

Resolving Ambiguity of Scope in Remote Collaboration: A Study in Film Scoring

Julien Phalip^{1,3,4}, David Jean², Ernest Edmonds^{1,3}

¹ Creativity and Cognition Studios
University of Technology, Sydney
Australia

² University of
Toulouse
France

³ Australasian CRC for
Interaction Design
Australia

⁴ IREMIA
University of La Réunion
France

julien@julienphalip.com, jeandavid31@gmail.com, ernest@ernestedmonds.com

ABSTRACT

In this paper we report on a qualitative study aiming to support online and asynchronous collaboration between stakeholders of the film scoring industry. We first describe the low-fidelity prototype we designed to facilitate the establishment of a clear scope for creative discussions. We then present evaluations conducted with two composers and a filmmaker to test the prototype's design principles. Outcomes from these evaluations stressed the need for resolving the ambiguity that occurs in remote collaboration. Feedback from participants also depicted the complex nature of the composer-filmmaker relationship and confirmed the virtues of asynchronous means of communication to support that relationship.

Categories and Subject Descriptors

H.5.3 [Information Interfaces and Presentation]: Group and Organization Interfaces; H.5.2 [Information Interfaces and Presentation]: User Interfaces.

Keywords

Film Scoring, Creative Collaboration, Remote Communication, Asynchronous Communication, Human Computer Interaction.

1. INTRODUCTION

The work described in this paper integrates in a broad research undertaken by the authors within the film scoring practice. A previous qualitative field work [9] [10], based on interviews and observations with 14 filmmakers and 13 composers, has revealed a set of communication challenges commonly faced in the collaboration. Importantly we found that the collaborative process could be frustrating and compromising because practitioners did not share the same musical language. This lack of common language caused communication breakdowns due to the exchange of ambiguous, incomplete or inaccurate information.

We also observed that a growing number of collaborations were conducted remotely, which could aggravate communication challenges. In particular, we discerned that practitioners

experienced difficulties in framing the scope for what was discussed. The lack of visual information (e.g., in phone conversations) or the delays occurring between people's responses (e.g., in email conversations) hindered the understanding of what one referred to. Stacey and Eckert [11] argued that while communicating imprecise, uncertain and provisional ideas was a vital part of creative teamwork, what was uncertain and provisional needed to be expressed as clearly as possible. We elaborate on this reasoning by differentiating the issue of ambiguity into two parts: the ambiguity of content (what is *said*), and the ambiguity of scope (what is *talked about*). While we have shown that ambiguity of content was present throughout the filmmaker-composer collaboration [10], we also argue that when the collaboration is conducted remotely it is necessary to first resolve the ambiguity of scope.

2. RELATED WORK

Creative collaboration and multidisciplinary collaboration are themes of increasing interest across industrial and academic milieus. Following on the extensive technological advancements in the past decade, a large number of research endeavours have concerned the design of tools to provide relief and support in such complex collaborative situations. For example, Bødker et al. have focused on means of stimulating idea generation in cooperative, iterative design [3]. Another example is with Bennett and Dziekan [2] who have explored the concepts of Online Creative Collaboration (OCC) through the Omnium Project, a framework allowing distanced partners to engage in active and reflective modes of creative dialogue.

Notable efforts have also been undertaken to support creativity and collaboration in music. Jordà & Barbosa [7] have developed Internet collaborative virtual environments for music applications, putting a special emphasis on performance, composition and production of music by geographically dispersed groups of users, both in synchronous and asynchronous modes. Abrams et al. [1] have also investigated film composers' cognitive processes, resulting in the development of a prototype: *QSketcher*. It offered a flexible workspace to assist composers in their creative workflow by capturing, organising and manipulating musical ideas. Similarly, Coughlan & Johnson [5] have designed *Sonic Sketchpad*, which explored computer support for sketching and representing ideas in collaborative music settings. While all these endeavours and products provided promising solutions in their respective niche of activity, there is currently no integrated environment that efficiently facilitates distant communication between composers and filmmakers. Our research is to fill this gap by creating a system which enables clear and precise communication of musical ideas in remote contexts. In the

OZCHI 2008, December 8-12, 2008, Cairns, QLD, Australia.

Copyright the author(s) and CHISIG.

