

Using Video Clips to Support Requirements Elicitation in Focus Groups - An Experience Report

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Abstract

This paper reports on a methodological experiment, which was carried out in two large collaborative research projects targeted at innovative products. Video material was produced in order to visualize the project vision and solution ideas, and this video material was used in focus group discussions. The paper describes the process, the experiences gained and gives a number of hints which may be helpful for projects planning to use a similar approach.

1 Introduction

This position paper reports on a practical experiment in using multimedia technologies for the early steps of requirements engineering in an innovative development project. The key idea followed is to create a rather elaborated video clip in a very early phase of the project and to use this video clip as a tool for eliciting requirements in focus group discussions. It is claimed below that the production of video material can contribute significantly to achieving good results within more traditional requirements engineering technologies. However, a number of rules have to be obeyed to achieve an optimal balance of effort and effect, some of which we hope to explore with the work reported in this paper.

The work reported here took place in the context of two EU-funded international research projects. The first project – already finished – is called “*Simplicity*”, and its goal was to propose a technological solution to help users of mobile devices and services to deal with the overwhelming amount of features and options which are meant to help them in their daily life but are difficult to harmonize and orchestrate [BBC+04]. The second project – ongoing – is called “*S.M.S. – Simple Mobile Services*” and deals with a simple way to create mobile services [SMS]. In this paper we do not go into further details of the projects, but concentrate on the applied techniques for requirements engineering. In such innovative projects, clearly targeted towards usability improvements, it is straightforward to adopt a user-centred development paradigm. Therefore, the project consortium of *Simplicity* agreed early on conducting extensive focus group discussions [LP93, Shn98] with various groups of potential users in order to evaluate very early ideas created in the project on their usefulness in practice. This led to the question how to give a clear, understandable and motivating introduction into the project ideas to the participants of a focus group. More or less independently of these discussions, a group of students at one of the partner sites (University of Munich) had been instructed to create a video clip representing some core project ideas. It was a rather straightforward step then to use the video material for introducing the project in the focus groups.

The rest of this paper is organized as follows: Section two gives some more information on the order of steps, which were performed in the requirements elicitation process. Section three

then puts together some of the experiences gained in carrying out the experiment within the *Simplicity* project. In section four, some of the lessons learnt from the exercise are put together in order, as they are applied these days in the context of the *S.M.S.* project, and also to assist people who want to use similar techniques in the future.

2 The Requirements Elicitation Process Used

The project *Simplicity* for which the requirements were investigated was of a rather fuzzy nature, and *S.M.S.* now has similar characteristics. Very general goals were known for *Simplicity* but it was not at all clear how these goals should be translated into concrete realizable requirements. The project followed different steps, inspired by a scenario-driven and user-centred process (see e.g. [RC02]).

- Derive possible concrete usage contexts from the general goals, e.g. which user groups are targeted, which kinds of devices and services are potentially relevant. Refine the goals to these contexts.
- For all identified usage contexts, define at least one, possibly more, concrete usage scenarios involving well-defined personae [CR03]. Encode the scenarios as prose text. Example scenarios comprised e.g. various day-of-life descriptions for mobile workers.

After these two steps, the project deviated from the more traditional way of proceeding by introducing the video material. The next steps were as follows.

- As soon as usage scenarios and persona descriptions are stable, produce a video clip of a few minutes length which communicates the general project goals, visualizes the concrete usage scenarios in a documentary style of video narration and gives a high-level overview of the technical solution idea. Examples for the visualization of usage scenarios are scenes shot in a real-live environment like a train station or an airport involving actors representing the personae from the scenarios, including mock-up versions of the hardware and software solutions envisioned.
- In parallel to the production of the video clip, analyse the scenarios to identify core features of the system to be realized and to identify potential implementation options. Examples for core features in the project were: Central network-based data storage, device-based user profiles and mobile interaction with smart objects.
- Using the video material and the analysis results, set up a sequence of focus group sessions to assess the practical relevance and potential acceptance level of features and implementation options. Document results of focus groups by video recording and written excerpts.
- Condense focus group results into a streamlined form and apply them to prioritize implementation options. As an example, it turned out that potential users of all kinds very much liked solutions where personal profiles, preferences and data access mechanisms were stored or based on the mobile phone they were carrying. Alternative options like smart cards or username/password based virtual solutions were refused.
- Based on these insights, refine the requirements to guide the further development process.

