Deutsch 2007, p.4-5).

Of importance is the notion that literal sounds can be emotive as well, a notion I will use in this thesis as this will be of help in identifying certain problems in the postproduction process.

If we want to relate directly to the parameters of film narration that is time, space and causality, there are clear links between the auditive track and these parameters. With regard to *time*, “sound also permits the filmmaker to represent time in various ways. This is because the time represented on the sound track may or may not be the same as that represented in the image” (Bordwell and Thompson 2010, p. 294)²⁰. With regard to *space*, ”sound has a spatial dimension because it comes from a *source*. Our beliefs about that source have a powerful effect on how we understand the sound” (Bordwell and Thompson 2010, p. 284).

And when we look at the possible role of the auditive track with regard to *causality*, there is a simple though illustrative example:

Consider the following actions: “A man tosses and turns, unable to sleep. A mirror breaks. A telephone rings.” We have trouble grasping this as a narrative because we are unable to determine the causal or temporal relations among the events.

Consider a new description of the same events: “A man has a fight with his boss; he tosses and turns that night, unable to sleep. In the morning, he is still so angry that he smashes the mirror while shaving. Then his telephone rings; his boss has called to apologize.”

We now have a narrative. We can connect the events spatially: the man is in the office, then in his bed; the mirror is in the bathroom; the phone is somewhere else in his home. More important, we can understand that the three events are part of a series of causes and effects. The argument with the boss causes the sleeplessness and the broken mirror. The phone call from the boss resolves the conflict; the narrative ends. In this example, time is important, too. The sleepless night occurs before the breaking of the mirror, which in turn occurs before the phone call; all of the action runs from one day to the following morning. The narrative develops from an initial situation of conflict between employee and boss, through a series of events caused by the conflict, to the resolution of the conflict. Simple and minimal as our example is, it shows how important causality, space, and time are to narrative form (Bordwell and Thompson 2010, p. 79).

²⁰ If the sound takes place at the same time as the image in terms of the story events, it is **simultaneous sound**. This is overwhelmingly the most common usage.[...] But it is possible for the sound we hear to occur earlier or later in the story than the events we see in the image. In this manipulation of story order, the sound becomes **nonsimultaneous** (Bordwell and Thompson 2010, p. 295).

What this example also shows, is the role of the auditive track in the emergence of this narrative: the sound of the telephone is an event that causes the following auditive conversation between the man and his boss that leads to the resolution of the conflict.

A last but important remark refers to the actual content of the auditive track. As the visual track is build up by assembling visual shots, the auditive track is built up by a variety of sound material such as foley, dialogue, ADR²¹, atmos and music. The majority of these materials are build up, for their part, of a variety of layers that together form one sound or one piece of music. These characteristics, in addition to other properties of the auditive track, are of importance for the interaction and collaboration in postproduction as I will discuss in the next chapter.

²¹ ADR stands for Automated Dialogue Replacement

4

Current practices in narrative postproduction

Taking a closer look at current practices in narrative postproduction, I discuss the variables that are part of these practices and to what extent they are used to design a more interactive and iterative postproduction process. The notion that *narrative postproduction is a process that can be designed*, formulates the starting point for this chapter. Practice shows that often little or no attention is paid to the actual design and layout of the postproduction process from a more content-driven perspective. Usually there is structuring from a more organisational point of view as the producer will book - in consultation with the director - the editor, the audio post production company including the sound designer and, possibly, the composer for a certain period of time²². Structuring postproduction from a more content-driven point of view which consists of arranging the interaction and collaboration between the disciplines in a conscious way, is quite unusual. Before discussing these matters in more depth, I examine a number of key preconditions that define the possibilities for interaction.

Most of the time the interaction in postproduction is not organised in a proper way: I don't get invited to viewings and a sound designer sends his files solely to the director instead of sending them also to me, the composer, and to others involved in the process (composer/sound designer Lizier 2010).

4.1. Preconditions

There are a number of restrictions which influence possibilities to interact in postproduction. Restrictions can be *time* available, *location* and *budget*. Although I realise there is an undeniable relation between budget and the call for a different approach to

²² A *postproduction supervisor* who is responsible for the coordination of postproduction, is appointed for large or complex productions.

postproduction, I will not address this relation as this would ask for a more economic and financial approach in the research. The next section will discuss the restrictions of time and location.

4.1.1. Available time in narrative postproduction

The time available for postproduction will be determined in most cases at the start of the production or is to be determined during production. Postproduction is to start after day one of the shoot. The end of postproduction is generally determined by a premiere date or comparable agreements in terms of distribution and/or broadcasting. These dates will be set by the producer in consultation with external parties such as a film distributor or a broadcasting company.

Another topic of importance for the available time in postproduction is the tendency to aim at maximum possible results during the shoot that often leads to exceeding the time limit. Consequences are that there is (too) little time left for a similar approach in postproduction. Time pressure during postproduction can easily lead to no or little interaction between the disciplines involved. A result that can be prevented on the one hand by a wider and/or more flexible planning and on the other hand by involving all relevant disciplines in the process from the very beginning of film production. This way one can still ensure to some extent a proper preparation for a postproduction process that includes interaction and collaboration even if there is a time pressure involved.

4.1.2. Location in narrative postproduction

The locations i.e. the work spaces related to the postproduction process are important in the sense that they must provide a definite and clear frame of reference with regard to the representation of auditive and visual data²³. This places demands on both the physical location itself (in terms of acoustics for example) and on the technology (in terms of image projection and sound reproduction for example)²⁴.

²³ Locations and the related technology have to fulfil specific quality standards that have been set by the media industry with regard to the reproduction of sound and visuals.

²⁴ In the event of film, the mixing phase will take place in a cinema-like setting where the visuals are projected on a big screen and a 5.1 sound reproduction system is present. In the event of television, one will use a big TV-screen or a comparable beamer and a stereo sound system. TV-mixes are however increasingly done in 5.1 as HD television and possible DVD-publishing are in demand for auditive tracks in 5.1.

There are two main locations to distinguish in postproduction: the *editing room* where the final visual track is assembled and the *mixing room* where the final auditive track comes into being. In terms of possible interaction between work-in-progress at these two locations, there are no restrictions in the sense that the two sites may be connected by digital networks through which audiovisual data can be exchanged.

One might consider to set up a location where the editing room and mixing room coincide. The advantage of such a construction would be the design of the narrative in a single space that meets all requirements in terms of picture and sound. A disadvantage is the impossibility to work simultaneously on both the visual and auditive track in one single space. An in between solution would be to position the editing room and mixing room in one and the same building, having a joint digital network that allows for quick exchanges and try-outs of auditive and visual material. The corresponding communication can also be efficient and effective as the disciplines involved reside in the same physical location²⁵.

This approach was already part of the Hollywood studio model (apart from the digital network) and is now increasingly used in the Dutch media industry: audio postproduction companies have started sharing the same work environment with editors and jointly offer their services to production companies and producers. Sometimes composers are involved in this collaboration as they are part of the audio postproduction company. Most of the time, however, they have their own individual work place that is in another physical location as most composers operate on their own without any formal link with an audio postproduction company.

4.2. Phases in narrative postproduction

There are two important phases to distinguish in the postproduction process²⁶. In chronological order the first phase is the *editing phase* in which the final visual track is designed and a first draft of the auditive track is created. The second and final phase is

²⁵ A situation that is comparable with the production process of a game where all disciplines (game design, game art, game audio) are gathered in one and the same location in order to facilitate the necessary cooperation.

²⁶ There are more additional phases to distinguish in postproduction. They are placed after the mixing phase and are to be considered as more technical mastering phases (o.a. color correction). The four disciplines are not involved so there is no reason for including these phases in the research.

the *mixing phase* where the final auditive track is designed. To enable a clear distinction, I consider the editing phase to be finished once the final cut²⁷ is complete.

These two phases can be traced back to the phases of the same name in the original Hollywood studio model. There is however a difference in content: in the editing phase of the studio model, the auditive track only contains the corresponding dialogues and no music, sound effects or atmos. The creation of these specific audio components took place during an '*in between*' period, a period of time between the editing and the mixing phase in which music and sound was designed and produced.

Such a third phase is still occurring but it is becoming less common in current practice as digital technology makes it possible to start the design of the auditive track during the editing phase²⁸. This being the case, the editing phase should then last preferably as long as possible because the interaction during this phase then takes place between *all* relevant disciplines assuming that the sound designer, the composer and the editor are all involved in this (first) design of the auditive track. During the mixing phase (and possibly 'in between' phase) there is already a final visual track that leads to interaction in *only* the auditive area.

An even more interactive process can occur when there is an *overlap* between the editing and mixing phase. When designing the final auditive track during the mixing phase, any new insights regarding the editing can be tried out immediately because the editing phase is not over and the picture is not 'locked' yet.

Real 'hard' picture lock is disappearing. There is still the possibility for a re-edit and that's good because sometimes you come to the conclusion that a shot needs three more seconds as a result of the sound or music that you've designed for that shot (sound designer Pieëte 2011).

The order of the two phases is unchanged from the Hollywood studio model, which has to do with a fundamental difference between the visual and the auditive track. Where the visual track exists of only *one horizontal layer* that is built up from different shots, the auditive track has a *vertical* and a *horizontal dimension* that are both made up of many different elements such as dialogue, sound effects, atmospheres and (pieces of) music. An additional *third dimension* is the positioning of sound and music in surround as the auditive track is mixed in 5.1.

As a consequence of this large difference in complexity, editing the visual track is, from a technical point of view, much easier than editing the auditive track:

²⁷ 'Final cut' or 'picture lock' stands for the final version of the visual track. I use these terms in my research to indicate the 'true' final version of the visual track as practice shows that 'final cut' or 'picture lock' has often a temporary meaning.

²⁸ Paragraph 1.3.2.: digital technology has led to a different type of processes.

Most people understand how the picture can be edited – how you have many, many different scenes and how you put together one scene – because they see the cuts. People don't generally understand that the sound is also edited in as highly and maybe more sophisticated, a fashion as the picture [...].

So you could say that the picture is very one-dimensional: it starts, it goes along, there's a cut, and then it goes along again and there's another cut. The one thing happening is the cut. Sound, however, you could think of as it being three-dimensional because you have one layer of sound, one actor talking, and on top of that a clock ticking in the background, and on top of that there could be another layer of sound, which could be the traffic outside, and on top of that there will be another layer of sound, which could be a record player in the background, and then on top of that there will be another layer of sound, which could be somebody arguing in the room next door (Pasquariello, 1996 p. 117-118).

A relatively simple change in the visual track can have major and complex consequences for the auditive track. From this perspective alone, it makes more sense to design the final visual track first, and then the final auditive track. It may seem logical to reverse the order: first create the complex auditive track and, based upon this, design the more simple visual track. In narratives where there is no synchrony between the visual and auditive track, this would be a possible method, but these types of narratives are a rare exception. As soon as there is synchrony, a previously designed auditive track forces through this synchrony a specific visual track that might contain all kinds of visual information that contradicts each other and will also not respond to the various narrative demands of a visual track such as continuity and maintaining screen direction.

A representation of the phases in postproduction is shown in Figure 2. From top to bottom it represents the Hollywood studio model and current practices.

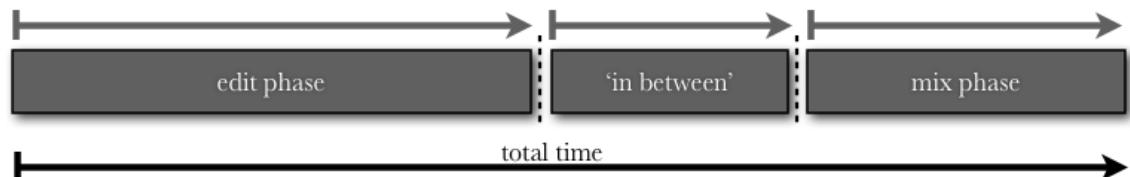
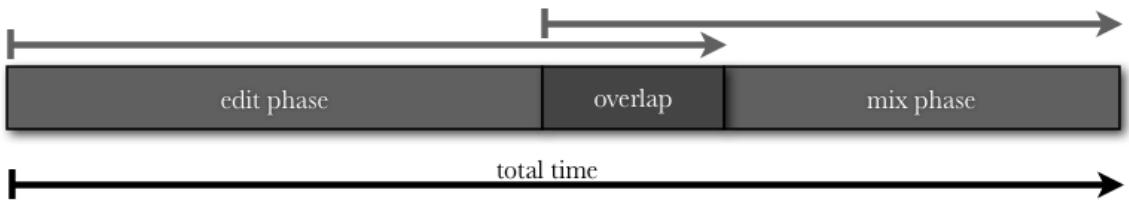


Fig. 2 – representation of the phases in the postproduction process in the Hollywood studio model



*Fig. 3 – representation of the phases in the postproduction process
in current practices*

4.2.1. The editing phase – visual material and auditive material

The material at the start of the postproduction process consists of visual and auditive material recorded on the set. Each day - after the first day of the shoot - this digital material²⁹ is gathered by the editor who checks it for possible errors and defects and who reports this to the film crew. During the shoot the editor uses the script based on the narrative, to create a first version of the editing. Apart from the set recordings, one can use other auditive material such as music, voice, sound effects and atmospheres.

As discussed in paragraph 3.2., a number of editors and directors prefer to start the editing phase with purely visual content and they focus on the auditive content later on in the process. This usually means that the use of music is left out for this first period of editing. In a fundamental approach as that of Walter Murch even the fader of the dialogue can go down during this first period³⁰. Other editors and directors like to be inspired by all possible material in terms of visuals and sound from day one as it is their way to get ideas. They will try out all the material available in their editing to see what ‘works’ and what does not.

Both approaches can be seen as the extremes of a variable: is the starting point just the set material (visual and auditive) or is the starting point that same set material plus additional auditive material? One can distinguish - within that possible additional auditive material - again *emotive sounds* such as music and specific forms of sound design with musical properties and *literal sounds*.

Three possible visual representations of the variables described above look like this:

²⁹ Visual and auditive material is recorded in digital form on the set or is digitized – after analog recording – and send into postproduction.

