

**Focus Groups:
Getting Practitioners Involved in Your
Empirical Software Engineering/
Information Systems Research**

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Overview of This Tutorial

- Focus Groups: Historical background and present developments
 - What makes a focus group cost-effective?
 - Critical design choices in setting up a focus group research process
 - Execution scenarios for focus group research processes
 - Supporting tools
 - Strengths & limitations
- Learning by doing: exercises in data collection and data analysis
- Approaches to writing-up and reporting of results



Background

- *Qualitative* research method
- Used to answer research questions that require *depth of understanding* that is hard to achieved through quantitative methods
- Purpose: exploratory, confirmatory, triangulation, phenomenology, reflection, post-mortem analyses
- Cost-effective, compared to other qualitative research methods
- Forms:
 - Face to face
 - Online



Purpose

- Gather background information
- Diagnose problems
- Collect feedback
- Get new ideas or identify new relationships
- Generate hypotheses
- Generate criteria for utility of new solutions
- Evaluate working solutions
- Interpret quantitative results




What Makes it Cost-effective?

- Helps you get immediate interactions with practitioners
- Grows from the conversation that develops in one-time meeting
- Less burden to the participants and less 'interviewing' time for the researcher
- Fully transcribed data, if online focus groups are used



Research Questions in a Focus Group Study

- Perception-based studies
 - How-do-you-cope questions
 - In-what-way-it-works questions
 - How-do-you-understand questions
- Empirical studies that use multi-method research processes
 - Qualitative & quantitative methods
 - Triangulation
- Supplement
 - Interpretation of quantitative data



How does Your Research Question Drive the Design of the Focus Group Process?

- Think of the kind of information you would need to collect
 - From whom would you get this information?
 - What kinds of perspectives are worthwhile including?
 - What kind of data analysis is appropriate
 - What kind of data analysis is feasible?
 - What kind of moderator's skills are needed?
- Write all details in your protocol, you will need it later on.



Validity Threats to Consider Early On

- Threats to validity due to data collection
 - Profile of participants
 - Number of participants
 - Type of discussion questions
 - Moderator's bias and conversation management style
 - Groups dynamics and dominant focus group members
 - Quality of data transcribing and follow-up meetings
- Threats to validity due to data analysis
 - Analytical techniques and tools available,
 - Skill levels: junior researchers versus senior researchers
 - Analyst's bias
 - Co-author's bias



Pragmatic Choices

- Check your immediate circle of business contacts to get potential focus group members, while carefully screening contacts against the ideal profile of participants you want to have
- Make sure you do not burden your participants with tasks to do
- Prepare as much as possible in advance: this is key to your focus group success
- Get creative on finding venues to meet if face to face is your preferred choice. Events (e.g. conferences) or on-site gatherings are good choices.
- Create a convenient environment if online focus groups are your preferred choice. Beware of the importance of asynchronous communication!
- First time moderators: consider doing 'a dry run' with a friend, to experience how it feels to ask questions
- In online groups: do test your environment



Traditional Focus Groups

- 8-12 participants
- Under direction of a moderator
- Formal, directive, structured
- 60-150 minutes
- Recorded, supplemented by field notes
- Can be observed by a scientific team



Online Focus Groups

- Larger number of participants
- Prolonged participations: from several weeks to months
- Convenience aspects of online environment
- Fully transcribed conversations
- Enough time to think before composing a text entry
- Redefined role of the moderator



Online Tools for Focus Groups

- Simple bulletin boards
- Free email services (yahoo, gmail, hotmail)
- Professional conversation platforms (e.g. blogs)
- LinkedIn Groups
- Other social media sites (e.g. ResearchGate)



Data – Qualitative/Textual

- Tape recordings
- Videos, if possible
- Transcriptions
 - 1 hour session: 30 to 40 pages max
- Field notes



Data Analysis

- Driven by underlying research question
- Qualitative
 - Interpretive, constrained by context
 - Topics – linked to group guidelines
- Steps
 - Mechanical – organizing, subdividing
 - Interpretive – developing subdivisions (code mapping), search for patterns within subdivisions, drawing meaningful conclusions
 - Inspiring coding techniques: thematic analysis, grounded theory, conversation analysis, narrative studies.
 - Tools: e.g., *The Ethnograph*; *Atlas.ti*; *QSR N6*
 - Concept ‘linking’: Mindmaps, tables, exceptions
- ‘Goodness’ of the analysis (also known as ‘Reliability’)
 - Repeated review of data
 - Independent analysis by another (possibly more experienced) analyst or the supervisor



Results

- Qualitative:
 - Themes, Issues, Concerns
 - Substantiating Quotes
- Quantitative:
 - No. of participants who agreed or disagreed: note that you do not use the data for statistical analysis purposes!
 - Frequency of themes within the group discussion
 - Sample characteristics



Strengths & Limitations

Focus group methodology is only as useful and as strong as its link to the underlying research question and the rigor with which it is applied.



Strengths

- Provides concentrated amounts of rich data, in participants' own words, on precisely the topic of interest
- Interaction of participants adds richness to the data that may be missed in individual interviews
- Provides critical information in development of hypotheses or interpretation of quantitative data



Limitations

- Small number of participants
- Limited generalizability
- Group dynamics can be a challenge
 - Particularly if moderator is inexperienced
- Interpretation
 - Could be time-consuming
 - Requires experienced analysts



Writing-Up: a Suggested List of Good Practices

- Use your focus groups protocol in writing the Research Method section of your paper.
- Contextualize your study by providing sufficient details so that the readers can evaluate for themselves if your observations would match their realities.
- Present your results in the order of your research questions.
- Supplement your results with quotations from the focus group.
- If possible, make the protocol available in your website, and put the link in your paper, so that reviewers and readers can see it and if they find your study interesting, then might want to replicate it.
- You may want to compare and contrast your results with previously published empirical studies if available. This can be an important component in the Discussion section of your paper/report.
- Think of implications of your results for research and practice.
- Use the reporting guidelines for qualitative research that have been proposed by other methodologists (e.g. P. Runeson, B. Kitchenham).



Using Focus Groups in a Master Project

- If focus groups are your only method to evaluate claims in an exploratory or conformatory study for a 6-months long graduation project, then you may need at least three focus groups
- Vary the profiles of the participants: note taht it's not about replicating the same setup
- Compare and contrast your findings



Using Focus Groups in a PhD Project

- Your focus group might well be embedded in a multi-method study
- One focus group would usually be enough in:
 - an explorative study at the start of the project
 - a confirmative study at the end of the project
- Your focus group might well be embedded in a multi-method study
- Check what inputs the focus group uses from the other pieces of research you've done and how it fits in 'the bigger picture'



Using Focus Groups in a Research Proposal

- Most likely to be in an explorative study
- If you can do it in the pre-proposal stage, it would 'give substance' to your proposal
- If no time to do it in a pre-proposal stage, then you can include a focus group in the first 6 months of your research plan
- Great fit in studies aimed at collecting state-of-the-art issues and challenges
- If you propose a method, you can use it for early evaluation of working solutions or first versions of the method



Conclusions

- Focus group methodology
 - provides rich depth of understanding of the phenomenon of interest
 - can be used in isolation, or to complement or supplement quantitative methods
 - is as useful and as strong as its link to the underlying research question and the rigor with which it is applied.



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