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AMEE GUIDE

Using focus groups in medical education research: AMEE Guide No. 91

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Abstract

Qualitative research methodology has become an established part of the medical education research field. A very popular data-collection technique used in qualitative research is the "focus group". Focus groups in this Guide are defined as "*. . . group discussions organized to explore a specific set of issues . . . The group is focused in the sense that it involves some kind of collective activity . . . crucially, focus groups are distinguished from the broader category of group interview by the explicit use of the group interaction as research data*" (Kitzinger 1994, p. 103). This Guide has been designed to provide people who are interested in using focus groups with the information and tools to organize, conduct, analyze and publish sound focus group research within a broader understanding of the background and theoretical grounding of the focus group method. The Guide is organized as follows: Firstly, to describe the evolution of the focus group in the social sciences research domain. Secondly, to describe the paradigmatic fit of focus groups within qualitative research approaches in the field of medical education. After defining, the nature of focus groups and when, and when not, to use them, the Guide takes on a more practical approach, taking the reader through the various steps that need to be taken in conducting effective focus group research. Finally, the Guide finishes with practical hints towards writing up a focus group study for publication.

Introduction

Qualitative methodology is well established in the field of medical education research. A popular data-collection technique used in qualitative research is the "focus group", originally called "focused group interview" which was initially described by Merton & Kendall (1946).

Focus groups in this Guide are defined as:

> *. . . group discussions organized to explore a specific set of issues . . . The group is focused in the sense that it involves some kind of collective activity . . . crucially, focus groups are distinguished from the broader category of group interview by the explicit use of the group interaction as research data* (Kitzinger 1994, p. 103).

While the focus group method is among the most commonly used approaches, within health professions education research it is often used poorly or not well understood. Several excellent books, manuals and reference materials on focus groups are already available (e.g. Barbour 2007; Stewart et al. 2007; Krueger & Casey 2009) aiming at different groups of readers. References to some of this material are made in this Guide, and readers may find their content complementary and useful in addition to the information conveyed herein.

Practice points

- Focus groups are a form of group interview that capitalizes on communication between research participants in order to generate data.
- Focus groups can be used to both explore and explain certain (social) phenomena in medical education.
- The number of focus groups depends on the amount of information that needs to be gathered; the optimum number of participants within a focus group is 8.
- The moderator can take on various roles to stimulate the discussion within a focus group.
- A questioning route is an important tool in getting rich information from the focus group.
- In analyzing focus group data, attention should also be paid to the interaction between participants and differences in the discussions between groups.
- Publishing focus group data should be imbedded within a deeper understanding of qualitative methodology and its guiding principles.

Focus groups in medical education

As described by Barbour (2005), the acceptance of focus groups as a research method within the field of medical education has run parallel with the more general acceptance of

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qualitative methods by health professions researchers. The use of focus groups in medical education research has grown exponentially in the 21st century. For example, focus groups have been a method of choice for performing needs assessments (e.g. MacDonald et al. 2007; Telner et al. 2008), program evaluation (e.g. McIntosh et al. 2008; Stergiopoulos et al. 2010), exploratory data collection (e.g. Bombeke et al. 2012; Cleland et al. 2012), explanatory data collection (e.g. Smithson et al. 2010; Duvivier et al. 2012), and design and validation of questionnaires (e.g. Wade et al. 2012; Riquelme et al. 2013; Strand et al. 2013). Where historically, focus groups were used as part of a mixed methods approach in which both quantitative and qualitative data was being collected, the use of focus groups as the principal method of investigation has increased in the last decade (e.g. Stalmeijer et al. 2009; Mann et al. 2011; Slootweg et al. 2013) (see Box 1).

In this Guide, we aim to provide the reader with a *concise theoretical context* for the design, implementation, and interpretation of focus groups, as well as to provide *practical* answers to commonly asked questions on why, when, and how to, conduct a focus group and analyze the resulting data. The sections in this Guide may thus be especially useful for aspiring researchers, providing "how to" advice, as we ourselves received from our colleagues and friends when we first started performing focus group. The Guide attempts to convey what we have learned ourselves in the process, providing some practical aids from the authors' own experiences. What has worked for us may also work for the reader. The information provided can thus be used as a starting point, but having done so you will undoubtedly notice that modifications and adaptations may be necessary to custom fit your circumstances, environment, and audience. Apart from practical guidance on the planning and performance of a focus group, the Guide also discusses contemporary shifts regarding methodological issues in order to provide insight into possible future developments in social, behavioral and medical education research.

How this guide is organized

This Guide is structured along the actual course of conducting a focus group in practice. Consecutive sections will focus on the fit between research questions and the focus group method (why focus group interviews instead of other techniques), research design and preparing and conducting focus groups. The Guide will conclude with a section on reporting the data, including writing-up the results for publication.

Defining focus groups

The history of focus groups

Focus groups are generally seen to have emerged in the 1940s when they were first used by Paul Lazarsfeld. The technique was further developed within sociology by Merton & Kendall (1946) during the Second World War to test the reactions of people to propaganda and radio broadcasts. They later grew to be an established research method in the field of marketing and organizational development (Barbour 2007).

Focus groups came into the education realm in the 1970s during a time of growing interest in participatory approaches to carrying out research (Freire 1970). Different narrative research methods became popular at this time with the focus group interview format embraced as a method to facilitate the production of knowledge for and by subjects. There was a parallel interest in medical education which had traditionally relied on the use of questionnaires as a primary data collection method (Barbour 2005). However, focus groups as a research method of choice did not become prevalent until the mid-1980s (Côté-Arsenault & Morrison-Beedy 2005). Today, focus groups are an increasingly popular approach to collecting data either on their own or more commonly in tandem with another technique such as interviews, for reasons we will explore.

Paradigmatic fit

Medical education as a field of inquiry is committed to pursuing scientific, social, and cultural questions related to medical training and practice as well as issues relevant to the health professions more broadly. The methodologies and accompanying methods for researching in the field are situated along a paradigmatic continuum (see Glossary). A paradigm is an interpretative framework, which is guided by "*a set of beliefs and feelings about the world and how it should be understood and studied*" (Guba 1990). This is important to consider when choosing a research method because it will directly affect the questions it is possible to ask and answer.

Focus groups as a method fit most commonly within a constructivist paradigm which views reality (ontology) as socially negotiated or constructed and knowledge (epistemology) as a product of the social and co-constructed interaction between individuals and society. More importantly, focus groups, as a method of data gathering, fit under a methodological umbrella concerned with how people make meaning from their experiences in the world (phenomenology, see Box 2 and Glossary). The researcher engaging in focus groups is interested in participants' ideas, interpretations, feelings, actions and circumstances. The knowledge that focus group research produces is therefore not measurable according to such precepts as validity, reliability or generalizability which all belong to ideas and values posited within a positivist paradigm.

Much has been written about the relative merits and value of quantitative and qualitative approaches within medical education research. We are not interested in entering or supporting this debate but rather to help researchers interested in focus groups as a method to appreciate the inherent logic of alignment between paradigm (constructivism), methodology, and method.

Defining focus groups

As Table 1 demonstrates many different definitions of focus groups exist. What these definitions have in common are the following features:

Focus groups involve:

- a discussion within a (small) group of people is the focus of the research,

Table 1. Collection of definitions of ''focus groups'' based on Table 1 in Freeman (2006).