³⁰ See paragraph 3.2



Fig. 4 – a representation of no additional auditive material during the editing phase.

This first representation illustrates the first principle: the starting point is the set material and no new auditive material is added during the editing phase.

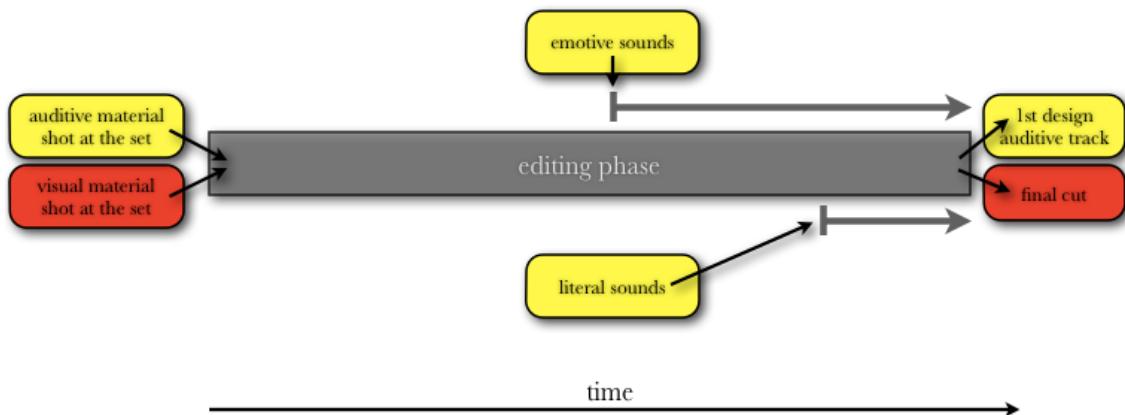


Fig. 5 – a representation of some additional auditive material during the editing phase.

In this second representation there is the addition of emotive sounds halfway through the editing phase and by the end of this phase, there is the addition of literal sounds. This represents a possible situation where the composer comes in halfway the editing phase and the sound designer delivers some literal sounds near the end of the editing phase as the editing might be in need of some specific sound effects.

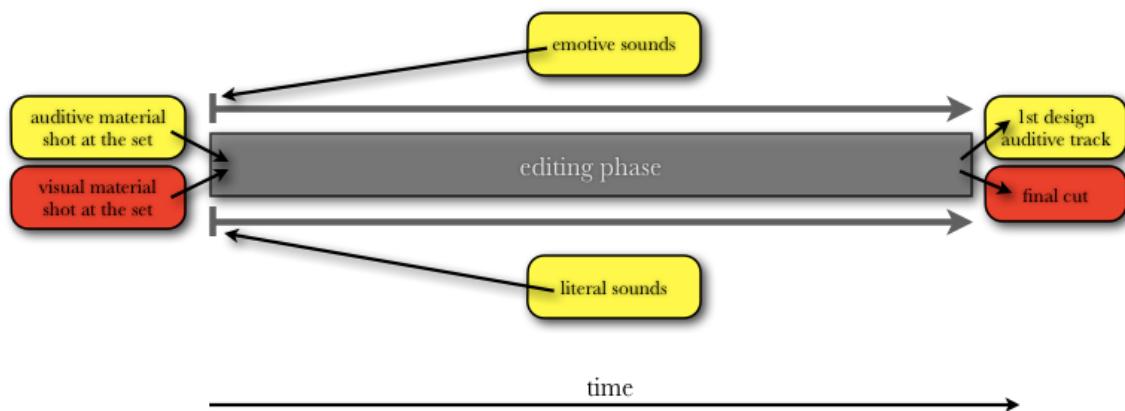


Fig. 6 – a representation of additional auditive material throughout the editing phase.

The other extreme is in the third representation: both types of sounds can be present from the very beginning of the editing phase. The third representation is the most advisable situation as in this representation there is the possibility for a *maximum* interaction between visual and auditive material. In practice however, the interaction will initially be

It is often the case that in the editing process, music arrives too late. If the director has the music earlier on in the process, you can listen to it beforehand, get accustomed to it, and then start integrating it into the film. When music arrives later on in the process, such as at the mix, it almost becomes a hostile element in your film (director Koolhoven 2011).

limited to emotive sounds, sounds that are supplied by the composer and the sound designer.

When it comes to literal sounds, most editors and directors will work in the early stages of the editing phase with the literal sounds already present in the set sound. If some sound effects, voices or atmos are essential from the perspective of the editor and/or director and the material in question is not present in the set sound or it does not have the required quality, the material needed is often produced by the editor himself using - for example - a sound library. If this is too complicated or too time consuming, the sound designer is asked to produce the desired material. Once the editing assumes a more definitive shape, the sound designer can start to design and produce final literal sounds.

In the following sections I will examine in detail the creation of such emotive sounds and literal sounds during the editing phase. The composer delivers only emotive sounds in the form of music and the sound designer delivers both literal and emotive sounds. This, and the related interaction between both disciplines and with the editor and director, then leads to a new and more detailed version of the last representation in Figure 6.

4.2.2. The editing phase – music: emotive sounds

Music is initially used in the editing phase to investigate *whether, how* and *when* music can be used to help tell the story³¹. The results of this investigation can be found at a number of levels. Outcomes may be that no music is needed, that the film needs different music styles, that certain scenes require specific support of music or that certain

³¹ The use and choice of music is not always guided by purely conceptual or dramaturgic arguments. The commercial value of soundtracks and the obvious link between the media industry and the music industry will be – in many cases – decisive in determining the composer and/or the final soundtrack. Given the framework of this research, these elements are excluded.

scenes need to be re-edited in case of music and so on. Depending on the moment music is introduced in the editing phase, music can be an initiating, a co-determining or a following element in the editing process. A striking example is the script of the film ‘*Magnolia*’ (P.T. Anderson 1999) that was based on the songs of Aimee Mann:

I sat down to write an adaptation of Aimee Mann songs. Like one would adapt a book for the screen, I had the concept of adapting Aimee’s songs into a screenplay [...] For instance, in my *original* motion picture screenplay, Claudia (played by Melora Walters, with a true sense of Aimee Mann insanity) says, “Now that I’ve met you, would you object to never seeing me again?” I must come clean. I did not write that line. Aimee Mann wrote that line as the opening of her song, “Deathly”, and I wrote backwards from that line (Anderson 1999, Magnolia CD liner notes).

There are two ways to do the investigation as described above:

- temp tracks³²:
 - music chosen by the editor and/or director that comes from the so-called world music repertoire, including existing music of the composer³³;
 - music chosen by the composer that comes from the so-called world music repertoire, including existing music of the composer.
- music sketches of the composer.

In general, *temp tracks* have the advantage for the editor and director that it enables them to work with music that is already ‘final’ and that the repertoire to choose from is very broad and extensive.

As the music is ‘final’, it is often difficult to get the temp tracks to fit specific scenes; often the result of using temp tracks is not truly satisfying. There are also a number of specific disadvantages of temp tracks for the composer:

First of all, it can be almost impossible to get the temp track out of your head once you’ve heard it, especially if it’s already been dubbed into the film. If it works, it can be difficult to imagine a better approach. And if it doesn’t work, then the chances are it will have spoiled your first emotional reactions to the film. And what’s worse, you may still have trouble getting it out of your head (Karlin, Wright 1990, p. 40).

³² Temp track stands for temporary track and “there are basically four reasons why filmmakers use temp tracks: (1) to help them finish editing their film; (2) to help them screen their film for the producer(s), studio, and/or network executives and preview audiences during various stages of postproduction; (3) to establish a concept for the score; (4) to demonstrate that concept to the composer (Karlin, Wright 1990, p. 39).

³³ The so called ‘world music repertoire’ is a term originating from the context of copyright, which is referring to all music that is recorded in any medium.

The temp track usually provides the composer with a working model for the score.

Directors and producers become so convinced, accustomed, and perhaps ‘married’ to the ‘temp’ (*‘temp love’*), that composers are often requested to emulate it (Sadoff 2006, p. 166).

Normally the temp tracks are selected by the editor and/or director depending on their personalities, preferences and way of working together. The corresponding research and pre-selection of existing music however can also be done by the composer.

An advantage is that the composer – taking his knowledge about film music, experience and background into account – should be able to make a more appropriate choice. In addition, the composer can do research this way as s/he can try out a range of musical approaches, genres and styles and get the necessary input in terms of ideas and concepts for his/her own compositional process. In my own professional practice (and I know of colleague-composers who have been acting in a similar way), I have often experimented with existing musical material to get ideas with regard to the spotting and functionality of music in film. The outcomes of questions like “What will happen when I put this music underneath this scene? What will happen when I move the music three seconds forward or backwards?”, gives a composer insight about the possible use of music in the film.

A specific variant of temp track is the restriction to already composed music by the composer in question. The advantage of this restriction is that choices with regard to film music will be within that composer’s idiom. Using the world music repertoire, film composers can be confronted with a temp track that relates in no way to their own music idiom. These are situations to be avoided specifically if there is no time and/or budget available for the composer to research this idiom and to become familiar with it.

The final temp tracks act as a role model for the music to be made by the composer. A next and important step is to analyse the functioning of the temp tracks in a very precise way:

I think it is a skill to know what music does and be able to duplicate it in a different way. Of course, that is one of the big things a film composer has to do that most other musicians never have to think about. There is somewhat of an objective result from a piece of music used in a certain way, and that same objective result needs to occur with a different piece of music. To a certain degree, it’s the responsibility of a director, too, to be willing to look at something newly and know whether the overall same objective result is being achieved, even with a different piece of music (DesJardins 2006, p.138).

If there is no proper analysis made, the use of a temp track will almost inevitably lead to the so-called *sound-alike*: a copy of the original temp track within the limitations set by the copyright.

The second method for using music in the editing phase is using the composer's *music sketches*: music ideas that have been developed far enough in terms of composition and production for the other disciplines to understand its functioning within the film. These sketches are relatively easy to produce, since they do not yet have to meet all kinds of final criteria with regard to music, music production and film dramaturgy. Therefore they can be used to research the role and function of music.

Sketches like these can be made from the very beginning of postproduction based on information that is available from that moment such as script, story board, etc³⁴. As the editor starts editing after the first day of the shoot, the composer can start composing music sketches and both can develop an interaction between editing and music. When the shoot is finished, the director may participate in this interaction.

As soon as I know who the composer is, I try to approach him as soon as possible to discuss the postproduction process [...] I want to have music sketches as early as possible to use them for my editing so I don't have to use a temp track [...] I inform the composer beforehand that I will abuse these sketches by cutting them in pieces, turn them around etc. As soon as I use those edited sketches in a scene, I send the composer the result so he can work on it again. This way you're both making something very specific that belongs together [...] I don't want to work differently anymore (editor Jansen 2010).

In this process, both the editor and the composer explore the proper editing and combination of music and visuals. The editor considers the music sketches as raw material, s/he will edit these sketches and combine them in different ways with the visuals. The composer considers the visual editing as a first version and s/he will combine his/her music sketches in various combinations with this first version. By communicating about these experiments and by exchanging new work-in-progress, shared insights can be developed that will lead to the final result in an iterative and convergent process.

Finally, there is a third method that actually does not fit the classification described above as it is the variant that includes *no research* into the possible roles and functions of music and that is related to the 'in between' phase. This method is increasingly less common in current practice but important to mention here from a historical point of

³⁴ These type of music sketches can be made, of course, also before the shoot starts as I remarked in paragraph 1.3.3.

view as it is related to the traditional Hollywood studio model³⁵. In this situation the composer composes music based on specifications from the director and based on the final cut. In such a process there is still interaction, particularly between the director and the composer. The composer is specifically aiming at creating music according to those specifications, rather than creating music based on any kind of investigation.

It is important to realise that current practice often shows hybrids of the methods described above: a composer works - for example - from the very beginning with music sketches but s/he has to relate to some temp track pieces that are selected by the editor. An editor uses - for example - temp tracks purely for the editing and gradually replaces the temp tracks by music sketches of the composer.

We would use temp track purely for editing. We would send the composer rough edits of specific scenes and sequences without the temp track. Based on that information, he would compose music material in the form of themes and suites (director Koolhoven 2011).

Looking however for a postproduction process where the emphasis is on the interaction between the disciplines and their work in progress, the approach that uses music sketches is the most suitable.

At the end of the editing phase, the music has in principle a final shape³⁶. The possible appearances of the final film music are:

- tailor-made music;
- a music library.

Tailor-made music means that every music cue is created for a particular scene with a corresponding sync (the relationship between image and music).

A music library is a collection of music cells that are constructed in order to be combined in different ways: horizontally (in a row, through time) and vertically (layered). The composer prescribes the possibilities for combining the cells. Think of a box with LEGO-bricks that can be combined in many, but still a limited, number of ways.

Another interesting analogy is that of music for an adaptive system to be used in games. In such a set-up, one also uses music cells that can be combined in a limited and prescribed amount of ways. Whereas in film the final combination is determined by the

³⁵ In the traditional studio model, there used to be a so called ‘spotting session’ where the music and its placement in the film was discussed by the director, the producer, the music editor and the composer. The outcomes of this session was a ‘cue sheet’, which “gave precise footage counts and timings (calculated on a Moviola), together with detailed verbal descriptions of the appropriate on-screen action” (Cooke 2008, p. 74).

³⁶ The use of the word ‘final’ here needs some nuancing as the final auditive track comes only into being in the mixing phase, which might lead to adjustments in the music score.

director, the final combination in games is set by the game play using, for example, the amount of suspense as a decisive parameter.

There are specific reasons for delivering the final film music this way that will be discussed in paragraph 4.2.7.

4.2.3. The editing phase – sound design: literal sounds and emotive sounds

Music can play a role at an early stage in the editing phase through experimenting with temp tracks and/or music sketches of the composer, yet this does not happen in a similar way with sound design.

One difference is that sound, that is set sound, is already present at the start of the editing phase. This set sound focuses in particular on dialogue but it will also, albeit at a low level, contain other sounds of the set like set noise at the time of the recording³⁷.