3 Experiences with the Use of Video Clips

When the steps from above were carried out in practice for the *Simplicity* project, altogether six focus group sessions with around 40 participants were carried out [MHR05, RBT+04]. The international structure of the project required additional work steps. For instance, the

video sound track was prepared in English language, but the focus group sessions were carried out in Italy at Telecom Italia's usability labs. For this purpose, subtitles in Italian language were prepared to make sure that language problems are no obstacles. Moreover, when preparing the agenda for the focus groups, it turned out that a several minute video is probably too long for keeping the participants in the active mood needed for the discussions. Therefore, the video material was further divided into smaller subclips, e.g. a very short clip for introducing the general idea and several other short clips for usage scenarios specific for an individual target group (e.g. leisure or business use, amateur or professional). The video clips were used quite carefully by the moderator of the groups for provoking user comments and for making the product ideas very concrete and tangible - and for nothing else. It was an interesting kind of feedback for the producers of the video material to see how experienced usability experts dealt with their material - by cutting the well-designed overall composition into small modular pieces.

The findings of focus group sessions are in general mostly qualitative and not quantitative results because of the team based approach which does not allow asking for the opinion of one specific participant. Although it was not possible to obtain final quantitative results on the effectiveness of the technique, the general feedback was that the usage of the video clips was highly effective in order to bring a rather abstract product idea down to earth and to prepare for discussions.

The outcome of the focus groups highly influenced the further steps of development.

4 Lessons Learnt

4.1 General Decisions for Video Usage

The experiences gained from using video clips within *Simplicity* were analysed and used as guidance for a similar exercise within the *S.M.S.* project. The following principles can be derived from our experience:

- Foremost importance has the principle of *realistic representation*. It is important to choose very concrete application scenarios which map the idea of the system under development to well-imaginable real-life situations. Moreover, these scenarios have to be brought into video form by even improving the realism. For instance, the *persona* theory has to be followed by developing roles and letting them being played by actors the viewers can identify with. It is more than helpful, even if it causes additional effort, to choose realistic locations for the video shooting. In our case, for business traveller scenarios, train stations and airports were highly relevant. Using such shooting locations makes it much easier for focus group participants to grasp the idea of the project and to contribute creatively. One disadvantage of a realistic representation, which is required for the usage within focus groups, is that the team who develops the video has to make decisions regarding the shown functionalities which are not yet defined within the context of the project.
- It is very helpful to tell a “whole story”, i.e. to have the same fictional persons within several of the project scenarios. This is easier from the production point of view, but it also leads to a much more convincing overall effect.
- A three-minute clip looks short for a team, the aim of which is to represent the ideas of a complex technological project. On the other hand, the time of people sitting in a focus group is a very scarce resource and one does not want to get these people in a “consumer” mode of acting. Therefore, extremely short running times of clips are very helpful for preparing focus groups. Ideally, the produced video material is of a

modular nature, so that a longer project introduction exists, but smaller clips can be cut out of it to characterise individual scenarios.

- It is tempting during the production of video material to create complex animations in the style of a slide presentation to convey the technical core concepts of the project. Such animation sequences are somehow problematic. In focus groups, their abstraction level is often too high to use them successfully; even worse, they may result in lower creativity of the participants regarding problem solutions. Moreover, the effort required for the production of these sequences is often high, and they can quite easily be replaced by a traditional speaker presentation accompanied by an animated slide show.