References	A Focus Group is . . .
Barbour (2007)	Any group discussion may be called a focus group as long as the researcher is actively encouraging of, and attentive to, the group interaction
Bowling (2002, p. 394)	. . . unstructured interviews with small groups of people who interact with each other and the group leader. [Focus groups] have the advantage of making use of group dynamics to stimulate discussion, gain insights and generate ideas in order to pursue a topic in greater depth
Freeman (2006)	. . . a form of group interview that places particular importance on interaction between participants
Kitzinger (1994, p. 103)	. . . group discussions organized to explore a specific set of issues . . . The group is focused in the sense that it involves some kind of collective activity . . . crucially, focus groups are distinguished from the broader category of group interview by the explicit use of the group interaction as research data
Kitzinger (1995, p. 299)	A form of group interview that capitalizes on communication between research participants in order to generate data . . . focus groups explicitly use group interaction as part of the method
Krueger & Casey (2009)	A focus group study is a carefully planned series of discussions designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment. Each group is conducted with 5–10 people led by a skills interviewer. The discussions are relaxed, and often participants enjoy sharing their ideas and perceptions.
Krueger (1994, p. 6)	. . . a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment . . . Group members influence each other by responding to ideas and comments in the discussion
Krueger (1988, p. 47)	Focus groups have a distinctive cluster of characteristics: (1) focus groups involve homogeneous people in a social interaction, (2) the purpose is to collect qualitative data from a focused discussion and (3) focus groups are a qualitative approach to gathering information that is both inductive and naturalistic
Morgan (1996)	. . . a research technique that collects data through group interaction on a topic determined by the researcher. This definition has three essential components. First, it clearly states that focus groups are a research method devoted to data collection. Second, it locates the interaction in a group discussion as the source of the data. Third, it acknowledges the researchers' active role in creating the group discussion for data collection purposes.
Parker & Tritter (2006, p. 29)	Focus groups are valuable because they provide one method for capturing group interaction and harnessing the dynamics involved to prompt fuller and deeper discussion and the triggering of new ideas.
Powell & Single (1996, p. 499)	A group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research (Powell & Single 1996)
Stewart & Shamdasani (1990, p. 140)	Focus groups provide a rich and detailed set of data about perceptions, thoughts, feelings and impressions of group members in their own words (Stewart & Shamdasani 1990)

- a discussion within the group is focused on a certain topic,
- a group led by a researcher/moderator/guide who stimulates active engagement of participants in a discussion,
- an interaction between group members which is used to gain depth in the exploration of the topic of discussion,
- an understanding that this interaction is also a focus of the analysis.

Focus group versus group interview

Many different definitions of focus groups exist and different concepts are (sometimes incorrectly) used simultaneously or interchangeably, e.g. focus groups, focus group discussion, focus group interviews, focused interviews and group interviews. The important distinction here is between the focus group and the group interview. There is a fundamental difference between the two research techniques with the critical point of distinction being the role of the researcher and his/her relationship to the researched (Smithson et al. 2000 cited in Parker & Tritter 2006, p. 25). ''*In group interviews the researcher adopts an 'investigative' role: asking questions, controlling the dynamics of group discussion, engaging dialogue with specific participants. This is premised on the mechanics of a one-to-one, qualitative, in-depth interview being replicated in a broader (collective) scale*'' (p. 26). In a focus group, the researcher takes on a peripheral role acting as a moderator or facilitator; that is, facilitating the group discussion between participants not between her/himself and the participants. ''*It is the inter-relational dynamics of the participants that are important, not the relationship between the researcher and the researched* (Parker & Tritter 2006, p. 26).

Why and when to use focus groups?

Why use focus groups

As mentioned earlier the main reason for using focus groups is to gather information from different participants' points of view. In depth, conversational exchanges between participants and moderator offer an opportunity to hear not only what participants are thinking and feeling but also the details about circumstances through which meaning has been constructed. So, one aim of focus groups is to record, understand and explain the meanings, beliefs and cultures that influence the participants' feelings, attitudes and behaviors (Rabiee 2004). Focus groups are thus particularly appropriate for exploratory research, i.e. research in poorly understood or ill-defined topics (Kitzinger 1995).

A second aim of focus groups is to further strengthen and confirm preliminary data from studies that possibly used other research tools, i.e. an explanatory design study. Although focus groups are more often used for exploratory and explanatory purposes, they can also be used as confirmatory tools (Stewart et al. 2007).

When to use focus groups

Focus groups can be used prior to, during and after other investigations or research. However, since focus groups are particularly appropriate for research in poorly understood or ill-defined topics (Kitzinger 1995), they are frequently used early in a research project, and are often even employed as a starting point, to lay the foundation for subsequent research using other research techniques such as surveys. Focus groups can also be used *after* other research methods in order to help further explore the data collected, to gather in-depth information or to refine or interpret previously gathered data; in other words to study associations that need clarifications, elaboration or "salvaging" (Powell & Single 1996). Box 1 provided an overview of some of the various uses of focus groups in medical education research.

When not to use focus groups

Cases in which focus groups might not be the best method of data collection are studies in which research questions are directed at gathering potentially sensitive or personal information that people might not want to share within a larger group. Also, studies situated in research settings which are characterized by large power differentials between potential participants are advised not to use focus groups since the power differential might cause participants to stay silent within a focus group setting in fear of repercussions for sharing their opinion. In both cases, one-on-one interviews are preferred over focus groups (Barbour 2007).

Other considerations to make when choosing between qualitative data collection methods can be found in Box 3.

Challenges to the focus group method

Research using focus groups has inspired a certain degree of controversy and criticism within medical education, just as qualitative methods have more generally (Stewart et al. 2007). The first concern cited is the lack of "hard quantitative data" produced, and the second relates to the composition of groups that may not necessarily be representative of a larger or the whole population (Stewart et al. 2007). Both these concerns reflect a misunderstanding about the paradigmatic assumptions underpinning all qualitative methods. With respect to the first concern, unlike constructivist research approaches, a positivist research perspective seeks quantitative data that can be proven to be "true" and therefore can be reliably applied universally across multiple sites (generalizable). In fact, when properly employed focus groups can "*reach the parts that other methods cannot reach*" (Kitzinger 1995). The researcher is interested in the depth and richness of the information

Box 1. Focus groups in medical education research.

Example: Needs assessment
MacDonald et al. (2007) used focus groups to perform a needs assessment with regard to cultural training for pediatric residents. The researchers conducted focus groups with pediatric residents and faculty. Results of the focus groups were used to design a workshop which was later evaluated.

Example: Program evaluation
Stergiopoulos et al. (2010) used focus groups in the evaluation of a curriculum that had been designed to teach psychiatry residents managerial skills. During the focus groups, the barriers to teaching and learning administrative skills, preferred curriculum content and format and suggestions for integration of administrative training into the residency program were elicited.

Example: Exploratory data collection
Bombeke et al. (2012) used focus groups within a phenomenological design to explore the lived experiences of medical students and doctors to gain a better understanding of the impact of communication skills training on patient centeredness in the transition to real practice.

Example: Explanatory data collection
Rennie & Crosby (2002) used focus groups in a study to better understand the implications of ''whistle blowing'' on faculty misconduct for students' self-regulation. First, the researchers administered a questionnaire to the entire student population. Results of the questionnaire study were discussed within focus groups to further understand the mechanisms surrounding whistle blowing.

Example: Design and validation of questionnaires
Wade et al. (2012) used focus groups as the starting point for the design of a questionnaire to measure and compare students' perceptions of and preparations for the progress test at two medical schools.

Example: Validation of a theoretical framework
Stalmeijer et al. (2009) used focus groups with senior medical students to investigate the applicability of the cognitive apprenticeship teaching methods as a teaching model during the clerkship phase of the undergraduate curriculum. Using vignettes describing the separate teaching methods, the moderator asked the participating students to reflect on the extent to which they had experienced these teaching methods during their clerkships, to provide examples of the application and to describe circumstances under which these teaching methods could be desirable.

Example: Design and evaluation study
de Feijter et al. (2011) used a mixed methods design to develop and evaluate a patient safety course for final-year medical students. The researchers used an evaluation questionnaire, data from completed incident report cards and focus groups to gauge the students learning experiences based on the course. In total eight focus groups were organized, four before the course to gauge learning needs, and four after the course to evaluate the perceived learning outcomes.

Box 2. Focus groups and methodology.