The presence and nature of this set sound ensures that there is initially no urgent need for newly designed sound. It will do for the first period of the editing phase so the editor works with this set sound and uses, if necessary, a sound library to add some extra sounds. The criterion for this all is that the sound should be sufficient in quality and quantity to enable the story telling during the first period of the editing phase.

Another reason that sound design is not generally included in the early stages of the editing phase is due to the synchronicity between visuals and sound. A newly designed *sound effect* has to be synchronised in case of *onscreen sound*³⁸.

Let us take the example of a person who walks through a room. To design new sound for this example, the steps to be recorded must be in sync with the footsteps in the picture, which is relatively expensive as there is a Foley artist who needs to be hired. This example illustrates how 'new synchronous sound' can be difficult and relatively expensive to design and produce. A similar example can be given with regard to *dialogue*. It is possible that a dialogue is not audible, which means dubbing is needed. Due to the related costs, dubbing will be done later in the editing phase when it is known which

³⁷ Sound recording at the set aims at recording the dialogue as clear and loud as possible but there will be always background sounds like footsteps, opening doors etcetera. Apart from this dialogue recording, the sound recordist will also record so called 'wild sound' to be used in postproduction. Wild sound is sound that is not linked to visuals.

³⁸ Onscreen sound that whose source appears in the image, and belongs to the reality represented therein (Chion 1994, p.73).

specific scenes are probably in need of ADR. The editor will work with the dialogue to be replaced until that very moment of dubbing.

The demand with regard to synchrony complicates sound design especially in the beginning of the editing phase, as editing is at that time still far from definitive and the scene in question can still be deleted. So a question should be posed: In the editing phase, when can one start designing new synchronised sound?

In case of *offscreen sound effects*³⁹, the demand with regard to synchrony is not applicable anymore. In case the needed sound effects are relatively simple, the editor can produce the sound him/herself (using the aforementioned sound library). If the required sound is complex, the sound designer may be brought in. The regular film contains - in terms of sound – a vast majority of onscreen sound so a situation as described above will be rare.

Besides onscreen and offscreen sound effects and dialogue, there is another category within sound called *atmos*. In general, there is no need for 'hard' synchronicity when it comes to atmos so the consideration above is not relevant. This means that a similar approach like the one used for music is possible in the editing phase: one can experiment at an early stage in the editing phase with existing atmos or with atmos specially designed by the sound designer. It is of importance to realise that atmos can contain both literal and emotive sounds: atmos often find themselves between realistic sound and music⁴⁰. Atmos may also interfere with music as they may have musical characteristics. This implies the need for a proper communication between the related disciplines.

Concluding, sound design will mostly participate in an interactive and iterative way through atmos in the beginning of the editing phase. Only when the editing is starting to take a more definitive form, is it worthwhile to design and produce new synchronous sound and dialogue.

4.2.4. The editing phase – various perspectives in the interaction

The essence of being a director is to give, facilitate and monitor all the answers to the question “what is this movie about?”, during the whole process of filmmaking:

³⁹ Sound whose source is invisible, whether temporarily or not (Chion 1994, p.73).

⁴⁰ A famous example is the use of atmos in *Eraserhead* of David Lynch 1977 (www.imdb.com/title/tt0074486).

What the movie is about will determine how it will be cast, how it will look, how it will be edited, how it will be musically scored, how it will be mixed, how the titles will look, and, with a good studio, how it will be released. What it's about will determine how it is to be made (Lumet 1996, p. 10).

The director serves on the one hand as a frame of reference throughout an entire film production; on the other hand a director should enable and stimulate all disciplines involved in film making to contribute to the film in the most effective way possible⁴¹. The director will also fulfil these roles throughout the entire post production process. Directors distinguish themselves from the other three disciplines as they do not produce concrete material whereas the other three do. In that respect directors can take the necessary distance from the actual creation of visual and auditive material and focus on the entire ‘picture’ that is the film. Walter Murch describes this attitude in reflecting on the film ‘*Youth Without Youth*’ (Francis Ford Coppola 2007):

I try to choose the right people. People who complement my ideas. Such people will come up with better ideas
(director Schrijver 2010).

In the broad sweep of the creative process, I would say that Francis is a reactive participant, and that he is fairly impatient with the minutiae - the back and forth aspects of both editing and sound. Like directors such as John Huston, he prefers to sit in the theatre and see the totality of it, then react to the totality rather than to get involved in the specific issues of ‘Should that be 2 dB louder in the left back?’ He never, never goes in that direction (Murch, Horner 2012, p.11).

In terms of decision-making, the director is the one who makes decisions as s/he is the author of the narrative, or acting as a representative of the producer. This decision making relates in particular to the storytelling, the narrative. Decision-making that focuses more on the postproduction process itself and its organisation is often done by the other three disciplines and in particular by the editor.

The editor works on the final assembly of the visual track and on a first version of the auditive track. This means that the blueprint for the film is designed during the editing phase. As previously stated, the director is the one who decides, however s/he is on set during the first period of the editing phase. The editor takes over during this period and s/he will come up with a first version of the edited narrative after the shoot that will be

⁴¹ A talented director lays out opportunities that can be seized by other people – by other heads of departments, and by the actors, who are in effect heads of their own departments. This is the real function of a director, I believe. And then to protect that communal vision by accepting or rejecting certain contributions. The director is ultimately the immune system of the film (Walter Murch in Ondaatje 2002, p.28).

based, in most cases, on the script, if present. Practice (at least in the Netherlands) shows that they are, most of the time, also the one to take on

A major part of the film is brought into being in the editing room. The pace and content of the narrative is created here (editor Jansen 2010).

the organisation of postproduction and, depending on any previous agreements, arrange first meetings with the composer and/or sound designer.

Due to the fact that the blueprint for the film is designed during the editing phase, an editor will therefore want to be involved during the remaining postproduction process. The editor will show their involvement by their explication of the 'why' of the final visual track and their first version of the auditive track. They will - from that perspective - comment on the work of the composer and the sound designer and they will want to participate in the design of the final auditive track. During a (possible) overlap between editing and mixing phase, the

As soon as dialogue editing is ready and dubs are done, I like to be present again to check the dubs as I have chosen certain shots based on acting and content that may not have been transformed into the dubs. [...] I'm present during the entire mixing phase and I have a voice there (editor Jansen 2010).

editor can come up - if needed – with a new version of the editing. Through this type of involvement in the whole process, the editor functions as an important frame of reference for the director.

The actual interaction between director and editor starts immediately after the shoot as from that moment on the director is able to participate in the editing process. Editing is, technically speaking, relatively simple as it is about placing single shots within one single horizontal layer. This allows the director to actively participate. It also enables a lively

For the editing phase I really do have a plan, a concept for visuals and sound. That is what we're going to try out. We do a lot of talking and discussing. I also gather a lot of sound and music beforehand. We try things out together so I simply can't leave the edit room and leave things to the editor (director Schrijber 2010).

interaction between the director and the editor as one can try out many ideas within a relatively short time: experiment and an iterative way of working is possible.

With regard to the content of the film, the editor is the one who initially has seen and heard all visual and auditive material with fresh “eyes and ears”.

From that position they can see the potential but also the problems of the material. Based on

I write down everything we have recorded (audio, visuals) on the set. I also have a lot of wild sound recorded. It's all written down by me to give me an overview of the material available (director Schrijber 2010).

that, the editor can give feedback to the director and they can come up with proposals about how to deal with the material. Josef Valusiak, editor during the Czech New Wave, discusses collaboration between editor and director:

Editing is the basic principle of film-making and we could talk for a long time about the creative force function of the shot by shot shooting. Sometimes the director edits his film by himself and I know of some good ones made in this way. But the educated editor brings new, fresh eyes to the film process, he is not influenced by the stress of the shooting or by the plans and purposes as the director is. Basically the editor can see what really is in the material, not what was supposed to be there, so that he can find new variants and possibilities that the director who is fixed in his imaginings cannot see. Also the editor comes with his specific experiences, skills, talent, sensibility for image and sound expression, for the rhythm and tempo, combination and association thinking, etc. And when the director and editor are close in their intellectual, creative and also personal side, and they are also close to the subject matter of the film then their participation in the result is not just added but multiplied (Crittenden 2006, p. 237).

The auditive track is made up of music and sound that both may have a design- and production process that extends over the entire postproduction. In contrast to the visual track, both sound and music can use temporary representations of possible final results. These temporary representations can be used from the start of postproduction. In the case of music, one uses temp tracks and/or music sketches. With regard to sound, the set noise in combination with a variety of sound libraries is available.

For this reason both the composer and the sound designer can be involved from the very beginning of postproduction. They can contribute ideas for the final blueprint of the film, they can deliver concrete sound and music material - either existing or specifically designed and produced - for the realisation of that blueprint.

As the director is absent during the shoot, the composer and the sound designer interact with the editor during this period. After the arrival of the director, the interaction will be geared towards the director and editor together, with the director having the last say regarding sound and music.

To more precisely define the potential involvement of composer and sound designer, I distinguish between four different perspectives in their design process and related interactions:

Usually the composer has spoken already with the director before the shoot to discuss matters (story, atmosphere of the film) in general. I'm however the first one to start with the exact interpretation. I do this, in general, without consulting the director as he's still on the set [...] I like to have the sound designer over and look at my work as soon as possible. He can comment on my work and describe the possibilities for sound design so I can keep this in mind while I'm editing (editor Jansen 2010).

- *Conceptual* – Which story is going to be told? What is the possible role and function of music in telling this story? What is the possible role and function of sound in telling this story?
- *Dramaturgic* – At which moments is there music in the film? When does it start and when does it end? At which moments in the film does sound fulfil these specific roles and functions?
- *In Music or Sound terms* – Which ensemble(s), which instrument(s), which sound(s) are to be used to tell the story?
- *Acoustical* – How does the spectra of music and sound relate to each other?

For example, the design process for a film composer can start in different ways: (1) there is a concept for the role and function of music in the narrative. The next step is making (2) dramaturgic choices (which scenes will have music etc.). These lead towards (3) music choices (which instruments etc.). This order can also be inverted. One might start from 2 or 3 and end up with the concept. In addition, the process is iterative. The three approaches converge during the process as there is a continuous mutual influence between the approaches. The fourth item is - in this process - more a precondition of specific importance for the interaction between composer and sound designer. The design process for a sound designer can be described in a similar way, as a sound designer will also need a concept for the sound design. S/he has also to consider his/her sound material and where to put specific sounds.

An example of such a design process and the related interaction between the composer and the sound designer and director, can be found in the Coen Brothers (1991) film, '*Barton Fink*'. Carter Burwell is the composer and Skip Lievsay is the sound designer:

And the important thing to me about *Barton Fink* is the way that the score and the sound design work together. Joel and Ethan thought that maybe there was no place for music in the movie, that maybe it would be entirely sound effects, but when they heard the theme that I had for Barton, they liked it. And Skip Lievsay, the sound designer – or ‘supervising sound effects editor’ – and I decided that we would spot the film together. And it really is, still, for me, the best example of how that can work. The sound effects are incredibly important, and they’re also non-naturalistic.[...]

And I chose instruments and tried to write a score that would work with most of the significant of the sound effects.[...] And we would go through this, scene by scene. Skip would say, ‘Well, I’ve got a mosquito here’, and I’d say, ‘Well, OK, I’ll give you the high frequencies, but I’d like to do something down below’. Or he’d say, ‘Well, I’m kind of

interested in having a banging sound here', I'd say, 'Well, great, I won't do any percussion, but I'll do some low bed of dissonant trombones'. And I'd say, 'Well, I've got a piano melody that happens here', and he'd say, 'OK, well, I'll take the low frequencies' (Sider, Freeman and Sider 2003, p. 199-200).

Using the perspectives described above, one can examine the way in which the composer and sound designer collaborated in this film:

- *Conceptually* between composer and director: "Joel and Ethan thought that maybe there was no place for music in the movie, that maybe it would be entirely sound effects";
- *Musically* between composer and director with consequences for the conceptual approach: at first the idea was to have no music, after hearing some musical ideas, the concept was adjusted, "but when they heard the theme that I had for Barton, they liked it";
- *Acoustically* between composer and sound designer with consequences for the musical approach: "Or he'd say, 'Well, I'm kind of interested in having a banging sound here', I'd say, 'Well, great, I won't do any percussion, but I'll do some low bed of dissonant trombones'";
- *Conceptually and dramaturgically* between composer and sound designer with consequences for the music and acoustic approach: "The sound effects are incredibly important, and they're also non-naturalistic [...] And I chose instruments and tried to write a score that would work with most of the significant of the sound effects".

Regarding the collaboration between composer and director from a music perspective, there are different approaches. These are: working with temp tracks, music sketches, or a briefing from the director, or all of the above. Regardless of what is actually used, the composer and the director need to discover what role music has in the narrative. Both disciplines have to express and discuss their views about this. 'Telling of the story' is central in this phase of the interaction. Elmer Bernstein on this interaction:

I spot a film strictly as a dramatist. I'm not thinking of music at all when I spot a film. I look at the scene and say, Should this scene have music? Why should it have music? If it does have music, what is the music supposed to be doing? (Davis 1999, p.261).

The composer has to interact with the director about possible music choices on a conceptual and dramaturgic level and – in the end - to translate the outcomes of this

interaction into concrete music. Film composers, however, tend to withdraw themselves into their own music process and to come out again when their music is finished. This attitude is understandable as deadlines are usually very tight and interaction with the director requires time that could have been spent on composing music. In addition, composers are generally not trained to communicate about their work-in-progress with other disciplines:

Film scoring requires a wide set of skills. It requires not only understanding music, the picture, and its correlations to music, but also being open minded and developing social skills to handle creative communication with people from diverse backgrounds. To this day, there is no school or institution teaching these social skills, apart maybe from some obvious recommendations based on common sense (Phalip, Edmonds 2007).

To open up possibilities for interaction, a film composer should provide access to his/her composition process by showing and discussing possible options for the music for a specific scene. This type of interaction opens the way to joint decision-making, which is vital for a more interactive postproduction process⁴².

The interaction between the sound designer and the director is partly similar to the one between the composer and the director.

They both have to create a common ground with regard to the role of sound in the narrative. Both disciplines have to express and discuss their views about this.