4.2 Technical Production of Video Clips

The production of the *Simplicity* video led to experiences which were used when the video material for the follow-up project *S.M.S.* was produced. For the new vision video, the production process comprised three basic phases, whose accomplishment partly overlapped:

At the beginning, most effort was put into the creation of a detailed storyboard that served as a blueprint for the video. It started from a short day-in-a-lifetime scenario and was refined in several iterations. In the end it included all information that was to be presented in the video as well as instructions on how to communicate it, including detailed descriptions of all scenes, their settings, pictures of key screens as well as the voiceover.

While refinements on the storyboard almost lasted until the end of the video production, the phase of collecting media resources started soon after the first draft of the storyboard. Its goal was to accumulate a repository of different media resources – mostly videos, pictures and audio – from which to assemble the video afterwards.

In the last phase, the video was composed from the raw material that had previously been collected. This stage also included the integration of special effects, the creation of explanatory animations, and recording the final voice-over. Based on the experiences of creating the video material for the mentioned projects, some recommendations can be derived concerning the different steps of the process as well as necessary and avoidable efforts.

- The creative process of envisioning story and message of the video, and planning its realisation is usually longer than it seems at the beginning. Since the storyboard will serve as a blueprint for the whole video, sufficient time should be invested to get it right. A detailed storyboard also saves much time when shooting the video. As a visual template for the final video, a storyboard reduces on-scene discussions on how to frame a shot or whether additional shots are necessary. Especially with animation-heavy scenes, defining the requirements for the filmed footage reduces the time wasted for re-shooting whole scenes or re-creating elaborate animations.
- A good way to create a useful storyboard is to get a digital still camera and stage the intended action using people, locations, and props that are available at the moment. For every shot (the video clip between two cuts) a good angle should be found. The photo should show which persons and parts of the surrounding will be visible in the final video.
- Apart from the organisation of time, organising the team is also very important. Instead of letting everybody do everything, it is better to assign different tasks according to personal preferences. That way it is also easier to call in results, as team members are directly responsible for them. Exactly one person should be in charge of organizing equipment, negotiating film permits and creating a shooting schedule.
- Post-production is especially time-consuming with research or documentary videos. Many

facets of the topic have to be explained using animations, text overlays, or voice-over commentary. Making a properly shot video great in post-production requires much time and even more discipline. Especially voice-over recordings should be tightly listened to for minor pronunciation mishaps, slurred words, and too hasty speech. Minor glitches can be corrected by just re-recording the affected sentence and replacing it with the good version. The speaker should not be the one to decide if a recording is acceptable.

- One of the most time consuming parts during the development of such a clip is the recording of the video and audio material. But beside such a conventional video production it is also possible to develop a pseudo-video which just consist of still images and synthesized speech. Through simple animations of a section of the still image, e.g. from left to right or enlargement of the display window, the movement of a video camera can be simulated, which leads to the impression of seeing a real video. The disadvantage of this approach is that is not possible to show complex interactions

5 Summary

In this position statement, the technique of using video clips as introductory and guiding material for focus groups in the requirements engineering process of innovative projects was introduced. Practical experience and recommendations from two projects were reported.

The key question when evaluating the work reported here is the economic viability of such video production work. In the two projects reported here, we had the advantage that student teams were available which spent a large amount of time without creating actual cost. In a business context, the issue will come up whether it is worthwhile to spend resources on such video production work. From our experience, we would still recommend to consider the video production as an option, but to keep cost minimal. As our student teams showed, sufficient quality for practical usage in requirements engineering can be achieved using relatively cheap equipment (we used semi-professional equipment, but even advanced amateur class will do). Also the required quality does in no way make it necessary to involve professional cameramen, actors etc. It may even be helpful for members of the development team to impersonate some of the final users of the developed project, and people familiar with video cameras are found easily in any project team nowadays. So we believe that the approach we tried out in an academic setting can in fact be transferred to a business environment.

The work reported here was supported by the European Commission under the contracts IST-2004-507558 "Simplicity" and IST-2006-034620 "S.M.S.". Special thanks go to Cristina Brugnoli from Telecom Italia Learning Services and her team for actually carrying out the focus group sessions and integrating the results into the project process.

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