As mentioned in the section on paradigms, the choice of method falls within a methodology which is supported paradigmatically by particular ontological and epistemological views (see Glossary). Focus groups as a method are found in a variety of methodological frameworks in medical education research. Given the exploratory and explanatory value of focus groups to a research design, they are suitable for methodologies like Grounded Theory, where they may be engaged along with interviews or observations (see e.g. Lingard et al. 2004). As mentioned, phenomenology supports focus groups as a method often in combination with individual interviews (see e.g. Bombeke et al. 2012). Action-Research, as a methodology espouses values of participant engagement with the idea that the research results will bring about social change and that the methods belong to the group being researched and not only to the researcher. In this methodology, focus groups once again can be combined with other quantitative or qualitative methods (see, e.g. Lefroy et al. 2011). Mixed method methodology also supports the use of focus groups, often in combination with questionnaires (see, e.g. Coffey et al. 2010).

Box 3. Focus group versus other qualitative methods (adapted from Gibbs 1997).

Focus group versus interview
Compared to one on one interviews, which aim to obtain individual attitudes, beliefs and feelings, focus groups elicit a multiplicity of views and emotional experiences and information within a group context. The individual interview is easier for a researcher to control than a focus group in which the dynamic between participants may take the process away from the topic.

Focus group versus observation
Compared to observation, a focus group enables the researcher to gain a large amount of perceptual information in a short period of time. In the focus group method, a researcher has a ''focus'' and can direct participants' attention to relevant topics. Observational methods fall under the umbrella of an ethnographic methodology and represent different approaches to gathering rich narrative data, often with an emphasis on tacit knowledge, or rather insider knowledge that is taken for granted by the group being observed. While focus groups allow a researcher to collect self-reported ideas and feelings about a topic or issue in a planned period of time, observational methods require immersion in an environment over periods of time while waiting for things to happen.

Focus group versus document analysis
Where focus groups use group discussions to collect perceptions, constructions and opinions about a research topic, document-analysis is used to provide data in situations that cannot be investigated by direct observation or questioning. Although one of the advantages of document-analysis could be that the text used for analysis represents rather thoughtful data, a clear disadvantage in comparison to focus groups is that one cannot always probe the participant for further explanation of their writing or to elaborate on certain statements. However, document-analysis could be used to put focus group data in context.

Table 2. Perceived advantages of focus groups (adapted from Stewart et al. 2007).

Advantages
• Information can be gathered more quickly and less costly compared to individual interviews
• Provide direct interaction with and observation of the respondents, both verbally and non-verbally
• Opportunity to obtain large and rich data in the respondents' own words
• Individual respondents can react to and build on other group members' responses
• Flexibility of the tool: can be used in the research of a wide range of topics, individuals and settings
• Results are user friendly, easy to interpret, no complex statistical analysis required

Table 3. Perceived disadvantages of focus groups (adapted from Stewart et al. 2007).

Disadvantages
• Not all participants may participate to a comparable extent: more dominant individuals may thwart full participation by all members thereby curtailing the richness of the data
• The moderator may likewise have difficulty managing group dynamics and get taken off course, unable to collect the information about perceptions that they seek
• Focus group transcripts can generate a large volume of data (hundreds to thousands of pages) and requires more committed time to organize, interpret and analyze than interviews or observational field notes

collected and is not suggesting the findings are "true" in other contexts.

The second concern about group composition also reflects a misunderstanding about the objectives of qualitative methods in which "representativeness" is tied to the specific contexts and topic areas and not to the representation of a population. These differences will become clearer in the following sections on sampling strategies and decisions about focus group formats. Also raised as a concern is the notion that qualitative research is "vague", or lacks rigor. These arguments and concerns reflect larger arguments within medical education research and to which focus group researchers must have justifiable responses. Therefore, it is important to be able to rationalize your choice of focus groups as a method according to methodological and paradigmatic understanding. Medical education research has matured and we are no longer in an age when stating *what* you did is enough to satisfy research standards

In Tables 2 and 3, a summary is displayed of a more extensive overview of the advantages and limitations of focus groups published elsewhere (Stewart et al. 2007). Having acknowledged, the strengths and challenges associated with the use of focus group interviews we can now move towards the design, planning and execution of focus groups.

Preparing for focus groups

After having decided that focus groups are the most appropriate method to answer your research question, preparing for data collection starts.

When preparing for focus groups the leading questions should be:

(1) Who are my potential participants and how many should I include?
(2) How should I compose the groups; who should be in them?
(3) How big should the groups be?
(4) How will I compose my questions to explore and answer the key research question?

Box 4 provides a comprehensive overview of the various activities to perform before, during and after running a focus group (Tiberius 2006, with permission).

Sampling

Effective sampling is key to the success of focus groups and to determining their comparative potential (Barbour 2007). Sampling for focus groups involves a researcher's strategic choices about how different group configurations may impart a range of ideas and insights into a research question. As with all qualitative methods, a sample must "fit with the question" and "fit with the phenomenon" being investigated (Crabtree & Miller 1999). However, as well as considering "what" is sampled the researcher must consider "how" to go about assembling meaningful groups.

"*The purpose of qualitative sampling is to reflect the diversity within the group or population under study rather than aspiring to recruit a representative sample*" (Barbour 2007). The "focus" of focus groups is the emergence of

Box 4. The Focus Group Guide created by Richard Tiberius, *PhD., Director and Professor, Educational Development Office, University of Miami Miller School of Medicine. © 2006.*

1. The setting: It is recommended that participants be seated at a table. Participants feel more comfortable when they are able to lean on the table and they feel more secure and relaxed when they can cross their legs or fidget without being distracting. Refreshments are a good idea if they add to the relaxed atmosphere.
2. The relationship of the interviewer with the interviewees: There is a trade-off inherent in the interviewer–interviewee relationship. A strongly opinionated interviewer may inhibit frankness while an interviewer who does not seem to care at all about the issue may fail to generate motivation. Try to strike the pose of a neutral outsider who is curious about their experiences but without a vested interest.
3. Arrange for someone else (not the moderator) to take notes.
4. Introduction:
Say something to put people at ease.
State the ground rules.
Ask participants not to feel obligated to strive for agreement with others in the group. Assure them that you would be just as interested in recording a *range* of opinion as you would be in obtaining a consensus.
5. Audio recording:
Mention the audio recording. If the session is being audio recorded you must notify the participants.
Assure them that the information will not be used for any purpose except research and that they will never be identified personally. Only group data will be reported.
Provide the option to decline. Say something like the following: ''*If anyone is uncomfortable about being recorded please say so. I will then take more extensive notes*''.
Quality of recording. Ask them to speak up and to speak one at a time since otherwise the recording will be difficult to decipher.
6. Explain your goal. Explain to the participants that your goal is to learn from their experience, to find out from them what cannot be learned any other way. You are eliciting their helpful cooperation.
7. Ensure that participants are aware of the phenomenon on which the group is focusing its attention. Ask participants to describe their response to the experience or phenomenon under study. You will not have to spend too much time on this. A simple reminder of the phenomenon is sufficient to make sure everyone is talking about the same thing.
8. Capturing initial thoughts: Often, in focus groups, everyone blurts out ideas quickly at the beginning and some of them will be lost if they are not written down. It is a good idea to explain to the group that you have jotted down the ideas in point form and will return to them as soon as the first idea is fully discussed.
9. Global attitudes uninfluenced by specifics. Ask them for their global attitude or judgment, e.g. was the experience worth the time spent, but without going into any specific detail (evaluation of usefulness). This will provide a global vector, negative or positive, about their perceptions of the experience or phenomenon. These global attitudes must be assessed *before* you ask about specific feelings, because the latter will affect the global attitudes. Specific questions asked too early in the process may funnel the group's thinking into a path that they may not have chosen in the absence of such influence.
10. Specific attitudes: Next ask them to be specific about their feelings regarding the experience or phenomenon. This is essentially a follow-up to the global response.
11. Reasons for attitudes: Ask them to explain *why* they feel this way.
12. Intensity of attitudes: Ask them to estimate how *strongly* they feel.
13. Follow-up: Probing to follow-up good leads is another useful strategy. A good probe should seek elaboration or clarification in a general way. It should not suggest specific answers to the participants.
14. Make oral summaries at the close of a topic to check out your perceptions with the group.
15. Group process – countering domination by individual group members. It's a good idea to ''go around the group'' occasionally in order to counter the tendency of the group to accept one person's view as the group consensus. In the introduction, it is also useful to ask them not to be concerned about agreement with other people in the group. Assure them that you would be just as interested in recording a range of opinion as obtaining a consensus. Finally, attempt to include all of the members of the group equally in the discussion.
16. Low-moderator control: Reduce the number of questions to a few and try not to appear as though you are going through a list of questions when you are interviewing. The discussion should appear spontaneous to some degree. If participants perceive that a rigid set of questions is being followed they may be reluctant to digress into areas that may be important. You want to use the questions as a guide but not adhere to them rigidly. The secret to a good focus group is that it is not moderator-dominated.
17. Record your impressions soon after the focus group, while they are fresh. Discuss and compare your impressions with those of another moderator or recorder.
18. Leave a data trail, from field notes, recordings, or oral summary of key points.
19. Later, check the validity of your summaries with participants.