I want to make sure sound will get time and opportunities. The biggest problem is that sound/music needs time. Our visual brains are quick but superficial, our auditory brains go deep but take a lot of time (sound designer Schöpping 2010).

The sound designer will develop – in consultation with the director – a concept for the sound design and s/he will use similar perspectives in this interaction as the composer. The sound designer, however, is often approached by the director and editor from a more technological, and therefore more facilitating, point of view. Gary Rydstrom, sound designer of a.o. ‘Saving Private Ryan’ (Spielberg 1998) and ‘Titanic’ (Cameron 1997), addresses this in an interview:

The main attitude people have to change is that sound is a technical part. People think of it as negative cutting, it’s the technical step at the end where you put the door slams, the cat meow, and the traffic in – then you have a finished film. [...] It matters what it sounds like. It matters if it’s emotionally correct for the moment. You should use whatever’s right. Your first responsibility is to the emotional and dramatic elements of

⁴² Film composers complain a lot about film directors who do not understand film music. Even if this complaining is justified, it is only an extra plea to involve film directors in the decision-making process with regard to film music as it is the best way to learn to understand film music.

the film. Secondly, you make sure there are no glitches and technically it's as pristine as you can make it. People think you're a sound designer if you make weird and wonderful sounds. Ben Burtt is a sound designer because he made laser swords and Tie Fighters, but that's not really it – that's sound creation. He was a sound designer because he was involved at the very beginning in discussions about the philosophy of the sound track. [...] Everyone thinks that a sound designer is only needed for science fiction or bizarre films, when it should be seen as more akin to a production designer. A sound designer follows through all the different sound crafts and gives it a common philosophy and a common goal (LoBrutto 1994, p. 245-246).

Sometimes sound designers position themselves as craftsmen who are there to facilitate the director's wishes. To a certain extent this facilitatory attitude is understandable, as sound design also involves literal sounds that could underpin such an approach: you see a closing door so you will need the sound of a closing door⁴³. Literal sounds though can also be or may become emotive sounds through which meaning is created as will be argued in paragraph 4.2.7.

Meaning that has to have its place and function in a more overarching concept: 'what story do we want to tell and how do we use sound to tell that story?'. A sound designer should be aware of this approach and related attitude. S/he should position him/herself as a designer instead of just facilitating the client's wishes as this positioning also has consequences in the communication between sound designer and director. Gary Rydstrom discusses this in the same interview:

If the sound person talks to a director about the sounds that are going to be in a scene, you often end up pointing out obvious things like a door close and a car horn, but it's more important to talk about what the director is trying to say and what they're trying to withhold from the audience. In *Single White Female* there are moments when it suddenly dawns on the audience that the Jennifer Jason Leigh character is nuts. So then you can try some very subtle things with the sound. [...] At all times the sound is just supporting what the rest of the film is trying to do. We're not showing off or adding things for the sake of a neat sound – it should all be enslaved to the dramatic moment (LoBrutto 1994, p. 230).

⁴³ In addition, sound design is often carried out by an audio postproduction company that is also responsible for the final mix and that charges per hour or day. This also illustrates this more facilitatory attitude as film music will never be charged per hour or day. The composer will get a fixed fee whether it takes him two weeks or two months to do the job.

An illustrative example of this reasoning about raising meaning by sound and – in this case – the consequences and related iterations for the use of music can be found in the film *The Mosquito Coast* (Weir 1986). The original set recordings of the dialogue of Harrison Ford during the death scene were not satisfying: there were too many disturbing water sounds. Harrison Ford was asked to do an ADR-session that did not deliver the same intensity and emotion as in the original recordings:

It really never worked for Peter [Peter Weir, the director of the film – additional note by the author]. So he felt in order to make the scene stronger he had to have music, and that in order to have music in reel eleven to lead up to it he had to have music in reel 10 during the storm sequence (Pasquariello 1996, p. 123).

Then the sound designers tried – as a last-ditch attempt – to make a final version by combining words and parts of sentences from the different takes from all production dialog recordings:

He [Peter Weir] was completely blown away: the entire end of the movie changed, because we had managed to preserve so much of the original intensity of Harrison's performance. Having achieved this clean, intense, non-distracting version of the end death scene meant to Peter that now the movie finally came together, that is was working, that you could finally get into Harrison and concentrate on the subtleties of his performance. He had thought that we would have to do it in ADR and if you do it in ADR you lose ninety percent of what the original performance was about. So having achieved this then we said, "Well, we can lose the music in reel eleven now, when they're drifting down the stream, because it's so quiet and his performance is so powerful that we don't need it. And taking out the music in reel eleven we don't have to have the music in the storm because it's not adding anything." So this one change at the end had its repercussions and echoed back all the way through the film (Pasquariello 1996, p. 124-125).

A conceptual approach and the resulting interaction and iteration is also important given the many choices a sound designer has to make⁴⁴. If this approach is missing and there is little or no consultation between the director and sound designer, the sound designer will have the understandable tendency to 'cover' everything. All possible 'events' and 'spheres'. This will lead to clashes between music and sound design during the mixing phase. Conceptual choices still have to be made. The result of making choices at such a late moment in the process can be a lot of wasted or hastily done work. Setting

⁴⁴ We are talking here about considerable amounts of work, compared to the work of the composer, as every gesture in a film can bring forth a sound.

out directions in an earlier stage is a way to avoid this. Richard Anderson, supervising sound editor of a.o. ‘*Being John Malkovich*’ (Jonze 1999) and ‘*Dante’s Peak*’ (Donaldson 1997), addresses this in an interview:

Q: When you are preparing the sound track for the final mix, do you cover everything in the film even if there is going to be music?

A: Yes, pretty much. There was a scene in *The Color Purple* where Mr. (Danny Glover’s character name) is stalking the young sister, who later goes off to Africa. He’s riding a horse while she’s walking on a parallel road through the woods, and they’re looking at each other through the trees. I figured, “Nobody’s talking, this is a musical scene if there ever was one.” Well, for some reason Spielberg decided that he didn’t want to use the music. We had pre-dubbed the sequence with fewer effects in it, relying on a layer of music. All of a sudden we were “naked”, and we had to make it a lot more dense and threatening. So we went back and redid that scene. I had to add more things like a chattering squirrel, birds that sounded ominous and scary, and sounds that normally the music would have completely covered up. Also we redubbed Mr.’s horse to make the cuts more extreme, so that when you’re close to him versus close to the little girl, the change in the sound difference was much greater and more dynamic. If there was music over it, we could have had less fluctuation because the music would be the main thing and the effects would be kind of an undercurrent. So much as possible we try to cover everything because you never know (LoBrutto 1994, p. 171).

A direct and reliable way to agree upon music and sound is to set up a direct interaction between the *three* disciplines instead of the one-to-one interaction between director - sound designer or director - composer. This way one can avoid possible misunderstandings as there is direct communication between the sound designer and the composer with the director as the frame of reference for the film. Communication can address all four perspectives in a very direct and unmistakable way. In addition, one can also agree how to collaborate. Randy Thom, sound designer of o.a. ‘*Contact*’ (Zemeckis 1997) and ‘*Cast Away*’ (Zemeckis 2000) was part of this type of interaction in the film ‘*Contact*’:

On *Contact*, the first time I saw the movie was the first time Alan Sylvestre, the composer, saw the movie. He and Bob Zemeckis and I sat in a room and watched it, and then we spotted the film together.[...] One of the things that made *Contact* nice for me was that we decided then and there that certain scenes were going to be music scenes and certain scenes were going to be sound-effect scenes, and we weren’t both going to try to cover everything. That’s such a liberating thing because then you can devote your time to the

things that are actually going to be in the movie rather than creating lots of sounds, whether they're sound effects or musical sounds, which are just going to be covered up and obscured and which fight what else is going on (Sider, Freeman and Sider 2003, p. 131).

A direct interaction between the three disciplines is also in line with the shifting positions of the composer and the sound designer as they are slowly but surely moving towards each other. One of the reasons for this shift is the fact that a lot of current film scores include electronic elements that blur the distinction

The composer and the sound designer always communicate a lot in my productions (director Schrijber 2010).

between music and sound design. The main reason, however, is the shift in the relationship between sound and music in the auditive track: where the studio model would mainly focus on dialogue and music⁴⁵, nowadays practice shows a much more integrated auditive track that is sometimes built up in such a way that a clear distinction between dialogue, atmos, sound effects and music is hard to make:

The evaporating segregation of sound, noise and music has had a pronounced effect on film sound editing and scoring practices. For example, Daniel Falck (n.d.) has argued that speech in *The Thin Red Line* (Terrence Malick, 1998; music by Hans Zimmer) is often de-privileged and/or mumbled; it can be thought of, after Michel Chion (1994), as 'emanation speech...a line of contour of a speaking body...in the same way as a silhouette is a line of contour of a visual body'. Falck makes the case that music, speech and sound in *The Thin Red Line* are levelled out and used together to create a world not dependent *a priori* on the images. His observation is one among many examples of the dissolving boundaries among kinds of sounds in which I am interested (Kassabian 2003, p. 92-93).

To build such an integrated auditive track and to gain insight in the relationship between the various components of the auditive track, it has become a necessity "that we now do much more preliminary mixing, what's called temp mixing. This is so we can preview the film earlier than we ever would have thought of doing before.[...] The result is that there are generally fewer surprises in the final mix" (Ondaatje, 2002 p. 104-105).

The sound designer collects the various components and does the temp mixing. Temp mixes will inform the disciplines involved about the state of affairs of the auditive track and they can guide the remaining part of

Before anything is going to be mixed, I do viewings until we can say "OK, all the needed elements are here...with these elements we can tell the story" (sound designer Pieëte 2011).

⁴⁵ Up to 1932 there was, roughly speaking, either dialogue or music on the soundtrack (Weis and Belton 1985, p. 43).

the editing phase when it comes to sound design and music composition.

4.2.5. The editing phase – a visual representation

Following the considerations in the previous sections, I now turn to a more detailed version of figure 6⁴⁶. This figure is a visual representation of the editing phase in an interactive, iterative and convergent postproduction process.

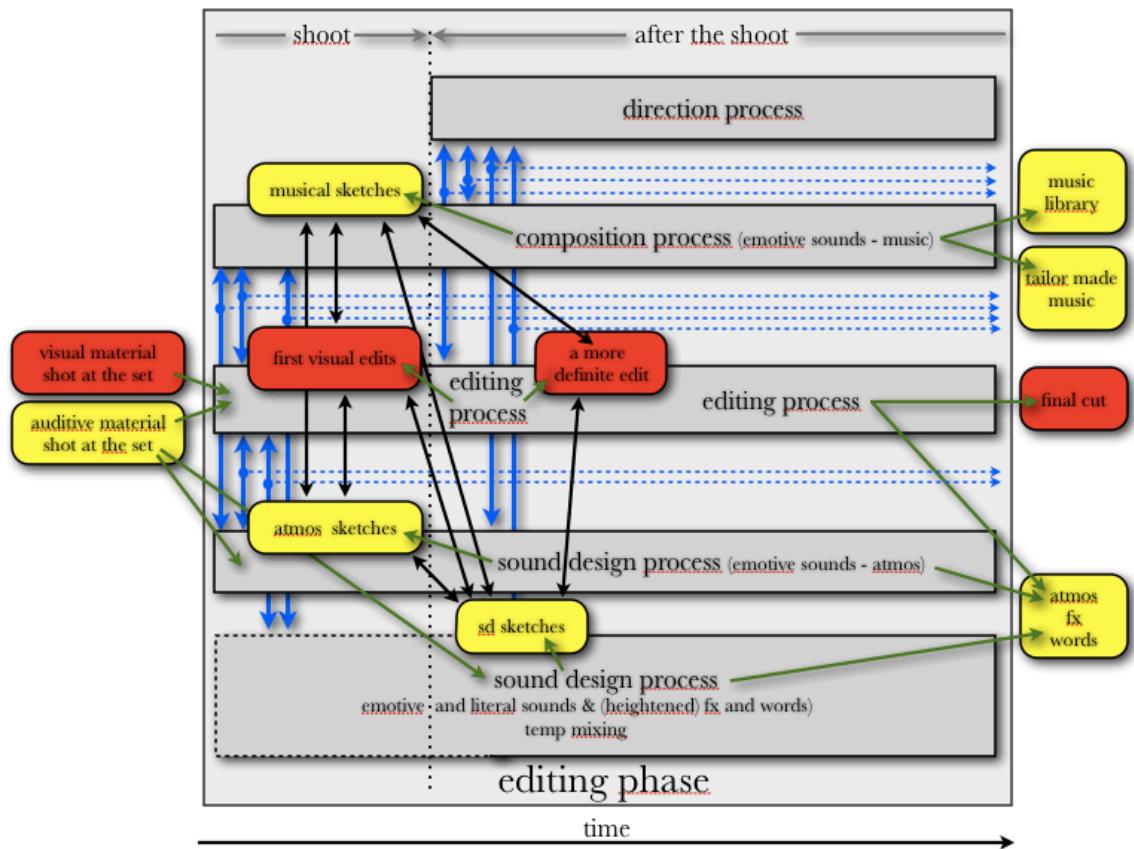


Fig. 7 – a representation of the editing phase in an interactive and convergent postproduction process.

Red portrays the *visual material*, yellow the *auditive material*, the black arrows and their direction show the *exchange* of concrete material. Green arrows are representing the *input* and *output* of a process. Blue arrows and their directions mark the *interaction* between the different disciplines and they indicate the moments the interaction starts. The transfer and/or exchange and the interaction continues in an *iterative* way till the very end of the editing phase. It is important to recognise the moment editing starts to take a more definitive shape as this is when one can start to design more synchronised sounds as

⁴⁶ See page 37.

mentioned in paragraph 4.2.3.. This is represented by the dotted lines that merge through time in solid lines of the bottom box ‘sound design process’.