Additional copies are available at the ACM Digital Library (<http://portal.acm.org/dl.cfm>) or can be ordered from CHISIG(secretary@chisig.org)

OZCHI 2008 Proceedings ISBN: 0-9803063-4-5

following section we present the characteristics of the prototype system we have built.

3. PROTOTYPE

We developed a web-based system that allowed users to upload and annotate music or video drafts. The most prominent and most complex component of our system was the sequencer. We completed the first iteration of the sequencer's design and assembled concepts learned from previous field research into a low-fidelity, paper-based, prototype (Figure 1 and Figure 2). Like most existing sequencers, the prototype enabled basic tasks like the mixing, editing, syncing and playback of video and music elements. Essentially, users could upload files –e.g., music drafts for a particular scene of the film–, import them into the sequencer and position them so that they play back in sync within the mix. This founded a common base of information that every stakeholder could access and refer to. The fact that all parties were then able to visualise and modify the various elements within the same environment constituted the first necessary step in defining a precise and shared scope for communication.

In addition, our prototype offered the ability to annotate music samples and video footages present in the mix. Thus, we introduced in the interface the novel concept of discussion tracks (-e- in Figure 1).



Figure 1. Prototype sequencer overview: (a) Controls, (b) Timeline, (c) Video track, (d) Audio tracks, (e) Discussion tracks.

Discussion tracks were placed under audio and video tracks and contained stacks of discussion threads. Each thread was symbolised by a small horizontal bar that could be created by clicking and selecting a region within the discussion track. The position and length of each bar respectively represented the start time and duration of the audio or video section above it. This visual representation enabled the demarcation of specific sections of the mix, therefore establishing a clear temporal scope for each discussion. Clicking on one of the bars opened a window with all comments previously posted in the corresponding thread. It was then possible to post new comments to contribute to the discussion (Figure 2).



Figure 2. Prototype annotation and discussion system: (a) Audio track containing the waveform of an audio sample, (b) Discussion track containing three threads, (c) Discussion window.

Lastly, whenever changes were made in the mix (e.g., new music samples were added or new comments were posted) all stakeholders were notified with an email sent by the system. This automatic notification mechanism brought two major benefits: easy tracking of changes made by collaborators, and accelerated asynchronous discussions.

4. EVALUATIONS

We conducted evaluations to verify the prototype was addressing real issues and providing appropriate solutions. Our primary objective was to assess the prototype's usefulness: would it alleviate communication challenges faced by practitioners in remote settings and would practitioners be able to perceive the benefits? At this stage we were mainly concerned with evaluating the design principles rather than with testing the usability of the interface. As Greenberg and Buxton argued [6], conducting usability tests too early in the design process would have little impact and may even be counterproductive. This was an additional motivation for using a paper-based prototype, as it was known to increase chances for evaluation participants to focus on the general characteristics and functions of the system rather than on the aesthetics and low-level interaction details [4].

Our system design still being in its inception we chose to conduct qualitative and in-depth evaluations with a small group of participants. We recruited three practitioners (two composers and one director/producer) who had more than 15 years of experience in the film industry and had been working on a wide range of projects throughout their career: documentaries, feature films, short films and advertising. We organised three individual sessions, each session involving one participant and two observers (one leading the evaluation, the other one taking notes). The sessions took place at the participants' studios so they could easily refer to their own tools while giving feedback (Figure 3).



Figure 3. Evaluation sessions at the composers' studios

Each session lasted for two to three hours where the same procedure was consistently applied. We started with a demonstration of the system's already implemented features: file-sharing tools, portfolios, and event management. We then gave a demonstration of the prototype sequencer's features: track creation, audio/video editing, and annotation and discussion systems. Then, we walked through a scenario and simulated the various actions directly onto the paper prototype. The scenario, which narrated the fictional story of a Sydney-based composer and a Los Angeles-based director, aimed to explain plausible conditions of use for our system. After watching the demonstrations the participants were asked to specifically comment on the prototype's features. This led to a free discussion where participants spontaneously gave their opinion on the prototype, told about personal anecdotes, and gave suggestions for improvement. We took notes of the participants' comments and asked further questions probing into particular ideas and issues that were raised in the discussions. This qualitative and flexible method let us collect rich and contextual data. In the next section we present results that were compiled after the evaluations.