opinions, meanings, feelings, attitudes and beliefs about a topic area and so it is the dynamics within any group as much as the answers provided to questions that will provide the researcher with essential data. The question of who is best suited as a participant to meet your needs as a researcher is tied to issues of analysis and the kinds of comparisons you may want to make at the end of the day. In this respect, sampling is considered by some qualitative researchers to always be ''purposeful''. Patton identifies sixteen kinds of purposeful sampling strategies (Crabtree & Miller 1999), however for the purposes of focus groups these can be narrowed down. The two most common approaches are referred to as ''theoretical'' (Glaser & Strauss 1967; Mays & Pope 1995) sampling and ''purposive'' (Kuzel 1992) sampling.

Theoretical sampling

Theoretical sampling is described by Glaser & Strauss (1967) as the ''*process of data collection for generating theory whereby the analyst jointly collects, codes and analyses the data making decisions about what data to collect next and where in order to develop theory as it emerges*''. In other words, decisions about focus group composition serve to further elucidate concepts that emerge during the focus groups themselves. This is an inductive and iterative strategy in which composition and membership in a focus group may change as the research progresses. For example, in research exploring ideas about the role of medical students in the clinical workplace, four focus groups may be carried out (medical students, patients, nurses, and doctors) with the

intent of finding out the different groups' beliefs about the role of medical students. Questions asked during the different groups will help evolve a theory about what the role of medical students is in the clinical workplace from the different perspectives. A further focus group may be planned to further explore the theory, as such "*The process of data collection is controlled by the emerging theory*" (Glaser & Strauss 1967).

Purposive sampling

Purposive sampling anticipates the use of selected criteria in making comparisons once the data have been generated (Barbour 2007). It starts with a purpose in mind and the sample is thus selected to include people of interest and exclude those who do not suit the purpose. For example, one wants to explore the differences between two groups, about their views on a new assessment method; one consisting of teachers and the other made up of students. Decisions about the makeup of different focus groups are made with the intent of interrogating and comparing data purposefully. There is still an interest in breadth of understanding and meaning making by the participants with respect to the topic however it is more deductive in that the data is collected with the intent of comparing the differences and similarities between the groups to the assessment method rather than exploring that assessment method. There is a common misunderstanding that purposive sampling necessarily inflates the number of participants involved. However, as Barbour (2005) suggests, each participant may potentially meet several of the desired criteria in terms of diversity making multiple comparisons possible with fewer participants than at first might be apparent (Barbour 2005).

Saturation

It is considered good practice in qualitative research to sample until saturation is achieved. This refers to a time when no new ideas about your topic or problem emerge from the various focus groups. Strauss & Corbin (1998) suggest that "saturation should be concerned with reaching the point where it becomes "counter-productive" and that "the new" which is discovered does not necessarily add anything to the overall story, model, theory or framework (p. 136). The idea of saturation speaks to the question of how many focus groups are needed in order to answer the research question. Because the goal is not about representativeness of the data but rather diversity and depth of information the understanding, as with other qualitative methods, that data collection is complete when the material collected is redundant.

Group composition: same but different?

Connected to decisions about sampling strategies are those related to group composition. Facilitating group dynamics and moderating different responses relies on strategic group configuration. Issues of sampling and selection will prove to be crucial in relation to the form and quality of interaction in a focus group and therefore the kinds of data one gathers and the extent to which participants share their opinions attitudes and life experiences (Parker & Tritter 2006).

Decisions about heterogeneous versus homogeneous groups as well as issues of power relations within groups all factor into the possibility of gathering rich focus group data. Other considerations include the degree of familiarity among the participants – strangers versus friends, colleagues versus professional peers and the level of compatibility among the participants (Crabtree & Miller 1999). Focus groups are essentially social gatherings in which one's comfort with sharing is an important consideration. So, as suggested by Crabtree & Miller (1999, p. 115), the best focus group participants "*will have some degree of personal or professional investment in the topic under examination either as a consumer, provider or policy maker*" ensuring that they will have something to say on the topic under examination.

Homogeneous group composition

"*Focus groups should be homogeneous in terms of background and not attitudes*" (Morgan 1988, cited in Barbour, p. 59). The advantage of group homogeneity is the familiarity that comes from shared background or experiences which can go a long way in facilitating open communication and exchange of ideas. Similar contexts may also promote a sense of safety in expressing conflicts or concerns (Crabtree & Miller 1999). Disadvantages include the possibility of "group think" or the lack of diversity in ideas as well as hidden agendas or power struggles within a group. Group dynamics can change when participants have a prior relationship necessitating a higher facilitator involvement to limit "side conversations" and assumptions about knowledge, experience and opinions (Morgan 1988; Stewart & Shamdasani 1990 in Crabtree & Miller 1999, cited in Barbour, p. 60).

Heterogeneous group composition

As the name implies a heterogeneous sample brings together participants from diverse backgrounds and experience in order to stimulate discussion and provide new insights into the topic area. Introducing a range of differences in a group may facilitate ideas and potentially conflicting perspectives into conversation may inspire group members to consider the topic under discussion in a different light (Crabtree & Miller 1999, p. 115). Depending on whether the focus group participants already know each other or not, heterogeneous groups might have their advantages and disadvantages. One of the advantages of heterogeneous group compositions in cases where the participants do not know each other is that everyone comes to the meeting without pre-set assumptions about the other people in the group. Another advantage is that with this anonymity comes the possibility of more candid input on emotional or highly charged topics. A heterogeneous group is also less likely to be swayed toward consensus agreement by a dominant member who they may never see again. Finally, the preservation of confidentiality is more likely in a disparate group of individuals who are unlikely to cross paths. However, these advantages are rendered invalid as soon as previous relationships exist between participants. Furthermore, a clear disadvantage of a diverse group composition is the possibility of power imbalances and lack of respect for differing opinions (Crabtree & Miller 1999, p. 115). It is not advisable to put

individuals of differing levels of power and expertise such as teachers with students or supervisors with employees together in a group as there may be issues of safety with respect to consequences. Apart from issues of expertise, one dominant person can effectively destroy a productive and open group dynamic. The facilitator has to be sensitive to the various intersections of power that may not be immediately apparent such as gender imbalances, age, socio-economic status as well as professional and educational background. Although all differences cannot be eliminated even in homogeneous groupings, it is essential for a focus group moderator to be aware of and sensitive to such imbalances during the group sessions (also see section titled "Group Dynamics"). The very anonymity that allows for the freedom of expressing ones thoughts can also become a destructive and silencing force for the rest of the group requiring sophisticated moderation. However, a little bit of disagreement and tension is not necessarily a bad thing in a focus group and can be used to help clarify what lies beneath opinions and perspectives. The most important consideration when deciding on your group composition is which type will help you better answer your question?

Number of groups

Most researchers agree that there is no magic number of focus groups for the successful completion of your data collection. The deciding factor rather depends on the number and kinds of comparisons you want to make. The underlying principle remains saturation (see Glossary). Along with these considerations is the understanding that running more groups is not necessarily better. However, Crabtree & Miller (1999, p. 118) suggest that when focus groups are to be the sole source of data collection a minimum of four to five focus groups is recommended. Barbour suggests that nominal three or four focus groups are advisable if you want to conduct across group analysis looking for patterns and themes.