4.2.6. The mixing phase – introduction

The mixing phase is the final step in the entire production of a film and therefore the last opportunity to explore, to experiment but also to solve problems. No matter how well the processes in the previous phases were organised and handled, there will always be problems passed on to this final phase and there are always new problems arising in this phase. These need to be resolved in the final phase. Walter Murch talks about this process during the mixing phase:

In the editing phase, there is relatively a poor sound quality due to, among other things, bad acoustics and other distracting elements. That's why you always hear - when the film enters the mixing phase with the first version of the auditive track made by the editor and director - the reactions of the editor and director that they 'have never heard this before'. They are so accustomed to hearing the preliminary auditive content of the film for about six to eight weeks that it takes time for them to get used to the actual content (sound designer Schöpping 2010).

The mix is still really the final stage at which any last opportunity can be seized or any last insoluble problem solved. If you're lucky, and if you have the right approach, a certain blend of music and sound can sometimes solve problems that could not be solved in any other way. That's part of the filmmaking process. Every stage leaves a residue of unsolved problems for the next stage partly because the particular dilemma you're facing cannot be solved in terms of the medium that you're working in right then. [...] But because the sound mix is the very final stage – and because it's very flexible – there's a tremendous amount of variety you can call upon during the mix, by both eliminating things you thought were absolutely essential or, at the last minute, bringing some new element in (Walter Murch in Ondaatje, 2002 p. 104).

Given the importance of this final phase, ideally all four disciplines are present. In practice however it is often impossible to achieve this. Most of the time, there is the possibility for the three supplying disciplines (editor, composer, sound designer) to participate in the mixing phase on a part-time basis. A full and structural participation of all three disciplines is difficult in general, as this type of participation is usually not included in the budget and the disciplines are often forced for obvious financial reasons, to start new productions.

There may be a fifth discipline present during the mixing phase: the *mixer*⁴⁷. The advantage of this new discipline is the introduction of "new eyes and ears". Someone who is - in principle – new and neutral to the process can give feedback on the hitherto created material and the disciplines involved⁴⁸.

In smaller productions, the sound designer might also fulfil the role of the mixer, which has its advantages and disadvantages. On one hand, a smooth transition may occur

It's very comfortable to split responsibilities so I like, as a sound designer, to collaborate with a mixer. If not, it's very hard to take some distance from your own work (composer/sound designer Lizier 2010).

between the editing and mixing phase, as the sound designer has been making temp mixes during the editing phase to try things out. On the other hand, there is the danger that a sound designer will attach too much importance to his own work.

In this study we assume this fifth discipline, the mixer, to be present. The mixer works with the specifications from the other disciplines. The presence of a mixer does not have to restrain the sound designer to do the temp mixes during the editing phase as described above.

4.2.7. The mixing phase – the auditive material

All elements of the auditive track meet for the first time during the mixing phase. In addition, there is a 5.1 sound reproduction system in the mixing room where in general a 2.0 system is used in the editing room. The mixing phase provides an enormous amount of material and possibilities that asks for the highest possible level of processing and control. To enable this, it is preferable to have all material separated as much as possible.

⁴⁷ Depending on the geographic location, different terms are used for the person that does the final mix of a film or TV narrative (rerecording mixer, dubbing mixer etc.). The actual work is however the same:

The **climactic moment** of postproduction sound is called the "mix" in New York and the "dub" in L.A. On the screen the credit goes to a rerecording mixer, but that term is rarely heard in daily parlance, says Lottman; "*If we said we were going to a rerecording mix, they'd laugh.*" **At the mix all the tracks**--singly called elements--are adjusted in volume and tonal quality relative to each other and the image (Weis 1995).

I will use the term 'mixer' in this research as this term is known best in the Dutch and European film industry.

⁴⁸ The advantage of 'new eyes and ears' is shown, for example, when the dialogue is mixed. All disciplines involved, who have been working sometimes for months on a film, know the dialogue by heart and it is difficult for them to judge the audibility of the dialogue. A mixer who is brought in at the mixing phase, will not be bothered by this 'history'.

Accordingly, the composer delivers his music in stems. The exact contents of the stems depends on the music style, genre, ensemble and the recording techniques used⁴⁹.

Paragraph 4.2.2. (p. 42) describes two end-products of the editing phase which can be distinguished in the music domain: a *music library* and *tailor-made music*. The use of stems leads to a further specification of these end-products: a music library is in itself already a collection of stems. By delivering it in stems, tailor-made music becomes a special type a music library; tailor-made music is composed for specific scenes whereas the music library relates to the film in a general way.

The delivery of music in stems has the advantage that, as said, editing and control is possible until the very last minute. One can change, for example, the balance between the different stems. If a music cue ends up at a very low level in the final mix, one can raise the volume of the low frequency part of the cue (represented by e.g. the double basses) because low frequencies with a low volume will vanish sooner than high frequencies with a comparable volume.

A disadvantage is that, acoustically speaking, every piece of music is composed

And there's the problem of the level of the music in the mix [...] Often the music is too loud and one concludes it doesn't 'work'. When I show it to them with the music on the level I originally had in mind, all of a sudden they do understand and agree (composer Hoogewijs, 2010).

and produced as a musical unit, which is then pulled apart in stems. Signal processing techniques such as compression and limiting are applied in the production of film music to create the ensemble sound as a whole and to develop the impact that is needed⁵⁰.

That feeling of unity and impact is in danger of disappearing if a different relationship between stems is used in a music cue, if stems are omitted, or if stems from another music cue are added. Composers try to prevent this and add - in addition to the stems - a stereo reference track that contains the mix and the related sound that the composer had in mind. If needed, during the mixing phase this reference track can be used by the mixer.

⁴⁹ Jeff Rona about stems:

As you are mixing your music, you don't really know how it will sound when played along with the final dialogue and effects on the dub stage. So music is mixed into several small groups, called *stems* [...].

The number of tracks to mix onto, and how to split out different parts is a decision that changes on each project. Some dubbing mixers want as many *splits* (another term for stems) as they can get. Some mixes I've done have taken up as many as 32 tracks. Some have been as little as 2, but most have been between 8 and 16. Any part that might need special handling or might be viewed as controversial is best kept separate from other stems (Rona 2000, p. 130 and 132).

⁵⁰ Film music ensembles are sometimes known for their unusual instrumentation. Howard Shore's music for *Crash* (Cronenberg 1996), for example, is performed by electric guitars, harp, woodwinds and violins. Signal processing such as compression and limiting is used to get these types of ensembles 'together' and to create the impact needed for the corresponding scene.

The sound designer delivers premixes consisting of dialogue, sound effects and atmos. Working with premixes during the mixing phase is necessary given the large amounts of material a specific sound layer or even a single sound is made of⁵¹. All premixes can be reviewed during the mixing phase.

Both elements (music stems, sound design premixes) are seen as raw materials in the mixing phase, as Randy Thom argues:

Everything is raw material, and so the music that you do for this scene is very likely to be ripped out of that scene and used in another scene where you didn't intend it to be used at all. And the same thing certainly happens all the time with sound effects (Sider, Freeman and Sider, 2003 p. 130).

In paragraph 1.3.3. it was argued that 'film is to be seen as a homogeneous product', an approach that assumes that the auditive track has to be seen as a whole. An approach that also reflects the experience of film composers and sound designers: the actual effect of the auditive track takes shape and becomes clear only during the final mixing phase. Experiences that often lead to conclusions by composers such as "if I had known earlier that these sound effects and atmospheres would be present in this scene, and that they would be mixed in this way, then I would have composed different music" (Otten, 2011). One could refer in this conclusion to technical aspects such as overlapping frequencies in the sound design and film music in this specific scene. On the other hand, one might refer to a new meaning of the scene that is created by the auditive track through new relationships between sound and music.

These new relations can emerge because sounds that were *literal sounds* in the editing phase have become *emotive sounds* in the mixing phase. This may be caused by replacing the original sound or supplementing it with newly designed sounds so a different meaning is created. Another possible reason could be the positioning of a specific sound in the mix in a different way compared to earlier temp mixes. This new position provides a new meaning for the sound and the corresponding scene⁵².

The previous example of someone who walks around a room illustrates this: the original footsteps that were present at a low level in the set sound are now replaced by other steps that provide information about the location (a creaky wooden floor), and about the

⁵¹ Single sound effects are often build up of multiple sound effects that all have a specific contribution to the end result.

⁵² The word 'position' refers to both the level of the sound in the final mix and to the position of the sound within the 5.1 sound reproduction system.

character (a shuffling old man who is no longer active in life). Furthermore, other sounds may be added to the original set noise to provide more information about the location, such as a ticking clock, or the sound of a pile driver in the distance. If the composer has composed music for the scene with a certain rhythmic content based on the original set sound, the various sound components can be in conflict with the music. This conflict may be technical and/or musical: overlapping frequency ranges, opposing rhythms. This can also occur with regard to content: music and sound are not consistent in meaning or there is maybe too much consistency that is causing an unnecessary overlap.

To prevent clashes like these and to allow 'film to be seen as a homogeneous product', sound should be put in the editing phase as early as possible - as I have stated previously - in a manner comparable to music. There is however a problem to tackle, as the creation of new or additional sound (literal and/or emotive) is labor-intensive and therefore costly in case synchronicity plays a role and the ultimate usefulness of creating new material is doubtful as long as the editing phase is still ongoing⁵³.

It becomes a vicious circle that needs to be broken as soon as possible. This can be done by starting the sound design and related temp mixes as soon as the editing takes shape. In addition, it is important to develop sound design and temp mixes in 5.1 as soon as possible. Such an additional dimension can have major consequences in creating meaning in a scene. Such an approach in the editing phase pays off in the mixing phase, as Carter Burwell indicates for the film '*Barton Fink*:

I work as soon as possible in surround, as space is an important dimension in film (sound designer Schöpping 2010).

And when we got to the film mix, perhaps for the first time in my experience and perhaps the last, we all knew what everyone else was bringing to the film mix; there were no big surprises, and it was one of the most pleasant mixes I ever did. Everything's very clean, clear, it was a beautiful sound environment that was created, and it was because of planning. And there's no reason why composers and sound effects people can't do this all the time, it's just tradition and the fact that there appear to be different departments to a lot of producers (Sider, Freeman and Sider, 2003 p. 200).

Nevertheless, problems might still occur during the mixing phase despite these approaches. Temp mixes are created in the sound designer's studio, the final mix is created at a location similar to a cinema and the related picture and sound reproduction. The differences between those locations alone can already lead to other interpretations and insights. It is therefore important that the relevant disciplines (sound

⁵³ Paragraph 4.2.3. The only regular exceptions are the atmos as synchronicity plays no role there.

designer, composer *and* the editor) are present at this stage as solutions for possible problems can be found in the auditive track but also in the visual track. This last option, however, is not often used due to the related time problems as the editor Wouter Jansen describes:

When all these components (visuals, sound, music) come together, you notice that almost everything needs some editing in one way or another. It is something you wish you could also do with the editing of the visuals but in most cases there is no time for that. In addition re-editing the visuals can have major consequences for the audio components and that would need even more time (Jansen 2010).

4.2.8. The mixing phase – the interaction between the disciplines involved

Compared to the editing phase, the interaction between the disciplines in the mixing phase is relatively simple and can be surveyed. If all the preceding work and related interaction is done in a proper way, all material needed for the auditive track will be present. This material will show the way to the final mix, as described by Tom Fleischman, mixer of films such as '*The Silence of the Lambs*' (Demme 1991) and '*Philadelphia*' (Demme 1993):

Q: Many film editors say that the film tells you how it wants to be cut. Do you think that applies to mixing? Do the sounds lead you to the ultimate combination of sounds?

A: Oh, absolutely. For *Goodfellas* (Scorcese 1990) all you needed to do was hear the elements, and you knew what needed to be played at any given moment, you knew what was important and how it had to be put together. Getting it to happen is where the hard work came in, but it wasn't hard to figure out what was intended. It's self-evident (LoBrutto, 1994 p. 183).

A first step in the mixing phase is the mixer who creates a first version of the mix comparable to the way the editor creates a first version of the editing. Richard Portman, mixer, describes his view on this part of the mixing process and the interaction with the director:

What is best for me is that *we* make a mix. We lay down a mix the way I think it ought to be one time, and then the director looks at that. This is the way I thought it was, these were my natural tastes and inclinations. Now from that point on, anything in his taste that's different from mine, he has to tell me what that is.

What you're describing sounds similar to a film editor's first cut.

Yes. So I have my first cut. Now the director comes along and he thinks I played the music a little too low. Well fine, I'll raise it, but he's going to tell me when I've raised it enough. So I'll try it again a little higher. Then I'm working and I'll say, "Is that okay?" He'll say, "Ah, that's perfect," or "No, that's not, a little higher," because now I'm not working for me, I'm trying to hear what they hear. One of the things a rerecording mixer has to learn is how to hear what the director hears (LoBrutto 1994, p. 49-50).

Depending on the actual content of a film and the personal work flow of a mixer, there are several ways to set up a first version of the mix. In most cases however dialogue will be at the centre of the mix, as the majority of narrative film comes about through dialogue, as mixer Tom Fleischman argues:

Everything is balanced against the dialogue. The dialogue is the key because that's where the information is – that's the story, so people have to hear that.[...] If I have a dialogue that's "perfect", then I usually try to do the ambience part of the sound effects track along with the dialogue and balance any kind of room tone or bird or air or traffic beds against the dialogue. Then once I've got that, I can add the Foley, any specific sound effects, like cars or buses, and balance that against the dialogue.[...] The music is the last thing that goes in (LoBrutto, 1994 p. 179).

Concerning the decision-making process in the mixing phase, Cecilia Hall, sound designer for films like '*The Hunt for Red October*' (McTiernan 1990) and '*Patriot Games*' (Noyce 1992), is quite clear:

The person who has the final say in that decision is obviously the director or whoever the director has designated if they can't be there. One of the things I've learned over the years that's been a very valuable lesson to me – and luckily I learned it fairly early – is that you get to work on *their* movie. To me, it's a gift. You get to be part of that process. You get to have your input. You get to express yourself creatively, but at some point you have to back off and realize that it's their movie. Sometimes that can be tough because you have such a big investment in the film, but it is *their* movie. So part of the movie gets to be yours, part of it gets to be the mixer's, part of it gets to be the picture editor's, but *all* of it gets to be the director's. So ultimately they have the final say. I think it's my responsibility to express my beliefs, my feelings, and my opinions, sometimes more strongly than at other times, but ultimately the director has the final say (LoBrutto, 1994 p. 196-197).