5. RESULTS

5.1 Virtues of Asynchronous Communication

Our previous studies [10] had shown that face-to-face meetings were fundamental in building propitious conditions for successful collaboration. Nonetheless, participants of this present study conceded that, in particular instances, they preferred remote and asynchronous modes of communication. On one side, the composers said that they were sometimes frustrated by their clients' feedback and criticisms and that dealing with that frustration was not easy if the clients were standing in the same room. One of them said: "Face-to-face can be very confronting, especially when you deal with 'difficult' people". Being employed by the filmmakers and therefore being responsible for the work, the composers would have to put up with the frustration and behave as if they were in total control of the situation. Hence, the composers reacted positively to our prototype, one of them calling it a "sanctuary, a place of safety". Participants also noted that our system would allow the filmmakers to be at home and listen to the drafts multiple times. Whereas during face-to-face meetings they would generally not have enough time to listen to the drafts more than two or three times. On the other side, the director declared she often felt nervous before meeting with composers. She was afraid of hurting their feelings:

"Often my initial reaction is very critical, I think it's more honest that way. But I am nervous when I listen to the music for the first time because I fear I'd have a bad reaction. If the composer sits next to me it could be awkward because they'd see your bad reaction. I guess it's

hard for them to take all that criticism because they've probably been working hard on it."

She also said that she would prefer listening to the drafts *before* the meetings, so she would have the time to ponder her feelings and would be able to deliver more constructive feedback.

There is clearly a high level of emotion and sensitivity occurring in creative collaboration between filmmakers and composers, and as evidenced by the participants' testimonies some virtue can be found in asynchronicity. These observations therefore highlight the need for more support in interpersonal communication issues and corroborate the design principles put forward in our prototype.

5.2 Scope and Shared Environment

Mamykina et al. [8] stressed the need for creative professionals to explore ideas within the same environment. Yet, there currently is no integrated environment that efficiently supports distant collaboration between practitioners of the film industry. The participants' feedback especially revealed the lack of coordination between the existing tools they used (eg. email, telephone, instant messaging, or file sharing via FTP), which was recognised both as a burden and as a source of ambiguity. On the one hand, the director disliked using FTP as it required her to download each individual draft posted by the composer. She also had to manually lay all the drafts in her own editing software before syncing them to the picture. She found it was a lengthy and tedious process, and she appreciated the fact that with our system every element would be centralised and manageable from one place. On the other hand, current communication tools were blamed for potentially carrying ambiguous information, as illustrated by a composer's anecdote:

"I once received some feedback from a director. It was a very long email telling me what he thought about various cues I'd done. He must have spent 3 hours writing that email, and I didn't even quite understand what he was referring to. I wished he could have pointed precisely where the problems were."

Consequently, our annotation system was well received by the participants. They clearly valued that it would help framing the scope for discussions, therefore reducing the chance for ambiguity to occur and also avoiding time wasted in tedious and uninteresting descriptive tasks.

Besides, participants made the remark that our system could facilitate the inclusion of the sound designer and film editor in the creative loop. If those third-party collaborators had access to the system they could follow the evolution of the work and contribute to the discussions when necessary. For example the sound designer may advise the composer of all the sound effects that would be laid in the film earlier in the creative process, which would prevent potential conflicts between the music and sound tracks. Also, as noted by the director, a shared environment would help bridge the gap caused by the variety of technologies people were currently using:

"We never got around the problem between the composer and the sound designer. My sound designer works with Protools and my composer with Cubase and there's no way to easily transport the work other than manually."

These results put an emphasis on the need for implementing a shared collaborative environment and for defining a clear scope for creative discussions. On a side note, the evaluations have also confirmed that composers and filmmakers were familiar with sequencers as they already used similar tools to respectively produce music and edit films. Little explanation was required for the participants to understand the basic features of our system so this validated the sequencer as a promising candidate for building a shared and accessible environment.

5.3 Work Load Division

When designing our prototype we were particularly concerned with how the work load performed on our system would practically be divided between the targeted groups of users (filmmakers and composers). Therefore we asked the participants who they thought would spend more time working on our system, that is, setting up and maintaining the projects, uploading files, creating mixes via the sequencer, managing events and so forth. The answer was unanimous: it would be the composers.