Focus groups are often singular events with a particular configuration of participants unlikely to be called to meet a second time. However, there are exceptions to this depending on the topic and the overall intent of the study. For example, focus groups which are designed with a community focus can be run in a series in order to explore initial responses or experiences of participants followed by a second meeting which may include a report back to the participants about the outcomes of the first focus group. The intent of the second meeting is to deepen understanding about a shared phenomenon and gather further information not captured during the first group. The advantage of having more than one focus group with the same participants is that typically people are more comfortable in a second meeting with the possibility of stories being shared that include greater detail and more particular examples.

Size of groups

The optimal size of a focus group is agreed to be between six to ten participants (Morgan 1996; Crabtree & Miller 1999; Barbour 2005; Krueger & Casey 2000) although as with other elements of qualitative research methods this varies depending on the research context and topic area. Côté-Arsenault & Morrison-Beedy (2005) suggest that group size depends not only on the topic but also on other factors such as gender, and developmental levels of the participants (p. 175). The groups should be large enough to allow for varying opinions and perspectives and small enough to allow each individual to participate fully and be heard (Côté-Arsenault & Morrison-Beedy 2005; Krueger & Casey 2009). When a group exceeds a dozen people there may be a tendency for the group to fragment. Participants who want to speak may not have the opportunity to and so begin sharing their views by whispering with their neighbors. This is always a signal that the group is too large.

For social science (and health sciences) research Barbour (2007) advocates for a maximum of eight participants per group for a number of reasons. In terms of moderating groups (picking up and exploring new leads as these emerge), she suggests that with the requirement of researchers to identify individual voices, seek clarifications and further explore any differences in views that merge make larger groups exceedingly demanding. Also, in terms of analysis, focus groups are subject to verbatim transcription and detailed and systematic scrutiny meaning that the data set will be rich without being overwhelming. A minimum number of three or four participants is possible (Kitzinger & Barbour 1999; Bloor et al. 2001) and for some topics may be preferable. However, if a group is too small each participant may feel the pressure to speak, turning the session into more of a group interview rather than focus group dynamic (also see later on running a focus group).

Length of focus group session

Although there is no hard and fast rule about how long a focus group should run, it is best to plan for between one hour to one and a half hours depending on the topic and the degree of interaction and engagement by the participants. If a focus group is not long enough, there is the risk of not fully exploring the topic under inquiry. Remember that a focus group is meant to delve deeply into an issue or group understanding about a phenomenon. However, there is a point of exhaustion for both participants and focus group facilitators so it is not recommended to extend a session more than two hours. It is respectful of the participants' time to finish at the scheduled time and this requires moderator skill in time management during the session. This question of session length intersects with the number of questions that you are planning to ask with the understanding that the questions need to be adaptable to the direction which the group may take at any point in the session.

Creating questions for your focus groups

Part of the preparation of focus group research is designing the questions that you intend to ask the participants. We recommend preparing a list of questions that will help you as the researcher and for the moderator to guide the discussion within the focus group. This list is known as a discussion guide, an interview guide, or a questioning route (Krueger & Casey 2009).

Box 5. Categories of questions in a questioning route (based on Krueger & Casey 2009).

Opening questions
Purpose: to get everyone to talk early in the discussion
Characteristic: easy to answer quickly (about 30 s!), ask for facts, not attitudes or opinions
Should not: highlight power or status differences among participant
Example: ''In what role do you interact with nursing students?

Introductory questions
Purpose: introduce the topic of discussion and get people to start thinking about their connection with the topic. Give moderator clues about participants' views
Characteristic: open-ended questions
Allow participants to talk about how they see or understand the issue
Example: What do you think are some important considerations with respect to your work?

Transition questions
Purpose: move the conversation into the key questions that drive the study, set the stage for productive key questions
Characteristic: goes into greater depth than introductory question but are along the same lines
Example: How do you respond in the circumstances you describe?

Key questions
Purpose: these are the questions that drive the study
Characteristic: two to five questions
Usually the first questions to be developed in the developing process
Moderator should reserve sufficient time to answer these
Moderator needs more pauses and probes to get to the heart of things
Example: Can anyone describe the stages that you have seen students' progress through over the course of their time with you?
Are there any messages or concepts that anyone feels are crucial to impart to students over the course of your work with them?

Ending questions
Purpose: bring closer to the discussion
Enable participants to reflect back on previous comments
Types: ''*all things considered*'' – *question* – determine final position of participants
Summary question – moderator provides a summary of the discussion and asks participants to reflect on the adequacy of the summary
Final question, make sure that nothing was overlooked – ''have we missed anything?'', ''is there anything that we should have talked about but didn't?''
Example: Thank you for your time today. Is there anything that you would like to say that I have not covered?

Box 6. Special considerations: online focus groups.

Market researchers, who were the developers of the traditional face-to-face focus group method, have recently turned their attention to online, or virtual, focus group techniques. To date, social scientists, despite their enthusiastic uptake of face-to-face focus group method and their development and theorizing about it, have been slower to adopt this particular online method; yet using the Internet to conduct focus groups with particular interest groups has enormous potential for qualitative social research (Turney & Pocknee 2008). Researchers, Turney & Pocknee (2008) among others, have studied the effectiveness of virtual focus groups, in the context of a trial, with the following recommendations. They found the online format was theoretically sound and met the key criteria of traditional focus group methods as outlined by Krueger (1994) and Morgan (1988). They therefore recommend that researchers use the online method more regularly and evaluate its usage in a variety of contexts to confirm their findings.
New technologies and information communication tools (ICTs), they suggest, provide unique and inventive opportunities for qualitative researchers. Their intrinsic ability to record written, discursive data accurately and provide safe, secure, and anonymous environments for participants makes them amenable to testing a variety of qualitative research methods (Turney & Pocknee 2008). However, when researchers are planning such studies, the authors suggest they need to consider the theoretical underpinnings of these methods, as well as the specific access and equity issues that might be pertinent to their use. These matters need to be measured carefully against the obvious advantages new technologies provide for connecting researchers with populations who would otherwise be unable to participate in a research project (Turney & Pocknee 2008).

In their 2009 guide, Krueger & Casey stress the importance of preparing a questioning route, and suggest the following steps in designing your guide:

First, brainstorm together with a few people that are familiar with and knowledgeable about your subject. The aim of this phase is to explore and then focus in on ''key questions – those questions that will drive the study'' (p. 52).

The next step is to phrase questions so that they are open-ended, simple and conversational in nature. These types of questions allow participants to decide the direction of their response, decide when to join the conversation and keep the discussion going. Not only phrasing but the sequencing of questions is important. Krueger & Casey (2009) suggest that general questions should come before specific questions, positive questions before negative questions, and un-cued questions before cued questions.

In the additional steps described by Krueger & Casey they stress the importance of estimating time needed for responses for each question and the possibility of needing to revise the questions when necessary. Box 5 provides an overview of the categories of questions relevant to ask within focus group research, whilst Box 6 provides special considerations when working with on-line focus groups.

Running a focus group

The role of moderator

The role of the moderator is a demanding and challenging one, and moderators will need to possess good interpersonal skills, be good listeners, non-judgmental and adaptable. These qualities will promote the participants' trust in the moderator and increase the likelihood of open, interactive dialogue (Gibbs 1997). The main responsibility of the person running a focus group is to facilitate discussion and exchange of ideas between participants. Although there are moderator styles in which each focus group member answers a question directly back to the moderator, one at a time, this falls more within the form of a group interview, discouraging exchanges that may provide new unforeseen dimensions to the research topic under investigation. The degree of control and direction imposed by a moderator will depend upon the goals of the research as well as on their preferred style. If two or more moderators are involved in the facilitation of a focus group, agreement needs to be reached as to how much input or direction each will give. However, it is recommended that just one moderator facilitates and the other takes notes and checks the recording equipment during the meeting. There also needs to be consistency across focus groups, so careful preparation with regard to role and responsibilities is required (Gibbs 1997).

