

Distributed Asynchronous Focus Group Interviews

Gathering Requirements from Distributed Stakeholders Using Asynchronous Focus Group Methodology

Ulrike Hammerschall

Department of Computer Science and Mathematics
University of Applied Sciences Munich
Munich, Germany
ulrike.hammerschall@hm.edu

Abstract— Globally distributed project teams are a more and more common trend in software development. Stakeholders and development teams of the same project are situated in different countries and time-zones. As a consequence, coordination between team members relies heavily on suitable online communication environments. This is especially the case during requirements elicitation, when requirements for a new system need to be identified. Most elicitation techniques require physical presence of stakeholders in order to be effective. This is not always possible in distributed project teams. The question is if and how traditional elicitation techniques can be adapted to distributed project settings. This paper proposes a concept to adapt a special elicitation technique - traditional face-to-face focus group interviews – to online focus group interviews. The concept proposes a discussion model based on a questionnaire that allows conducting asynchronous online focus groups in online environments as similar as possible to traditional face-to-face focus group discussions. Furthermore, a process model is introduced to plan and conduct asynchronous online focus groups. Finally, the paper discusses open issues of the concept that need further investigation.

Keywords- *focus group; distributed asynchronous focus group; requirements elicitation.*

I. INTRODUCTION

Requirements Elicitation is the process of finding requirements for a software system. A common technique for requirements elicitation is interviews with stakeholders [1]. Interviews in requirements elicitation are usually performed face-to-face with each stakeholder. The interviewer asks a list of questions based on a questionnaire and documents answers from the interviewee.

Besides traditional interviews, the use of focus group interviews has emerged as an effective elicitation technique as well [2]. Focus groups are a powerful social interviewing technique that allows researchers to elicit several viewpoints from users at the same time [3]. Individuals are asked to participate in what is usually a structured interview on a predesignated topic [4]. During a focus group session, data is collected through group interaction on a topic determined by the researcher [5]. Focus groups emerged as a qualitative research method used in market research or social sciences [6]. Its strength is to reveal hidden information through

group interaction in addition to information that could be gathered by face-to-face interviews.

In traditional focus groups, the interviewer and the interviewees meet in a room and discuss face-to-face. In global project teams presence of all group members at the same time in the same room might not always be possible. In this case, focus group discussion needs to be conducted online. Research in focus groups addresses this problem. Due to the widespread use of internet technology, online focus groups have emerged during the nineties [7][8]. Online focus groups can be performed synchronously or asynchronously. Synchronous groups are similar to face-to-face focus groups, as they are conducted in real time via chat or video-conferencing. Asynchronous groups on the other hand, do not require real time attendance of participants during a session. Communication is done via forums or email. Participants can contribute, read and comment on contributions from other group members [8].

Traditional face-to-face focus groups are a well-established elicitation technique. However, this type of group discussion is not useful in distributed project environments when stakeholders live globally distributed in different countries and time-zones. There are platforms available for asynchronous online group discussions, however, support for focus group methodology is still rare [9].

This paper proposes a concept for tool-supported asynchronous online focus groups (AOFG). This includes a model for online discussions and a process model to plan and conduct focus group events with distributed participants. Both models - discussion and process model – can be used in distributed, tool-supported environments.

Section 2 starts with a survey on focus group methodology and identifies relevant aspects that need to be considered in online focus group methodology. Based on this, a discussion model for focus group sessions is proposed in Section 3. Section 4 defines a process model to prepare, conduct, and analyze AOFG. This paper marks the first step of a larger research project. Therefore, Section 5 discusses open issues and research questions for further investigation. Related work and summary in Sections 5 and 6 round up this paper.

II. CONDUCTING FOCUS GROUPS

Focus groups are a carefully planned discussion, designed to obtain the perceptions of the group members on a defined area of interest [10]. The term “focus” (or “focused”) refers to the fact that a moderator intervenes to shape the discussion using a researcher-determined strategy [4]. The group setting enables the participants to build on the responses and ideas of the others, which increases the richness of the information gained [11]. Traditional (face-to-face) focus groups are usually conducted in similar ways with small variations:

Group setting: A group of people is gathered in one room and is discussing a topic. Group size is usually small. Many authors propose a group size between four and twelve participants ([10][13][14][15][18]). Size is a crucial aspect for group success. Large groups are more difficult to manage. They require a higher level of moderation and control which might not be desirable for the research topic of the group [15]. On the other hand, it might be difficult to maintain an active discussion in a smaller group. Small groups also run the risk of being less productive. They work best when the participants are likely to be both interested in the topic and respectful of each other [15].

Duration: Duration of focus group sessions depends mainly on group size. Kitzinger proposes session length up to two hours [12]. Powell and Single determine session time from 90 up to 120 minutes [6].