Cecilia Hall is clarifying the roles and responsibilities of the disciplines present at the mixing phase. These are to express 'beliefs, feelings and opinions' about the film in development. By doing so, the director gets various sorts of input to base his decisions

upon. As described in the previous paragraph, the finality of this phase is the reason all disciplines should be present if possible, in order to provide maximum input in terms of the 'beliefs, feelings and opinions' that underlie these decisions.

Based on the first version of the mix, the disciplines present in the mixing phase can go through the mixing process in the manner described above. Most of the time problems ask for 'solutions' in the auditive track but it might also lead to 'solutions' in the visual track.

If the mixing phase is well-planned, there will be time for viewings of the entire film with the final mix to obtain a good impression of the film as a whole. This is an important element in the mixing phase, as it is the first time in the film production

process that one 'zooms out' and one can get an idea of the film as an entity. Given the intensity of the process in the mixing phase, one can not easily distance oneself from the film. Organising an additional

During the mixing phase of one of my last films, we had at a certain moment a mix that was considered to be good by all people involved. Nevertheless we took this mix to another location where we could watch and hear it at its best at a moment everybody had some distance from the film. We all agreed "it's OK but we can do better" (director Koolhoven 2011).

short mixing phase after a couple of weeks would be ideal for this reason. Including a period of distance in the mixing phase where one can detach and reflect upon the film, can increase objectivity and allows for refinement of the auditive track⁵⁴.

⁵⁴ In my own practice I have only met one director who designs the mixing phase this way. He comes to a final mix in the mixing phase. After some weeks he goes back again (same location and conditions) and does a remix where adjustments are made as a result of new understandings.

5

Case studies

To address my exploration of specific topics related to the interactive and convergent type of the postproduction process through case studies, it is necessary to define *units of analysis* which are related to the research⁵⁵.

This will be done by categorising variables I have addressed in the preceding chapter into units. I formulate the variables as questions to be answered in the case studies.

Structure of the postproduction process

- what was the *available time* for postproduction?
- which *locations* were used during postproduction?
- which *phases* occurred during postproduction?
- which *disciplines* were involved during postproduction?

Interaction and collaboration between the disciplines

- how was the *interaction* between disciplines during the editing phase and the mixing phase? This will be examined from various perspectives:
 - conceptual
 - dramaturgic
 - in music or sound terms
 - acoustical

Interaction between work-in-progress

- how did *music* (emotive sounds) interact with other work-in-progress during the

⁵⁵ “As a general guide, your tentative definition of the unit of analysis (and therefore of the case) is related to the way you have defined your initial research questions” (Yin 2003, p. 23).

editing phase?

- during the editing phase, how did *sound design* (literal and emotive sounds) interact with other work-in-progress?
- during the mixing phase, how did the *auditive material* interact with the visual track?

I will discuss two case studies, ‘*Joy Meal*’ (Geijskes 2001) and ‘*Novemberlicht*’ (Oosthoek 2003). Some remarks have to be made with regard to the case studies and the used methodology as both films are dated about ten years ago. I have chosen these films as both show different aspects of what I have discussed so far in the preceding chapters. Being the composer of both films, I have discussed and checked my notes and experiences with the other disciplines involved to prevent a limited view and to make sure my observations were shared by my colleagues. This was possible as I have a long term relationship with the postproduction crews of both films⁵⁶. I have described both postproduction processes in detail as much as possible based on my written notes about the process, my experiences, my notes in my agenda with regard to planning and the related discussions with my colleagues.

5.1. Joy Meal

‘*Joy Meal*’⁵⁷ is a short film produced in 2001 by *Memphis Film & Television* and directed by *Mathijs Geijskes*, a young director with whom I had previously worked as a composer on another short. The film was part of the first series of *NPS KORT!*, a series of short films that are funded and supervised by the public broadcasting company *NPS* in the Netherlands. The aim of the series is to create a platform for the short film. The films are broadcast on the public Dutch TV-channels and they are shown in the Dutch cinemas as shorts. The film was produced by a small Dutch production company called *Memphis Film & Television*.

I was approached by the director with the script that he had written himself. Based on this script, I decided to join the production. The budget for these type of shorts are average. They do not allow for extensive acoustic ensembles to be used for the film music so I hired one guitar player that I combined with sample libraries and synthesised

⁵⁶ I discussed my notes and experiences with Mathijs Geijskes (director *Joy Meal*), Herman Pieëte (sound designer/mixer *Joy Meal*), Eric Oosthoek (director *Novemberlicht*), Peter Rump (editor *Novemberlicht*) and Jan Willem van den Brink (sound designer/mixer *Novemberlicht*). I have been working with these members of both crews on a number of films.

⁵⁷ www.imdb.com/title/tt0293846/fullcredits#cast

sounds. The film was mixed in 5.1 as it was also going to be shown in cinemas and released on DVD.

Information about the process is built up using my own observations and notes during the course of the film production. In addition, this short was the subject of some master classes I conducted during the *Nederlands Film Festival* and the *AV Manifestatie 2003*, which forced me to keep track and prepare a lot of material of the film.

Joy Meal

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Category
Short Feature

Credits

Production year	2001
Length	7 minutes
Production country	Netherlands
Director	Mathijs Geijskes
Producer	Cécile van Eijk
Scenario	Mathijs Geijskes
Photography	Philip Hering
On-location sound	David Carmiggelt
Sound mixer	Herman Pieëte
Editor	Job ter Burg
Music	Rens Machielse
Production Company	Memphis Film & Television
TV company	NPS TV

Cast
[Freerk Bos](#), [Tina de Bruin](#), [Caroline van Houten](#)

5.1.1. Structure of the postproduction process

Questions to answer with regard to the structure of the postproduction process of ‘*Joy Meal*’ are:

- what was the *available time* for postproduction?
- which *locations* were used during postproduction?
- which *phases* occurred during postproduction?
- which *disciplines* were involved during postproduction?

The budget was limited, as was the *time* for production. Production was limited mainly due to the fact that the production time for a short film is reduced in proportion with a movie of regular length of ninety minutes.

Postproduction started after the shoot as the shoot only took three days. The post had to be finished in about two and a half weeks. Such an amount of time does not leave much time for discussion, interaction and collaboration. As this was known beforehand, each discipline agreed in advance how to communicate with the others.

Knowing the period of shooting and the scheduled mixing phase, which was two days, everybody could plan his own working process.

All disciplines worked at different *locations* and even changed locations during the process. The editor had his own editing suite, the sound designer also had his own workplace and took his final material for the mixing phase to a 5.1 mixing studio where the final mix would take place. I had my own workplace to compose the music sketches and moved at the end of the editing phase to a recording studio to produce the final version of the music. My final music was delivered in stems with a stereo reference track. Detectable *phases* during postproduction were the editing phase and the mixing phase. The editing phase started right after the first day of the shoot. The mixing phase took only one day due to the careful preparation of the sound designer. There was no such thing as an ‘in between’ as I received the final cut the day before I went into the recording studio to produce the final music.

Being a small-sized production, all the *disciplines* were represented in postproduction by one person: the director, the editor, the sound designer and the composer. In addition there was a mixer during the mixing phase. The sound designer hired a Foley artist to generate the physical sounds of eating. I was, during the recording of my music, working together with the sound technician of the recording studio who mixed my music into stems. The producer showed up several times during both phases to give her feedback.

5.1.2. Interaction and collaboration between disciplines

The question to answer here refers to the *interaction* between disciplines during the editing and mixing phase looking at it from the various perspectives: conceptual, dramaturgic, music or sound-wise and acoustical.

I had a first meeting with the director preceding the shoot where we discussed the script that was sent to me in advance. This meeting was initiated by both, as we both felt the need to discuss matters before the shoot. The main reason for this was the tight schedule after the shoot, which would not allow much time for interaction.

The discussion took place on the first three levels⁵⁸, as the script was quite clear in describing the settings, the actions and the dialogue (or the absence of it). On the conceptual level we addressed the added value of music in the film. The film obviously intends to be comic as the main topic of the film is seduction by eating a hamburger in

⁵⁸ See page 46.

the most sensual way. All disciplines involved agreed upon the auditive track to deliver the sensual and erotic atmosphere without addressing the comic intention of the film through, for example, mickey mousing. This shared view led to interaction at a musical level as we started generating initial ideas about the possible tones and timbres of the film music. The third level, that is the dramaturgic one, was also addressed in this meeting, as the script clearly showed at which moment this sensual atmosphere had to be built. Detailed decisions were not yet made from the musical and dramaturgic perspective, but we developed a first joint concept for the music in the film that involved the beginnings and endings of the music cues, and the dramaturgic development in the cues.

A first version of the editing was finished three days after the shoot. At the request of the sound designer and myself (composer), we had a meeting with the director. We requested such a meeting to develop a joint view of the auditive track and to agree on the remaining collaboration.

In this meeting we discussed the first edit. Some important decisions were made from a dramaturgic perspective. It was decided that during the seduction scenes, the ambience sound of the location - a hamburger restaurant - would be at a very low level to provide space for the music and the sound design. This approach would also reinforce the fact that the man and woman address each other in such an intense way that the whole world around them disappears. The sound design in these scenes would focus on the eating and drinking sounds like slurping and smacking, to express the physicality of the scene. The music would express the sexual tension between the man and woman. We also discussed the positioning of the music against the visuals - where to start and stop – but this was not decided upon in a final way as there was still only a first edit to relate to. In addition, the sound designer and I agreed at this meeting upon exchanging audio material as quickly as possible, to inform each other about what we were doing from both an acoustic and dramaturgic perspective. I also kept the director updated on my work-in-progress, by sending him MP3 files of my music sketches. These were followed by discussion of my sketches through telephone and/or e-mail.

After this meeting, both the sound designer and I started working at our individual locations, while the editor continued working, together with the director, towards a final cut of the visuals. During this period, I did send work-in-progress twice: music sketches, to both the director and the sound designer. I discussed my material with the director through telephone and e-mail. Through this interaction – from the dramaturgic and

musical perspective - I developed final versions of my compositions, which were then ready to be finalised in one day of recording and producing in the studio.

There was no interaction between me and the editor. I was kept informed about the progress of the editing by the director as he was busy working, together with the editor, on the final cut. Both the sound designer and I received the final cut one day before I went to the recording studio. Following our concept to reduce the ambient sound during the seduction scenes, the edited set sound was already at a low level during these scenes in the final cut.

With the sound designer I discussed why his work-in-progress was not shared with me. He explained that the material he had been working on - the physical sounds of the eating and drinking - was created by a Foley artist as a library of slurping and smacking sounds. These sounds were to be edited into the final sound design, as soon as the final cut was ready, but it was not of much use sending this raw material over to me without any connection to the visual track.

The next moment of interaction was during the recording and production of the music. I had asked the director to be present during this day to make final and joint decisions about the music. We also made decisions from a dramaturgic perspective: we decided where music cues would start and stop. When loading the music into the DAW⁵⁹ of the mixing room, the music would be automatically put in place as I had intended.

During the day we were called by the editor who informed us that he had been using my music sketches to 'try things out' with his final cut. He had placed my music for the main cue in a different place in relation to the visual track. After we had tried this proposal ourselves, we agreed and shifted the main music cue to the new position (original position is clip 1, new position is clip 2). This called for some changes in the music that were not problematic, as they were limited to extending the intro. After these adjustments, all music was mixed in stems that included a solo trombone (clip 3), electric piano, strings, brass chords plus solo guitar (clip 4) and percussion (clip 5), all separated in 'dry' and 'wet' audio (that is reverb etc.), plus a reference stereo track.

The sound designer delivered his premixes to the mixer. Given the absence of dialogue, they included mainly ambient sounds, and the aforementioned eating and drinking sounds.

The last moment of interaction was during the mixing phase which I attended for about

⁵⁹ DAW stands for Digital Audio Workstation that is nowadays almost fully software based such as ProTools.

four hours. All disciplines involved were present and we discussed the collision between the eating and drinking sounds, and my solo trombone in the main scene of the film. Everybody agreed on the need for the physicality represented by the sound design, so we decided to mute the trombone to give room to the sound design, as the remaining music was supportive enough for the scene (clip 6). From a musical point of view, I was not satisfied with this decision, as the cue was composed around the solo trombone. In addition, the music for the final credits also included the solo trombone that appeared now out of the blue, as the instrument was not introduced in the film itself. Reflecting upon this interaction, the discussion can be seen from the acoustical perspective. The decision was however based on the conceptual perspective, as we all agreed from the very beginning that the intimacy and physicality of the scene were the most important elements to express with music and sound.

5.1.3. Interaction between the work-in-progress

As described in the preceding paragraph, there was not much interaction between the different disciplines during postproduction. My music sketches were tested with the final cut but this was one-way traffic. This did deliver new and better insights with regard to the positioning of the main music cue in the film.

The sketches I delivered to the sound designer made clear to him that there were no serious problems to expect in the relationship between music and sound. The interaction between all material came only into being during the mixing phase. This late interaction however did not lead to serious problems because there was a clear and shared concept for the narrative and for the role of sound and music.

5.1.4. Conclusion

‘Joy Meal’ shows that the simplest form of interaction and iteration can, even under time pressure, provide an improvement for the film in question, as everyone fully agreed on the new position of the main music cue.

It also shows that not having enough time for developing interaction and iteration, decisions are probably made at the final phase: if I had been given the final cut with the eating and drinking sounds beforehand, I probably would have composed the film music in a different way instead of simply muting the solo trombone during the mixing phase.

5.2. Novemberlicht

'Novemberlicht'⁶⁰ (Oosthoek) is a so called *Telefilm* that was produced in 2003. Telefilms are full length feature films for television that are initiated and funded by public broadcasting companies, aiming to reinforce the collaboration between television and film sectors. Since 1998, fifty-seven telefilms have been produced. All films relate to a social issue.

The director, Eric Oosthoek, asked me to compose music for this film at a very early stage, that is almost a year before the start of the shoot. He is an experienced director with whom I have worked on a regular basis since 1987. The production company was *Waterland Film*, a small Dutch film and tv production company that I also knew from earlier collaborations.