Once a meeting has been arranged, the role of moderator or group facilitator becomes critical, especially in terms of

providing clear explanations of the purpose of the group, helping people feel at ease, and facilitating interaction between group members.

During the meeting, moderators may need to promote debate, perhaps by asking open questions. They may also need to challenge participants, especially to draw out differences, and tease out a diverse range of meanings on the topic under discussion. Sometimes moderators will need to probe for details, or move things forward when the conversation is drifting or has reached a minor conclusion in order to keep the session focused by deliberately steering the conversation back on course. Moderators also have to ensure everyone participates and gets a chance to speak. At the same time, moderators are encouraged not to show too much approval (Krueger 1988), so as to avoid participants' attempts to please the moderator. Moderators must avoid giving personal opinions so as not to influence participants towards any particular position or opinion.

Moderator – conflicting roles?

In many circumstances it is not appropriate for the principal investigator to act as the moderator. The danger that lies in this role allocation may be that the principal investigator is too focused on the research question and potential personal theories underlying this question. It could be very difficult for this person to set aside these theories and assumptions and to remain open to alternative theories put forward by the focus group participants. Another main consideration in the decision to appoint someone unknown to the group as a moderator; this has to do with issues of power, and the limiting influence of a reporting or other relationship on participants' ability to speak freely without fear of reprisal. Appointing an unknown moderator avoids influencing the discussion based on personal knowledge or experience (Gibbs 1997).

The role of the observer

When possible it is a benefit to have both a moderator and an observer (other member from the research team or research assistant) take part in the running of a focus group. An observer offers another set of eyes and ears and is valuable in picking up non-verbal nuances in participant reporting that may be missed by the moderator. Physically positioned outside the group itself and outside of eye line, an observer is able to take notes more easily and hear information being shared between participants that a moderator, who is both positioned as part of the group and is busy directing the flow of conversation, may not. The different functions may thus be divided between different researchers and provide a richer set of data to be discussed and analyzed. Following a focus group, it is good practice to allow time for both the moderator and the observer to jot down additional observations and thoughts related to the focus group which can then be included in follow-up research meetings (Gibbs 1997).

Moderator styles

Generally speaking moderators can take on two broad styles, the directive and the non-directive style. The directive moderator style is most appropriate when the questions to investigate are numerous and focused (e.g. technical documents, new program or questionnaire to assess) and when we want to better understand intriguing and specific data collected through another process such as a survey or interview (explanatory design). The advantage of a high degree of moderator control is the specificity of the data that emerges.

The non-directive moderator style is however more suited for exploratory research, i.e. to find new research avenues, brainstorming, or broadening and deepening understanding about the research area. One of the primary advantages of less moderator control is a more natural flow of the information gathering process. Reducing the number of questions to a few allows the discussion to appear spontaneous. If participants perceive that a rigid set of questions is being followed they may be reluctant to digress into areas that may be important. In this approach, the moderator wants to use questions as a guide but not adhere to them rigidly. The secret to a good focus group is that it is not moderator-dominated (Gibbs 1997).

Group dynamics

Assembling of focus groups occurs through a purposive process (see sampling). In this process, the researcher is aware of the possible tensions that might arise between participants with certain characteristics. But unfortunately, group dynamics cannot always be determined at the outset. The moderator has a crucial role in creating an optimal group process in which every participant can join in the discussion and share their ideas. However, some (more disruptive) group dynamics cannot be predicted. Below are several suggestions for moderators on how to deal with the more disruptive group dynamics.

Countering dominating or disruptive group members

It's a good idea to "go around the group" occasionally in order to counter the tendency of the group to accept one person's view as the group consensus. In the introduction, it is also useful to ask them not to be concerned about agreement with other people in the group. Assure them that you would be just as interested in recording a range of opinions as obtaining a consensus. In order to avoid a dominant group member taking up the majority of the time, it is the moderator's role to interrupt them in order to ask other members of the group for their opinions. For example, "*So and so has told us why she feels that medical students should have a strong science training before entering medical school. Does anyone have another view about this?*" In this way the moderator redirects the flow of conversation back to the large group.

Shy or silent participants

It is a moderator's responsibility to ensure that everyone has an opportunity to share their views. It can be tricky when there is one participant who has said nothing or very little during the group session. In order to invite participation, it is not out of place to directly ask a participant who has not contributed. Participants have signed up for a group process and have been told at the beginning of the group about the topic and

expectations. Some individuals may not be comfortable intervening on their own behalf and an offer to participate is helpful. The reasons for silence by certain group members may relate back to group composition and power relations within the group and this should be taken into account when composing your group (Gibbs 1997).

Groups in which participants only answer directly to the moderator and do not open up to exchange of ideas with each other

Some groups are composed of shy or more reserved participants who are not initially comfortable with sharing their thoughts with each other. This can result in the moderator virtually doing individual interviews, with each participant only answering questions directly to the moderator. This reduces the amount of rich information a researcher may collect and is a lot more work for the moderator. A trick to open up conversation between participants is to cast your eyes around the group when the person who is answering the question is responding. The speaker's eyes will often follow that of the moderator's around the group and in this way both the speaker and the moderator invite individuals from the rest of group to get involved in responding.

Analyzing focus group data

Focus groups produce various types of data; data generated by individual participants, the group as a whole and also data about the interaction of participants during the focus groups. The majority of the data is generated when the audio records are transcribed verbatim, but besides that the moderator and the observer have gathered valuable observational data. Therefore, it is important that the moderator and observer debrief after each focus group discussion to share their experiences and add an additional layer of data on the spoken words produced by the participants (also see section titled "The role of the observer").

General tips for qualitative data analysis

Data quality

The quality of your data analysis is inseparably linked to the quality of your data. Good qualitative data is rich in nature and allows the researcher to perform an in-depth exploration of the research question. The quality of focus group data will be reliant on a number of factors. First of all, the number of participants in the focus group will be of influence: both too few and too many participants can potentially result in just a shallow discussion. Second, the quality of the sampling procedure will be of influence: were the right people invited to answer the research question? Was the group composition favorable to an in-depth discussion? Third, the quality of your questions and the questioning route determine data quality. Therefore, focus groups need a preparatory period in which the research team discuss and design the questioning route. Finally, the skills of the moderator will determine to what extent relevant topics were sufficiently explored and whether all participants will have been able to have a meaningful contribution in the discussion (Barbour 2007; Krueger & Casey 2009).

Data analysis software: yes or no?

The quality of your data analysis is determined by the quality of the researcher(s) performing the data analysis and not the quality of the software program that is used to perform the analysis (Kidd & Parshall 2000; Pope & Mays 2009). The main advantage of using qualitative-analysis software is to help you organize your data. When the time comes to write your research report, being able to call up certain themes, codes and quotes could be a real time-saver. However, it is the interpretation of the researcher, the research team and the quality of their discussions about their findings that will eventually determine the quality of the analysis.

Keeping your eye on the ball

Given the fact that focus group research produces a lot of data, often ~30–50 pages per focus group, it is important that during the analysis you keep your purpose and/or your research question in mind so that you do not get overwhelmed (Krueger & Casey 2009). However, this is also a process of striking a balance. For example, Barbour (2007) warns to not just use the questions from your questioning route as the coding frame for your data analysis: "*The coding frame should be flexible enough to incorporate themes introduced by focus group participants as well*" (p. 117).

Analytical frameworks

All kinds of analytical frameworks for analyzing focus group data can be used. These frameworks should be aligned with the methodology (e.g. grounded theory and phenomenology) (Creswell 2013) and may also be informed by a specific focus (e.g. discourse analysis and conversation analysis). Depending on the research questions and the paradigmatic fit of the research, various analytical options can be considered. For example, Krueger & Casey (2009) provide a useful overview of various frameworks (and how they will influence your approach to the data).