Roles: Focus groups are usually based on a two role model: moderator and participant. To [13] the moderator is quite critical to the success of the group. He or she supervises and guides group session in order to achieve the best results for the research question. Davis proposes a third role, the client [7]. This might be reasonable, e.g., in case of market research. Client representatives of the product under discussion observe focus group discussion without interfering.

Discussion methodology: Focus groups are group interviews. Therefore, there are several ways to conduct a group session. An obvious proceeding would be to ask each participant in the group the same question and document his or her answers. However, Kitzinger states that group interaction should explicitly be used as part of the interview method. The interviewer has a series of open ended questions to discuss within the group. Participants are encouraged to explore the questions and talk to one another, asking questions, exchanging anecdotes and commenting on each other’s experiences and points of view [12]. Powell and Single propose up to six open ended questions for a focus group session [6].

Most aspects of face-to-face focus groups, e.g., group size or role model can be easily adapted to asynchronous online focus groups. Discussion methodology on the other hand will need to be adapted to distributed environments.

III. DISCUSSION MODEL

In this section, a discussion model for asynchronous online focus groups is proposed. This model adapts as much as possible face-to-face group discussions to an online

environment, when discussion participants are not available in real time. Figure 1 summarizes the model structure. Each online session needs - similar to face-to-face focus groups - two roles: a moderator who supervises the discussion and several participants who conduct the discussion. In the center of any focus group session is a questionnaire with a list of questions that guides the focus group discussion. The questionnaire and the questions are prepared by the moderator based on group objective and context information.

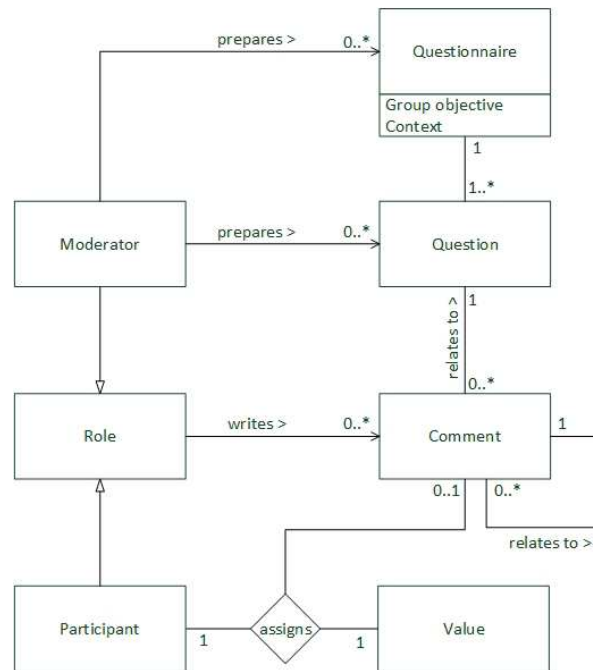


Figure 1. Discussion model for focus group sessions with questionnaire.

The list of questions constitutes a kind of backbone for focus group discussion. All participating roles may comment on questions during the focus group session. A comment might be an answer to the question, another question, a thought, further information about objective and context, a reply to another comment or just a note. Even the moderator may participate and enter the discussion. However, his or her task is to keep the discussion focused on the initial research question.

Asynchronous online focus groups lack the power of nonverbal interaction in face-to-face focus groups, e.g., body language, facial impressions, approving or disapproving nods. A simple mechanism of evaluation helps to overcome this disadvantage in some ways. Any participant may assign a value of approval to any comment. Values are visible to all group members. A participant may never assign a value to his or her own comments. Finally, the moderator should not assign any values to comments in order to avoid any influence on group interaction.

The model discussed in this chapter tries to keep formalization of focus group discussion as simple as possible

in order to stay flexible and not to hinder discussion flow. Possible model refinements are discussed in Section 5.

IV. PROCESS MODEL

In this section, a process model for planning and conducting asynchronous online focus groups is defined. The model supports the discussion model defined in Section 3. It is based on findings in [3][10][13] and the principles for traditional face-to-face focus groups identified in Section 2.

Step 1: Define online focus group objective.

The focus group method is well suited to generate ideas or discuss concepts [10], but it is not realistic to expect explicit and well defined requirements. The objective of a focus group for requirements elicitation can be, for example: share experience about process, legacy system and system context or generate new and exciting ideas for possible requirements. Input to this process step is information about business objective, system idea and constraints. The result of this step should be a clear view on focus group context, focus group objective and a coarse questionnaire to guide the discussion. Furthermore, focus group composition with expected participant profiles and viewpoints should be determined.

Step 2: Plan online focus group event.

Preparing an online focus group event requires several organizational tasks. First of all, an online platform for focus group discussion has to be set up. This includes setting up a new questionnaire with questions and ensuring platform availability and access rights to participants. Finally a time-frame for discussion has to be defined, in particular start, end and, duration. Distributed groups will need considerably more time to ensure that any participant has sufficient time to follow and contribute to the discussion.