The music budgets for these type of films are comparable to low budget feature films. They do not allow for large acoustic ensembles but I could hire some musicians that I combined with sample libraries and synthesised sounds. The film was mixed in 5.1 as the film might be distributed in cinemas. The actual mixing, however, was focussed on television broadcasting which brings along specific demands.

Again, information about the process is acquired from my own observations and notes during the course of the film production. I had worked before with all people representing the relevant disciplines in postproduction which gave me thorough insights into their practices.

⁶⁰ www.imdb.com/title/tt0353817/fullcredits#cast

**NFF**
FILM ARCHIVE**Category**

Long Television Drama

Credits

Production year	2003
Length	82 minutes
Production country	Netherlands
Director	Eric Oosthoek
Producer	Wilant Boekelman
Producer	Jan van der Zanden
Scenario	Helena van der Meulen
Photography	Goert Giltay
Production Design	Michel de Graaf
On-location sound	Ludo Keeris
Sound mixer	Jan Willem van den Brink
Editor	Peter Rump
Music	Rens Machielse
Production Company	Waterland Film
TV company	IKON TV

Cast[Annemarie Prins](#), [Eva van Barneveld](#), [Niek Pancras](#), [Patrick Ferwerda](#)

Telefilm is set against the backdrop of a vast typically Dutch river landscape. Due to excessive rainfall, the Land van Maas en Waal is threatened with flooding. Whereas all villagers have been evacuated, stoic old Jacoba refuses to vacate her little house on the dyke. Filled with a longing for death, she sits and waits for the dykes to give way. She kills time by listening to the radio alerts, by reading the Bible and by praying to God to hurry up. Until she is disturbed by the arrival of her 12-year-old granddaughter Fleur, who foils her plan. Gradually, the film unravels the reason for the old woman's peculiar behaviour, at the bottom of which lie indigestible past events. Despite attempts to get rid of Fleur, the unyielding girl is determined not to abandon her grandma. The confrontation with her grandchild forces the elderly lady to reconsider her intention.

5.2.1. Structure of the postproduction process

The available time for the postproduction of '*Novemberlicht*' was actually quite generous. The shoot took about six weeks during which I started composing sketches and the editor started assembling a first version of the film. After the shoot, the director left for one week to distance himself from the film. After this week, we had about two months to finish the production.

All disciplines worked at different *locations*. The editor worked in one of the editing suites that belonged at that time to one of the biggest postproduction companies in the Netherlands. The sound designer had his own studio where we would also do the final mix. I had my own workplace to compose the music sketches and moved at the end of the editing phase to a recording studio to produce the final version of the music. My final music was delivered in stems with a stereo reference track.

Detectable *phases* during postproduction were the editing phase and the mixing phase. The editing phase started right after the first day of the shoot. The actual mixing phase took about five days as sound design and mixing were done by the same person. As a sound designer, he could prepare many premixes that enabled a relatively short period of final mixing. There was definitely an 'in between' as there were a couple of weeks between the final cut and the mixing phase for finalising the music and the sound design.

The crew was relatively small for a film of this feature length. As such, all disciplines were represented in postproduction by one person. During the recording of my music, I was working together with the sound technician of the recording studio. He mixed my music into stems. The producer showed up at the end of the editing phase to give feedback.

5.2.2. Interaction and collaboration between disciplines and the work-in-progress

I had a first meeting about the music with the director in early preproduction. Reading the script as a preparation for this meeting, there were obviously some specific topics to address.

Questions from a conceptual perspective were discussed in this first meeting: ‘How can music help to tell the story? Should music address the religious background of the main character? How should music relate to the character of the location being vast plains of water?’.

We also agreed upon applying a different workflow than in previous collaborations. As we had been collaborating since 1987, using the well-known sequential structure, we both felt the need and the possibility to use a more interactive approach.

Using this new approach, an important event was to attend the PPM⁶¹. In this day long meeting, all important aspects of the shoot, such as production design, cinematography, costume design, make up, etc., were discussed with all members of the crew. There was no interaction between me and the other disciplines, but all the information passed was nevertheless of great value to me because it gave me many insights into the visual concept for the film. Insights that I could use as I was going to start composing music using the script as the only source.

In a separate meeting with the editor, I discussed technicalities about exchanging our material during postproduction⁶². We agreed to exchange material as soon as possible and to give feedback to each other and share possible ideas by phone or e-mail.

We both started working on the music and the editing in the first week of the shoot. I composed relatively simple music sketches based on personal impressions that were fed by the script, the PPM, and the discussions with the director. The sketches were based

⁶¹ PPM stands for Pre Production Meeting, a start up meeting for the crew involved in the actual shooting of an audiovisual production.

⁶² We agreed upon using the file formats Quicktime and MP3.

on one musical idea that I developed in terms of arrangement towards the level of a demo, so it could be used by the editor in developing a first edit of the film. Working this way, I composed around ten sketches in the first week, which I uploaded at the end of every day. I personally enjoyed composing music this way as it was not based on a fixed frame of reference, the final cut, but on my personal associations, thoughts and ideas. At the same time, every day, the editor would assemble the material that had been shot on set the day before, into scenes, as described in the script, and the related story board. At the end of the day, he would transfer the scenes into Quicktime-movies, and upload the movies to our joint server. As soon as I had uploaded my first pieces of music, the editor started using them in his editing. Sometimes he adjusted previously made edits to my music, make new edits based on my music, or cut pieces out of my music, or repeat a piece a couple of times to get enough length. In trying out all music sketches against the scenes, it also became clear which music would fit the story-telling and which music would not⁶³.

In turn, I started to adjust the music to fit the scene better or I tried one of my other music sketches. I also sometimes asked to adjust the editing to create a better fit with a specific musical structure, which I wanted to maintain. Matters like these were discussed by phone and e-mail on a regular basis. Using this process, in around six weeks we developed a first version of the film which included my demo music. The whole process was a mixture of the three perspectives (conceptual, dramaturgic and musical) which interacted in an iterative way. They continuously influenced each other.

When the director joined the editing phase after the shoot, he found our first version in accordance with his own vision of the film, and started working with the editor on a second version. This process was different from the first period as I was now mainly adapting and working out my music following the editing process. The interaction with the editor stopped and we only exchanged material during those times when we had to tackle a difficult scene or sequence.

I had three meetings during the remaining editing phase and the ‘in between’ with the director where we discussed new edits and the related changes in the music. I also presented the latest versions of the music cues I had been working on during the preceding period. In each meeting we would decide together which cues were final and which ones needed more work.

⁶³ Four pieces of music ‘survived’ and functioned as a main source for all music in the film.

All discussions were based on the music, and its positioning in the film, which I had created for the first edit. Due to the new edits and a slight change in the story-telling, there were now some scenes that needed other music so I had to compose a new piece of music.

As the concept for the film as a whole was developed in the first version, I worked and interacted mainly on a dramaturgic and musical level during this period.

Working towards a final cut, the editor also assembled the dialogue as much as possible and collected other sounds to design a first version of the auditive track. The sound designer was not involved in an active way in this process, as the film was not yet in need of specific sounds created by a sound designer. There was however interaction from the conceptual and sound perspective between the director, the editor and the sound designer. In this interaction, the atmosphere of the film with regard to sound, was discussed.

I had one specific meeting with the sound designer during this period, as there was one sequence that really needed sound and music to be geared to each other from the dramaturgic and acoustical perspective. To do so, we exchanged material, while working on this sequence in a similar way as I had done with the editor. In this way, we both could adapt our material to each other in an iterative way until we both were satisfied with the final result (clip 7).

During this meeting we also discussed the auditive track in general. Mixing was to be done in 5.1, but the approach would be ‘television driven’, that is, a focus on dialogue. The story itself also did not give much cause for very specific sound design apart from ‘water atmos’ that was clearly needed as the major part of the film took place on or near the water.

Knowing this, I could take the sound from the final cut as being rather representative for the final auditive track, as there were not going to be many replacements or additions with new sounds, apart from those water atmos. To inform the sound designer about the music, I would send him final versions of my demo music which had been approved by both the director and myself. The demos also included the related time codes needed for the intended sync. The sound designer would send me, in turn, the water atmos he had created for specific scenes. Besides these exchanges of material, there was no active interaction between us during this period, apart from the aforementioned sequence.

When the final cut was ready, the sound designer prepared the final sound during this ‘in between’. There was quite some work to do on the dialogue and the water atmos. He also made premixes as a preparation for the final mix.

At the end of the ‘in between’, I had a music recording session in the studio for four days. The director participated in the mix of the music. This allowed him to give some last remarks so I could adjust the music and/or the mix. I delivered the music in stems. As the music in itself was quite ‘empty’, the stems would usually contain a solo instrument and accompaniment or a woodwind choir with percussion. All stems were delivered ‘dry’ with the ‘wet’ signal as a separate stem. A stereo reference track was also included.

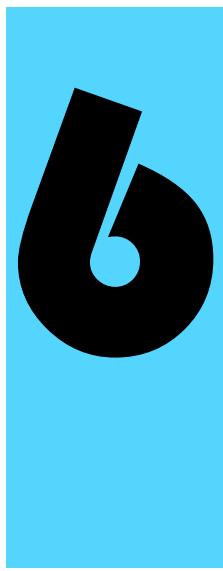
I attended one day of a mixing phase that lasted a total of five days. The editor and the director were present throughout. During the mixing phase there was almost no experimenting with the composition and/or positioning of the music or sound. The mixing was mainly about the right levels. The final auditive track came out, apart from some minor details, as it was prepared by the sound designer and myself.

The main reasons for this absence of experimentation were due to the time available and the planning this entails, and the fact that the film itself that was characterised by silence, emptiness and little action.

5.2.3. Conclusion

‘Novemberlicht’ showed that interaction between editor and composer and an iterative joint design process, can be very productive and inspiring. New ideas, perspectives and approaches can be tried out on the spot. Outcomes can be discussed in order to take new steps in the design process.

It also showed the possibility for the composer to approach a film from a much wider perspective as there was no final cut as the frame of reference. A perspective that allows for other musical ideas and approaches when compared to composing directly for the final visual track.



Conclusions and recommendations

Postproduction is a period where all kinds of visual and auditive data come together to be assembled into one narrative. The way this can be done varies on a scale from linear and sequential to interactive, iterative and convergent. Using the observations and practices taken from my own experiences and current practice, I have examined whether the current practice is already using the more interactive and iterative approach, and looked at what the important aspects and characteristics of such an approach are. This leads us to the question, “*what are important and determining characteristics of an interactive, iterative and convergent design and production process in narrative postproduction?*”. In this chapter I will address these characteristics by reflecting on the way they become visible in current practices. I will also make some recommendations for possible improvements in postproduction and for further research with the question in mind.

First, conclusions are to be drawn about the division of *roles* in postproduction.

Compared to the Hollywood studio model, the editor has taken a much more central position in postproduction as, besides the design of the final visual track, he also

I've witnessed a director who started shooting in a different way because of the first edits he got from the editor during the shoot. The editor also interfered with all matters after the shoot: the music, the grading, etc (director Koolhoven 2011).

designs a first version of the auditive track. By doing so, the editor takes on the central role in the communication and interaction between music, sound and visuals. This is particularly the case during the first period of postproduction when the director is still absent and the editor is leading. To be able to design an appropriate first version of the auditive track, the editor has to have a certain understanding of music, music structures and their internal logic. The cues that may

*The editor is the spider in the web
(composer Otten 2011).*

have been assembled by the editor out of music bits and pieces, need to have a certain amount of musical consistency so one can understand and experience their functioning as film music. This extension of the role of the editor requires talent, training and experience.

When music cues are assembled this way, it is strongly advisable to have further iterations of these cues by the composer. A music cue assembled by the editor can generate a new idea and express this idea in a clear way.

These type of cues may lack however, due to the way

they are assembled, musical consistency. It is up to the composer, as this is his/her forte, to re-compose or re-arrange this music cue into a new cue that still contains the idea of the editor but also makes sense from a musical point of view. In doing so, the original idea of the editor will be strengthened.

It is difficult for the sound designer, who initially was not present at all in the studio model, to get away from the technological and facilitating role often assigned to him by his fellow workers; they are operating in both the areas of literal sound and of emotive sound. It is the task of a sound designer to clarify the division, and in particular the interaction, between the two areas, as literal sounds can easily become emotive sounds. A thorough collaboration with the composer can be helpful in this process. Integrating sound and music into one auditive track through collaboration on not only the conceptual and dramaturgic level but also on the level of the actual auditive material can clarify the possible roles of sound and the interaction between literal sound and emotive sound as described above. Illuminating examples are to be found in films like '*The Matrix*' (Wachowski 1999) or '*Atonement*' (Wright 2007) where the sound of a typewriter is integrated in the film music: every time a typewriter is heard, a meaning is generated that refers to the story, and to the passage of time.

The composer was, and still is, subject to major changes. As current practice shows, the composer delivers either tailor-made music or a music library. In both cases the composer will be asked to deliver the music in stems and/or other forms of blocks. This allows for experimentation and editing in the editing and in the mixing phase. As such, the film composer is similar to a composer of game music who composes music for interactive and non-linear systems that are used in games. Composing for these kind of systems delivers a set of music stems and/or cells that can be mixed and/or combined real-time. Where the game composer has to deliver music that is, for example, capable

It is true that an editor can come up with very interesting and surprising ideas and approaches when they start messing around with your music. They should however be trained to do this in a proper and musical way (composer Han Otten 2011).

of adapting to the behaviour of the game player, the film composer is asked to deliver music that can be adapted to allow one to experiment in the relationship between the visual and the auditive track.

The shift of the film composer towards the game composer also raises interesting questions with regard to Western music in general:

With an increasing amount of time spent engaging with and hearing nonlinear games music, how will this impact our relationship to music, and to its communicative functions? Kramer (1981, p. 549), for instance, notes that “Phrases have, until recently, pervaded *all* Western music, even multiple and moment forms: phrases are the final remnant of linearity.” But as shown, the music of games is not necessarily written in a phrase structure, it is more malleable, more indefinite. Kramer refers to nonlinear music in his discussion of “vertical time”, noting, “I can say for certain that having written a number of nonlinear scores, I’ll never think about music the same way again. In a way, it’s freed my thinking about how music is put together. Even when listening to linear music, I sometimes think ‘Hmmm...this piece could just as easily start with this section instead of that one’ or ‘I bet they could’ve started that transition two measures earlier!’, etc. Music is malleable and only frozen when we record it” (Collins 2008, p. 164).