Deductive versus inductive data analysis

Analyzing focus group data is an iterative process between at least two researchers or team members involved in the process. One can choose to analyze data deductively or inductively. A deductive approach involves reading your transcripts to which you apply a predetermined set of themes or coding structure. You are looking for occurrences or non-occurrences of these dimensions in your data. This is deductive because you are looking for evidence to support your idea going into the research. For example, where participants were asked to talk about a competency and where they might find it in a training context one can read the transcript looking to pick out specific words and phrases that will then act as evidence to support an idea about the existence of competence and its prevalence in training. Or one can analyze transcripts inductively, reading for emerging themes and trying to articulate what concept/definition/

meanings of the main topic arises from the data. This is common in exploratory studies that are early on in a research program. After an initial reading of the transcripts independently by each research team member, the group comes together to compare notes and begin the building process. This cycle of reading and meeting to discuss the data continues until the group is satisfied that they have a coherent story related to the participants' views on the topic or issue under study. As a note, there will be information that you cannot "put" anywhere. The idea or comment(s) may sit outside the rest of the themes or codes. This is important. Do not throw out or eliminate data because it does not fit; save it somewhere so that you can come back to it at a later date (Krueger & Casey 2009).

Focus group specific tips for qualitative data analysis

The various existing books and papers on how to best perform focus group research all provide several suggestions on performing focus group analysis (e.g. Barbour 2007; Krueger & Casey 2009; Onwuegbuzie et al. 2009). Below, we present a summary of several suggestions on how to get the most out of your focus group data.

Types of data analysis relevant for focus group data

One of the strengths of focus groups is that this method capitalizes on the interaction between research participants to generate rich and in-depth data. However, few studies utilize the richness of their data. This richness is partly connected to the fact that focus groups produce three levels of data: (1) data about individuals, (2) data about the group discussion and (3) data about group interaction (Onwuegbuzie et al. 2009). All these levels of data are potential avenues for analysis yet few focus group studies pay attention to all levels of data.

Look beyond the transcripts

The main product of focus groups is usually considered to be a verbatim transcribed document of the audio-recorded discussion. What the researcher should not overlook is all other potential data sources surrounding focus group research. Firstly, when working together with an observer the potential to collect observational data about the group interaction is present. Secondly, it is usually worthwhile to use a small questionnaire to collect demographic data of the participants. In this way, the time of participants and the moderator is optimally used and the questionnaire provides an additional data source. Thirdly, the observer could also record non-verbal communication by participants and the interaction between participants to provide an additional dimension to the data transcription and interpretation. Fourthly, when performing multiple focus groups, researchers might decide to perform analysis where they compare the discussion between groups but also focus on the discussion within a single group.

Consensus and disagreement and where it comes from

An important aspect of analyzing focus group data is identifying the extent to which agreement or disagreement occurred within the group and how perspectives arose or were modified within the group process (Kidd & Parshall 2000). This element could be supplemented by data generated by the observer to further understand potential tensions within groups or surrounding a certain topic.

Silences are also data

An underused type of data is the presence of silences within the focus group discussion. Silence could indicate several things, e.g. consensus about a certain topic but also non-familiarity with an issue. It is therefore worthwhile to analyze at what points in the data silences arose and to supplement this with observational data to get a more in-depth understanding of the nature of the silence.

Quality and ethics in focus group research

The aim of this Guide is to help researchers in the domain of medical education to perform rigorous focus group research that helps them to answer their research questions. Rigor in qualitative research and the quality criteria that are relevant to the qualitative domain therefore also deserve a place in this Guide. Several good chapters, papers and summaries exist that provide an overview of quality criteria relevant to qualitative research (Malterud 2001; Kuper et al. 2008; Creswell 2013) Throughout this Guide several of these concepts have already been touched upon. This section provides a short overview of relevant quality criteria, and the second part touches upon the adjacent topic of ethics within focus group research.

Quality of focus group research

Good qualitative research should be credible, transferable, dependable and confirmable (Frambach et al. 2013). To adhere to each quality characteristic, several techniques and "rules of conduct" are described.

Credibility

"Credibility is the extent to which the study's findings are trustworthy and believable to others". Practices that are described to ensure the credibility of a study are the use of data, method, and/or researcher triangulation (see Glossary), a prolonged engagement with the data and member checking (see Glossary). Depending on the aim of the focus group study, the relevance of a member check might differ. For example, studies could use focus groups to search consensus on a given topic while others use it to explore a topic. In both cases, the use of an explicit member check should be discussed within the research team.

Transferability

The transferability of a study is determined by the extent to which its findings can be transferred to another context. In order for an audience to judge transferability, researchers are advised to produce thick descriptions (Glossary) of the context under study, to explain the sampling strategy

used, and to discuss the extent to which the finding of the study resonate with empirical and theoretical work already published.

Dependability

"Dependability is the extent to which the findings are consistent in relation to the contexts in which they were generated". This means that researchers will continue to collect data in a given setting until "saturation is met" (Glossary) indicating that no new themes resulted from the inquiry. This requires that collection and analysis go hand in hand as to assure meaningful and in-depth data collection towards answering the research question (iterative data collection and analysis). As a result, the researcher also needs to be open towards emergent topics that might affect the research design and sampling mid-process.

Confirmability

To demonstrate confirmability of the research, the researcher needs to provide insight into how he/she came to certain decisions and conclusions during the research process (audit trail). The concern here is that the participants and settings were not the main source of the findings but the researchers' potential biases. The researchers therefore need to show reflexivity (Glossary). Furthermore, the researcher needs to consciously search for data and literature that might disconfirm the findings and also discuss the findings with peer researchers (peer debriefing).

Ethics in focus group research

"Ethics or moral philosophy involves systematizing, defending, and recommending concepts of right and wrong conduct" (Fieser 2009). When applying this to the field of qualitative research this means protecting the interests of the participants on the one hand, without compromising the aim of the research data for the good of others on the other (Orb et al. 2001).

Over the past few decades an enormous increase in the number of publications, in which qualitative research in general and focus group research in particular is reported, can be observed. Furthermore, a significant number of books addressing these issues have been published. The number of journal articles as well as book chapters addressing ethical issues involved in preparing, conducting, analyzing and publishing reports of this nature is however surprisingly limited. A notable exception can be found in "Doing focus groups", by Barbour (2007). Furthermore, neither medical education journals, nor general medical journals seem to have extensively dealt with the topic, whereas the topic of ethical guidance relating to quantitative research is more prominently discussed among medical associations. The majority of articles that do address ethical considerations seem to stem from the field of nursing, perhaps underscoring their involvement or interest in this area of expertise (Orb et al. 2001; Owen 2001; Clarke 2006; Eide & Kahn 2008).

Richards & Schwartz (2002) mention that the British Sociological Association's Statement of Ethical Practice offers guidance regarding the nature of power relationships between researchers and participants, consent and anonymity, and privacy and confidentiality (British Sociological Association 2002). They also postulated that the paucity of literature on ethics maybe due to the assumption that qualitative research is harmless to the participants, and they noted that medical research committees sometimes have difficulty making judgment on research proposals submitted for their judgment (Gauld & McMillan 1999; Morse 2001; Richards & Schwartz 2002). In general, ethics in health research at least includes assuring the appropriateness and methodological soundness of the research, funding, and behaviors in dealing with the participants during preparations, execution analyzing and reporting the data (Orb et al. 2001).

In their overview, Richards & Schwartz (2002) identified potential risks to participants in qualitative research using focus groups. Comparable areas of potential problems were identified by other authors (Orb et al. 2001) and relate to either the study preparation and design, the researcher/participant relationship, and the process of data analyzing and interpretation (Orb et al. 2001).

Potential risks in qualitative research

Principally, participants are fully autonomous, and usually share information on a voluntary basis. A balanced relationship between researcher and participant facilitates disclosure, trust, and awareness of as well as respect for potential ethical issues (Orb et al. 2001). Nevertheless, it can easily be envisaged that when probing into rationales during focus groups it is difficult to avoid touching upon issues that may provoke anxiety and distress in certain participants. When discussing sensitive topics and/or with vulnerable participants, such responses can obviously be anticipated, but this is not necessarily always the case. "Old wounds" may unexpectedly open (Orb et al. 2001). However, some anticipation regarding problematic focus groups scenarios is necessary and influences the composition of the groups (Barbour 2007). Further information on working with specific groups such as children, the elderly and cross-cultural groups can be found in Chapter 7 of the 2007 book by Barbour.