Step 3: Define and recruit participants.

Group size plays a crucial role in focus groups. Small groups may be more efficient than large groups. However, in case of online focus groups, a higher number of participants might be reasonable in order to achieve a lively and more fruitful discussion. Finding and recruiting participants for a focus group event requires a high amount of effort. This step needs to follow a process to determine how to identify possible participants and motivate them to engage in the focus group event. Recruited participants need access to the discussion platform and need to be informed about discussion schedule.

Step 4: Conduct and analyze focus group session.

In online focus groups, not all participants might be available at the start of the discussion. The moderator has to ensure that any participant receives the information necessary to enter the discussion. This includes discussion procedure, rules and duration. The discussion itself is based on questions and comments. Questions are published by the moderator (one at a time or all at the same time), participants keep discussing by writing comments on questions and other comments. To express agreement with a comment or point

out its importance any participant may assign a value. The number of values assigned to a comment may give a hint about its importance with respect to the initial group objective and constitutes an important means for focus group analysis.

V. RESEARCH QUESTIONS

The model discussed in this paper adapts face-to-face focus group methodology as much as possible to online focus groups. The main idea behind this approach is that in general face-to-face focus groups are the best solution, but in some circumstances personal attendance of participants is not possible. In this case, online focus groups could be the second best solution. However, the question remains if online focus groups could be a methodology of their own. Research questions are for example:

1. Asynchronous online focus groups allow a highly variable groups size due to their virtual character. There are no physical limitations as for example room size. An interesting question to investigate would be what is a good group size for online focus groups to achieve the best results in requirements elicitation?

2. Group discussions that last over a couple of days may have a problem to motivate participants and to keep them engaged in focus group discussion. A corresponding research question would be how to improve motivation and achieve high engagement even over a longer period of time? This may include questions about using gamification techniques in online group discussions.

3. Traditional discussion methodology for face-to-face focus groups is based on questionnaires. The discussion model proposed in Section 3 adapts this approach to online focus groups. However, this might not be the best solution. Investigation can reveal discussion models more suitable for online focus groups. Maybe a more specific approach that distinguishes between questions, comments, jokes, answers, and so on might be more appropriate.

4. Focus groups usually use a two-role-model: a moderator supervises focus group session and several participants take part and discuss. Online focus groups may use a different role model. The moderator could for example be supported by co-moderators. Another model could use the client role as proposed in [7]. Discussion about online focus groups could find flexible role models that can be adapted to specific focus group events.

5. The approach presented in this paper addresses requirements elicitation in distributed stakeholder teams. However, it might as well be suitable for another research area that emerged recently: crowd requirements engineering. Requirements are elicited via crowd sourcing. The objective is to provide the engineering team access to a wide diversity of actual and potential users of new products [17]. An interesting research question could be how to successfully perform online focus group sessions with a potentially unlimited number of participants (the crowd).

VI. RELATED WORK

Group techniques for requirements elicitation are mostly group discussions with a specific discussion methodology. Examples are group work, brainstorming, requirements workshops or Joint Application Development (JAD) [1]. Using these techniques with asynchronous distributed stakeholder groups requires suitable tool support. A study conducted by Zarinah and Salwah reveals that there is a trend towards group based requirements elicitation tools. Discussion technique is mainly group meeting, group discussion and participatory design [9]. Group based requirements elicitation tools using focus group methodology are rare. The authors of [9] introduce a multi-viewpoint approach for tool-supported focus groups in requirements elicitation based on an iterative elicitation algorithm. A similar approach based on chat-messages is proposed by Davis [7]. The objective in this case is to support marketing research with distributed stakeholders.

Lloyd et al [16] investigated in a study the effectiveness of elicitation techniques in distributed environments. They found that requirements elicitation techniques like Question and Answer method, Customer Interview or Brainstorming were effective in distributed environments. However, the authors state that synchronous environments seem to be more effective than asynchronous environments.

The approach proposed in this paper tries to overcome this drawback. Presuming that concentration on well-defined requirements as a result of online group discussions may hinder creativity and group dynamics the approach proposed in this paper concentrates on group discussion methodology, how to support group dynamics in an online environment and how to engage participants that cannot share group session in real time.

VII. CONCLUSION

This paper proposes a concept to support asynchronous online focus group interviews as similar as possible to traditional face-to-face focus groups. In the center is a discussion model for focus groups based on a predefined questionnaire. Group members discuss by commenting on questions asked by a moderator. A comment can be any type of information: a real answer, a joke, an opinion, information or an experience report. Group members can assign marks of approval to contributions they think valuable to the topic under discussion. Furthermore, the concept defines a process model for planning and conducting asynchronous online focus groups using the discussion model.

The concept is still under research. Next steps will be to provide an implementation and evaluate the concept in real life project environments. Further research questions include group engagement and motivation as well as improved data analysis.

VIII. REFERENCES

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