It is this shift towards cell and/or stem-orientated music, the related questions mentioned above and the ‘evaporating segregation of sound, noise and music’⁶⁴, that need further research. They address a fundamental change in: the role of music in film, the creation of film music and, therefore, the collaboration between the composer and other disciplines, specifically sound design, in postproduction. A thorough study on possible forms of collaboration between the composer and sound designer from this perspective is needed. For instance a study that could include alternative ways of creating material for the auditive track, management of all audio data, and a joint but distributed design and production process.

The game industry can be in this respect an interesting sector to examine possible forms, roles, functioning of music, related workflows and consequences for the position of the composer because of the experience with cell-based music. Regardless of the outcomes of this research, it is clear that the film composer no longer has the role that some composers still attribute to themselves: a composer who operates in a relatively autonomous way and delivers the final score. The position of the film composer has to be reconsidered as, (at least the basic structure of) a film score is designed nowadays by the editor, using the input (music cells and stems) from the composer.

⁶⁴ See page 52

An iterative and convergent postproduction process involving the composer and sound designer from the very first moment, will also define new requirements for both disciplines. Once the final cut was the starting point for the composer and sound designer, which could be used as a fixed frame of reference for their music and sound. Both disciplines have to be able nowadays to read and understand a script, to understand the essence of film narration and to discuss the realisation of a narrative film through assembling, editing and combining the visual and the auditive track. Qualities that go far beyond the ability to compose music or to design sound in a proper way and that ask for the right amount of talent, training and experience.

A second conclusion can be drawn about the *postproduction process as a whole*.

As there are many elements, particularly in the auditive track, that have to be brought together, it is of importance that there is an underlying

view and related concept that guides and gives direction. On the other hand, interaction and iteration mean that the disciplines communicate about and discuss ideas, views and concrete material that might lead to new ideas, views and concrete material. Findings on a practical level might lead to a new view from a conceptual perspective and the other way around. There is, on one hand, the need to work along a defined concept. On the other hand, there is a clear need for exchange and research through experimentation in an iterative (that is cyclic) process.

The development of an underlying *concept* and *vision* is the easiest part, as this has generally speaking been part of the scriptwriting, preproduction and production phase. It is the responsibility of the director and/or producer to develop this concept and to share it with crew and cast. The case studies have illustrated that this is common practice. Sharing the concept and vision is usually done at the very beginning of postproduction (when looking at postproduction only)⁶⁵. However, it is remarkable that this is mostly done in one-on-one sessions and not in joint meetings. A PPM⁶⁶ as mentioned in the case study '*Novemberlicht*' is a good example of such a joint meeting.

In the recent years I also supervised sound. I use an excel-file to gather all auditive information and to decide which approach (music, sound) is the most appropriate for each scene. It doesn't work if we (composer, sound designer) approach a scene on our own as we both will try to make a holistic whole out of it. I realise this is a unique approach. If this does occur, it is done by the sound designer. It is becoming more and more important for me. For the next production, I will spend about a week on this, as I will be working with all disciplines: foley, dub, music, atmos, sound effects, etc. (composer Otten 2011).

⁶⁵ As expressed on page 17, music and sound should be participating in the development of this concept and vision from the start of a film project.

⁶⁶ Pre Production Meeting

However a PPM focusses on the production crew as it marks the start of the production phase. A *joint and structural meeting* that focusses on the postproduction disciplines at the beginning of postproduction, is therefore strongly advisable. Apart from sharing concepts and views, such a meeting can also be used to discuss the actual outcomes of the production phase, the design and organisation of postproduction and related workflow, agreements and technicalities.

Designing postproduction in such a way that it not only enables but also demands interaction and iteration is more complicated. All individual design and production processes in postproduction are clearly iterative by nature. These processes, however, need to be strengthened and guided for their interaction to become a postproduction process that is iterative in its entirety.

What struck me in the research, is the way interaction, iteration and the related communication come into being. It is totally dependent on personal preferences, insights and habits of the people involved. There is no such thing as a priori designing a *structure* for the interaction and iteration during postproduction. This attitude with respect to structuring postproduction, is understandable to some extent, as it is a known attitude in processes where creative individuals are involved. It can be assumed that they may have an aversion towards a process that, in their eyes, is too structured; such a structured process might come in the way of intuitivity, creativity and the related flow.

It is possible though to have a structured design of the postproduction that enables individual creativity and the needed communication, interaction and iteration which can stimulate that individual creativity. If one would agree – for example – on several joint and structured meetings during postproduction for all disciplines, this would create the conditions for interaction and the possible development of shared ideas and insights. In addition, it opens up the solutions of logistic and technological problems, as they can be discussed real-time during these meetings.

If such meetings are structured in the right way, which means having a proper agenda, they will stimulate the interaction between the disciplines. Items on the agenda for such meetings might be, for example, a viewing of a specific problematic sequence of the film, or a proposition from the sound designer for a particular scene, etc. These joint meetings should stand apart from other bilateral meetings between disciplines

*Most of the time I have separate meetings with the sound designer and the composer although I prefer a meeting where everyone is present. During **Moonlight** (van der Oest 2002) we had those meetings even before the shoot, including music and editing. Perfect! And inspiring for everybody!*
(director van der Oest 2011).

during postproduction; their only intention should be to enable, stimulate and to command as much interaction and iteration as possible.

The nature of the structure, role and related work flow of these meetings need more research. They require careful design

as the added value of the meetings need be clear to those involved. The game industry is, again, a potentially interesting sector in this respect, as the

I also notice the radical and fast changes in postproduction [...] A thoughtful approach seems necessary, that requires deep thought and forward thinking, and this should include the director and those responsible for postproduction (director van der Oest 2011).

nature of games forces the disciplines involved to relate to each other in a similar and even more intense way. Karen Collins, author of the major book '*Game Sound - An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design*', describes the interactions within game audio as follows:

As game audio develops, the roles involved are becoming more and more specific and dedicated. Whereas one person used to be responsible for all aspects of audio production and implementation, there are now teams of people with a variety of levels of artistic and technical skills. What needs to be stressed is that game audio is a collaborative process; the programmer cannot implement without the music, and the music, as was shown, depends to a significant extent on how it is implemented. Sound design must take into account the dialogue, and so on. The teamwork involved in creating game audio suggests an important reconstruction (or reduction) of the notion of "author". As shown, sound design, dialogue, and music are as much about integration as they are about composition, and the ways in which the sound is implemented greatly affect the ways these sounds are received. To some extent such a relationship exists in film, but it is taken to an extreme in games. Music must adjust to the player's action, in real time, to other audio in the same scene, and so on (Collins 2008, p. 106).

Taking the visual content of games also into account, there are similar relationships, as dialogue is linked to characters, Foley sound to actions, etc. Due to the fact the game industry is relatively young and all these components (game play rules, narration, visuals, sound effects, dialogue, atmos, music) have to relate to each other in an often complicated and technologically-driven way, there is no ready-made model yet to be used for game design processes. Whatever model is used, they all have in common that interaction and collaboration are key issues.

Another topic in structuring postproduction is the subdivision of postproduction in phases. As suggested in paragraph 4.2., an *overlap* between the editing and mixing phase is preferred. Making this overlap as long as possible is advisable as this will enable a long

period of interaction and iteration. In practice this would lead to indicating temp mixes relatively early in the editing phase. The advantage of such a construction would be the feedback one gets from these temp mixes about possible combinations of music, synchronous sounds and dialogue. This is useful so as to avoid problems as described in paragraph 4.2.7. An approach such as this is to be found in the film practice of the Coen Brothers:

The primary objective of Lievsay's (*sound designer*) sound crew is to translate those written scenarios into audible facsimiles. In order to do this, they are given the freedom to explore various designs, which are reviewed by the Coens and then refined. Lievsay (Barnes 2003) explained that this process is now worked out in a temp mix because Joel and Ethan Coen like to be able to hear how sound effects are going to work in the movie before they go to the final mix, especially since they often cut their films to the sound effects (Barnes 2005, p. 166-167).

A third conclusion can be made concerning the available *time*. Time available is another key issue apart from the needed structure in postproduction. As described in paragraph 4.1.1. a proper preparation can tackle, to some extent, a possible lack of time. An iterative process will, however, take more time than a linear and sequential process, so time is an important precondition. Apparently producers do realise this when it comes to documentaries. I found a striking difference in available time for postproduction between documentary and fiction in my interviews and in my own professional practice. Documentaries are actually created in postproduction as there is no written scenario to function as a model for the narrative. In addition, financial issues are less central in documentary compared to fiction. As a result, the available time for postproduction in documentary is longer than in fiction. Nevertheless, producers need to realise that if one wants to have an effective postproduction process, iteration, and therefore more time, is needed. It is the only way to get the most out of the disciplines and material available. Bob Last spoke about time in postproduction:

There should be time available to make mistakes, to take the wrong direction, get back and start all over again (director van der Oest, 2011).

You are seeing a change now, as digital non-linear post-production becomes more of the norm in both editing and sound technically, the possibility for interaction between the two departments (*sound, music*) has been overcome. There is still a logistics barrier to it because interaction takes time. Not just the time of interaction, integrating the results of interaction itself takes time. It's not the time to talk to each other and consult, but the time it requires exponentially increases if you are going to usefully implement the

talking back and forth. That process still lags behind, but I think it's becoming more common (Barnes 2005, p. 533).

An illuminating example is to be found, again, in the film productions of the Coen Brothers as they are successful in organising their productions in such a way that sufficient time is available:

As a result of starting earlier, Lievsay (*sound designer*) and Burwell (*composer*) are afforded the opportunity to experiment. Most importantly, they are allowed the time to trial sound elements that may or may not be included in the final release. Having a longer period to test what will work or not work assists sound practitioners to respond more creatively to the film. It can also help them perfect their craft. Randy Thom (Sider, Freeman & Sider 2003, p. 134) stated that Walter Murch made many ‘mistakes’ in generating the sound world for *APOCALYPSE NOW*, but “every one of those mistakes was instructive and informed all the decisions that wound up making it as wonderful a movie as it was”. Thus, more time releases the sound practitioners from the tyranny of the deadline and allows them to concentrate on generating an inventive soundtrack (Barnes 2005, p. 161-162).

More time for postproduction does not necessarily mean that the budget should go up proportionally. It is also about distributing the available time, that is structuring postproduction, in a different way:

Distribution of time is important. Not two weeks in a row, but one week of work, one week taking distance and then another week of work. Taking distance takes time (Schöpping 2010).

Further research into the possible financial consequences of structuring postproduction this way is however needed to provide a complete picture of all possible advantages and disadvantages.

A final word has to be said about *iteration* in postproduction: “Iterative design is a design methodology based on a cyclic process of prototyping, testing, analysing, and refining a work in progress. In iterative design, interaction with the designed system is used as a form of research for informing and evolving a project as successive versions, or *iterations* of a design are implemented (Zimmerman 2003)”. The potential for such an iterative process in narrative postproduction is present since the individual design and production processes of the editor, composer and sound designer are clearly iterative. Research in the form of structured experiments focussing on the interaction between the three

disciplines and their work-in-progress could bring the needed experience and understanding on how to design iteration in this interaction.

As said in the beginning of this chapter, postproduction is about assembling visual and auditive data into one narrative. The complexity is in the possible combinations of such data with, as an extra complication, a multi-dimensional auditive track. A track that is constructed in steps:

- first there is a design in a two-dimensional space (2.0) by the editor in collaboration with the composer and sound designer using set sound, music sketches, temp tracks, atmos and sound effects;
- this first draft is developed throughout postproduction by the sound designer and composer by creating more final sound and music using temp mixes as a frame of reference;
- the auditive track is taken to its full extent by collecting and assembling all parts in a three-dimensional space (5.1) at a location that meets all requirements in terms of acoustics.

Everyone agrees about the importance of getting a first glimpse of that last ‘step’ as quickly as possible in the process. How can one achieve this? Which approach is best? Should one start working in postproduction in both domains (visual and auditive) at the highest level? This would demand a solution about location as I already suggested in paragraph 4.1.2. It would also demand an iterative process executed by the editor together with the sound designer and composer. How to start this process? What is a suitable work flow? How to organise and structure the needed iterations in developing the final *audiovisual* track?

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Author's background

Rens Machielse has been engaged for almost thirty years (beginning 1980) as a freelance composer for audiovisual media. In addition, he was the co-owner of a music recording and audio postproduction studio. During this career he composed and produced music for over two hundred media productions (animation, tv fiction, documentary, corporate identity, advertisement and feature film). Several productions were awarded prizes for best film music (Best Original Score New York Festivals 2007).

He has been affiliated with the Utrecht School of the Arts (HKU) since 1990. Apart from being a senior lecturer in composition for linear audiovisual media, he is also Head of the Utrecht School of Music & Technology and leading the research program Creative Design Practices of the Faculty of Art, Media and Technology.

He has been publishing his views on education and music and sound design in audiovisual media through presentations, keynotes, columns and articles on various occasions and through a variety of media (a.o. SoundTrack Cologne, Netherlands Film Festival, AEC, *Journal of New Media Practice*, FFACE, ProAudio+Visie). He is a member of the Editorial Board of *The New Soundtrack*, a board member of the Unheard Film Festival and co-founder of MIMM, the Dutch Music Institute Multi Media.

His research on interaction and collaboration in narrative postproduction is part of the research program Creative Design Practices (CDP) of the Faculty of Art, Media and Technology, Utrecht School of the Arts (HKU). It is his intention, in accordance with the formulated goal of the CDP program, to 'publish' the outcomes of this research in various ways. Apart from the use and distribution within the Faculty and HKU, institutions such as the Dutch Film Academy and the European Post Production Connection already shown their interest and have invited him to present his research. He will also distribute his thesis to associations and groups related to the audiovisual industry in order to get the subject of his research on the agenda and stimulate discussion.