Evidently, the professional background of a researcher can also impact on the focus group, but personal characteristics (such as gender, age, ethnicity, and social class) are considered equally important (Richards & Emslie 2000).

Writing up focus group research

"*Qualitative researchers today acknowledge that the writing of a text cannot be separated from the author*" (Creswell 2013). Therefore the authors of a qualitative research study need to make clear how they were involved in the research and why certain decisions were made. Furthermore, each journal has its own "guidelines for authors" section and will dictate how information should be organized and presented. With regard to focus group research, we will provide general guidelines for the presentation of the "Methods", "Results" and "Discussion" section. Keep in mind that certain methodological choices

might also influence your presentation of your research (e.g. see Creswell 2013).

Methods section

The methodology and focus group rationale

To demonstrate credibility and trustworthiness of your data the choices for methodology, design and focus groups as a method given your research question need to be explained. If multiple methods for data collection were used their intended purpose in the research should be described.

Describing

For reporting of qualitative research it is important to "paint the picture" of where, how and from whom data were collected. This is necessary for the reader to be able to judge the transferability of the results to their own setting (Denzin & Lincoln 2005). This includes reporting how participants were chosen (sample), recruited and identified for characteristics that made them valuable for answering your research questions. Furthermore, the number and characteristics of the group composition should be explain; homo- or heterogeneous, number of groups, number of participants per group and how long the discussions lasted.

Further consideration should be given to the extent the discussion was structured, semi-structured on not structured, as well as how the questioning route was designed and used. These explicit descriptions of the research process help readers to paint the outlines of the context in which the data were gathered (Morgan 1996).

Who performed the research?

Not only the characteristics of the participants but also of those of the researchers involved in the study, the moderator and the observer/research assistant should be described. Paradigmatically speaking, qualitative research acknowledges the influence that the researcher has on the research process (Bunniss & Kelly 2010; Bergman et al. 2012). Therefore, it is important for the audience to know who performed what part of the research and what their backgrounds are. The next step is that the research team reflects on the influence that they might have had on data collection and data analysis, this process is called reflexivity (Malterud 2001).

Analysis

With regard to the analyses, the researchers need to describe which data analysis procedures they used and which principles informed their analysis, as well as who was involved in the process, to what extent theory was used to inform data analysis, and to what extent member checking was applied (Malterud 2001). As mentioned earlier, it is important to identify your methodology and how your use of focus groups is supported by the underlying precepts. If there are guidelines that informed your research design, these will assist in the analysis of your data. Finally, if software for data analysis was used, the software package and its version should be mentioned.

Results section

Presentation of quotes: do's and don'ts

Depending the methodology, the role the focus groups had in the research design, the type of data analysis you chose to apply, and the word-limit provided by the journal, various presentations of the results are possible. By presenting verbatim quotes, the researcher gives the audience insight into "*the data from which the patterns and constructs arose during analysis*" (Holloway & Wheeler 2010). Richardson (1990) describes three types of quote presentation: (1) short eye-catching quotes indicating a short paragraph from the transcript demonstrating a theme, (2) embedded quotes, are short(er) in-text quotes and (3) longer quotations. Especially, the latter is very much dependent on the style of the journal. For focus group research, it can be valuable to both demonstrate quotes from individuals in the group but also group interactions showing how the discussion between participants evolved.

Visual representations

Depending on the methodology and the findings researchers might decide to present a visual depiction of their findings. Grounded theory, e.g. aims to build a theory grounded in the data. A visualization of the concepts represented within this theory might help the audience to get a better overview of the interaction of the various themes within the theory.

Discussion section

The aim of this section is to reflect on the results in the light of already published empirical and/or theoretical work. As such, the researcher tries to contribute to the knowledge within the field. With the discussion, the researcher might also demonstrate the transferability and confirmability of the research. Therefore, often one will see qualitative papers where reflexivity is both part of the "Methods" section and of the "Discussion" section.

Conclusion

The domain of medical education is faced by complex questions warranting various research approaches and methods to answer them. The possibilities for application of focus group research in medical education research are vast given both its exploratory and explanatory potential and as such focus group research has become an increasingly popular approach to collecting data.

The aim of this AMEE Guide is to provide researchers with a guideline with which to design, execute and publish rigorous focus group research. Rigor begins with being able to rationalize your choice of focus groups as a method according to methodological and paradigmatic understanding. So researchers are advised to "look before they leap"; medical education research has matured and we are no longer in an age when stating *what* you did is enough to satisfy research standards. And, focus group research is no exception to that rule.

Glossary

Confirmability: The extent to which the findings are based on the study's participants and settings instead of researchers' biases.
Credibility: The extent to which the study's findings are trustworthy and believable to others.
Deductive analysis: Reading your transcripts to which you apply a predetermined set of themes or coding structure.
Dependability: The extent to which the findings are consistent in relation to the contexts in which they were generated.
Epistemology: Theory of knowledge. What are the origin, nature, and limits of knowledge about reality?
Inductive analysis: Reading your transcripts for emerging themes and trying to articulate what concept/definition/meanings of the main topic arises from the data.
Methodology: Strategic approach to answer the research question and to gain knowledge. What is the research design?
Grounded theory: Systematic, qualitative procedure used to generate a theory that explains, at a broad conceptual level, a process, an action, or an interaction about a substantive topic
Ethnography: "(. . .)The study of social interactions, behaviors, and perceptions that occur within groups, teams, organizations, and communities" (Reeves et al. 2008)
Phenomenology: "A philosophy which explores the meaning of individuals' lived experience through their own description. The research approach adopted is based on this philosophy" (Holloway & Wheeler 2010)
Action research: "A cyclical approach to research in which researchers are, or collaborate with, practitioners to effect change or use an intervention, evaluate it and modify their practice in the light of evaluation. The process goes on until the optimum situation has been achieved" (Holloway & Wheeler 2010)
Mixed methods: The collection, analysis and integration of both qualitative and quantitative data in a single study.
Ontology: Theory of the view on reality. What is the nature of physical and social reality?
Paradigm: An interpretative framework, which is guided by "a set of beliefs and feelings about the world and how it should be understood and studied" (Guba 1990).
Positivism: A paradigm which aims to find general laws and regularities based on observation and experiment parallel to the methods of the natural sciences (there is one truth and it can be observed) (Holloway & Wheeler 2010).
Post-positivism: Paradigm stating that there is one truth but it can never be truly observed. Pays attention to falsification and probabilities (Creswell 2013).
Critical theory: Paradigms which aims to critique and change society as a whole, aimed at factors that constrain and exploit individuals (Illing 2007).
Constructivism: Paradigm which states that knowledge and all meaning is not discovered but socially constructed. Meaning is not created but constructed out of the world that is already there (Illing 2007).
Purposive sampling: "Sampling individuals and sites for study which are thought to purposefully inform an understanding of the research problem and central phenomenon in the study" (Creswell 2013).
Reflexivity: An attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process (Malterud 2001; Mauthner & Doucet 2003).
Saturation: Also known as "informational redundancy" (Lincoln & Guba 1985) indicating that everything of importance to the research agenda of the project has been obtained. We can speak of data saturation (sampling to redundancy) and theoretical saturation (no new concepts or dimensions are emerging during data analysis).
Transferability: How well the study's findings inform medical education contexts that differ from that in which the original study was undertaken.
Theoretical sampling: "sampling individuals or texts whom the researchers predict (based on theoretical models or previous research) would add new perspectives to those already represented in the sample" (Kuper et al. 2008).
Triangulation: Using different perspectives on the same research question to either validate findings or provide a richer understanding of the topic at hand. Examples of triangulation are: (1) methods triangulation (using several methods to answer the same research question), (2) theoretical triangulation (using several theoretical frameworks to create a broader understanding of the findings) and (3) researcher triangulation (multiple researchers playing a part in data collection and or analysis) (Flick 2004; Walsh 2013).

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