On one side, the director assumed that composers would be responsible for most of the work executed on the website. She said that she would herself probably not have enough time available except for listening and commenting music pieces, or for doing slight mixing adjustments. On the other side, both composers acknowledged filmmakers' lack of time and both also anticipated taking on the bulk of the work. However, the composers said that it would not necessarily represent a major surplus of work as they were already used to making pre-mixes and to packaging mock-ups to show their clients.

Nonetheless, composers indicated that they would be averse to "doing things twice", that is, making fine-grained mock-ups locally on their computer and then again online on the collaborative system. Practitioners were already used to performing complex mixing and editing tasks with powerful tools on their desktop computers. Hence, they declared they would rather use our system to post pre-mixed elements and then only perform basic mixing tasks on it to illustrate the creative discussions. These remarks thus accentuated the need for supporting the high level collaborative tasks more than the purely technical ones.

6. CONCLUSION AND FUTURE WORK

In this paper we described a system designed to support online and asynchronous collaboration between stakeholders of the film music industry. We then reported on qualitative evaluations of the paper-based prototype conducted with two composers and a filmmaker. The evaluations confirmed the need for more support in resolving ambiguities that occur in distant communication. The evaluations also generated a new understanding of the composer-filmmaker relationship and uncovered complex interpersonal issues that needed to be considered in the development of computer tools. While this study validates the usefulness of our system and its design principles, more work is required to reach appropriate and user-friendly solutions. Hence, an intense development phase is now starting to implement a full-scale working prototype. The

usability of the second prototype will be tested with practitioners to ensure that it can effectively be used in real-world situations. Also, while our system is currently focused on facilitating remote exchange of information and on clearing the ambiguity of scope, problems related to the ambiguity of content still remain. More work is therefore needed to specifically support an accurate interpretation of the information conveyed via our system.

7. ACKNOWLEDGMENTS

We are extremely grateful to all the composers and filmmakers who have graciously contributed to this research. This research was partly conducted within the Australasian CRC for Interaction Design, which is established and supported under the Australian Government's Cooperative Research Centres Programme. We also wish to express our deep appreciation to the Regional Council and University of La Réunion (France) for financial support and helpful encouragement.

8. REFERENCES

1. Abrams, S., Bellofatto, R., Fuhrer, R., Oppenheim, D., Wright, J., Boulanger, R., Leonard, N., Mash, D., Rendish, M. & Smith, J. (2002), 'QSketcher: An Environment for Composing Music for Film', *Creativity & Cognition*
2. Bennett, R. & Dziekan, V. (2005), 'The Omnium Project – Forming online communities of students, educators and professionals to explore collaborative modes of creative interaction and practice.' 8th International Electronic Theses and Dissertations.
3. Bødker, S., Nielsen, C. & Petersen, M.G. (2000), 'Creativity, cooperation and interactive design', *Proceedings of the conference on Designing interactive systems: processes, practices, methods, and techniques*.
4. Buxton, B. (2007), *Sketching User Experiences*, Elsevier.
5. Coughlan, T. & Johnson, P. (2006), 'Interaction in creative tasks: Ideation, Representation and Evaluation in Composition', *CHI 06*.
6. Greenberg, S. & Buxton, B. (2008), 'Usability evaluation considered harmful (some of the time)', *CHI 08*.
7. Jordà, S. & Barbosa, Á. (2001), 'Computer Supported Cooperative Music: Overview of Research Work and Projects at the Audiovisual Institute—UPF', *Workshop on Current Research Directions in Computer Music*,
8. Mamykina, L., Candy, L. & Edmonds, E. (2002), 'Collaborative creativity', *Communications of the ACM*, vol. 45, no. 10
9. Phalip, J. & Edmonds, E. (2007), 'Guidelines for Communication in Film Scoring', *International Conference on Music Communication Science*.
10. Phalip, J., Morphet, M. & Edmonds, E. (2007), 'Alleviating Communication Challenges in Film Scoring: An Interaction Design Approach.' *OZCHI 2007*.
11. Stacey, M. & Eckert, C. (2003), 'Against Ambiguity', *Computer Supported Cooperative Work*, vol. 12, no. 2.