

**COMMENTARY**

# A practical guide for conducting qualitative research in medical education: Part 1—How to interview

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**INTRODUCTION**

Qualitative research plays an important role in advancing practice and policy in education both inside and out of the field of medicine.<sup>1,2</sup>

Qualitative methods allow for in-depth understanding of human behavior and social context to provide clues as to “how” and “why” certain phenomena are occurring.<sup>3</sup> This can help inform understanding of teacher or learner behavior, the development of theoretical models to explain learning events, and creation of best practices for instruction.<sup>4</sup> There are many options for collecting qualitative data and the source of data will be dependent on the research question and aim of the study. Examples include, but are not limited to, interviews, focus groups, observations, or artifact/document analysis.<sup>5</sup>

Interviews are particularly helpful in illuminating individual perspectives or experiences surrounding a specific topic or phenomenon, especially when little is known about the targeted question or when substantial depth of opinion is desired.<sup>5</sup> Before embarking on any study involving interviews, a resource-intensive process, it is important to reflect on the research question and study aim(s) to ensure that they are aligned with interviewing as a method that is compatible with the conceptual framework of the study. “How” and “why” questions that require the description of individual perspectives and experiences for understanding are especially well suited to interview methodology. An example research question appropriate for interviewing is: “How does training in a county hospital influence career choice in graduates?”

It is important to be rigorous in the conduct of interviews to enhance trustworthiness of findings. The purpose of this paper is to

describe a step-by-step process of how to conduct interviews when this method is deemed ideal for a particular research question which has been approved or exempted by one's institutional review board.

**QUESTIONNAIRE DEVELOPMENT**

Once interviews have been selected as an appropriate data collection method for the study, researchers must develop a questionnaire or protocol. Based on the specific research question being addressed, the questionnaire may be more or less structured. An unstructured questionnaire may only include a few very broad questions or none at all, allowing the interviewer freedom to explore participants' experiences and probe deeply into complex issues. An unstructured questionnaire can be a flexible option, especially when very little is known about the topic. In contrast, a structured questionnaire is more rigid and dictates that the same set of predetermined questions be asked of all participants. This type of questionnaire allows for easier replication and analysis, but may miss important spontaneously proffered information if not included in the questionnaire. Often, in medical education, researchers utilize semistructured questionnaires that provide a framework for the interview but also allow the interviewer to probe more deeply into responses of the participants. The types of questions asked should be based on the study aim but may include questions about experience, emotions, or behavior; questions about participant opinions and values; knowledge questions; and background or demographic questions. It is important that questions are stated objectively and are not leading. It is also essential

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that the researcher reflect on their own personal views and biases to mitigate the transference of these into the questionnaire. Asking an experienced qualitative researcher to review the questionnaire prior to interviews can also help to identify and address potentially biased questions. The interview questions should flow smoothly, like a natural conversation that can be accomplished by organizing the questionnaire into subtopics. Attention to the complexity of the questions as well as the sensitivity of the topic is highly valuable. Generally, it is preferred to move from simple to complex questions and to save questions on sensitive topics for later in the interview to allow for rapport to be established between the interviewer and the interviewee. The nature of the subjects and the complexity of the research question need to be considered when deciding on the length of the questionnaire, but it is important to be mindful of participants' time and attention span.

## VALIDITY EVIDENCE

During the development process, it is important that researchers gather validity evidence to support the use of the questionnaire.<sup>6</sup> While a comprehensive discussion on validity is beyond the scope of this paper, there are many ways to categorize validity evidence. Generally speaking, the more evidence gathered in support of questionnaire development or choice, the more trustworthy the findings that follow from the use of that questionnaire will be. One example framework that is widely used in education is Messick's validity framework, which describes five types of validity evidence: content, response process, internal structure, relationship to other variables, and consequential.<sup>7,8</sup> For interview questionnaire development it is often most feasible and relevant to focus on content and response process validity evidence. Researchers can gather content validity evidence by reviewing the literature, seeking input from experts in the field, or building consensus (e.g., Delphi process) and using this information to inform interview questions.<sup>9</sup> Response process validity evidence can be obtained by reading the questionnaire items aloud among study group members or piloting and soliciting feedback on the questionnaire through cognitive interviewing with a small representative sample (who will not be included in the study). It is prudent to ask the pilot test subjects at the conclusion of the process if they have any input about their experience as an interviewee and to point out awkward parts of the interview or make suggestions for editing or important missing content. The questionnaire can then be modified and refined based on feedback from piloting. This may include a reordering of questions to ensure better flow, addition of typical clarifying questions, consolidation of redundant questions, deletion of controversial or otherwise unhelpful questions, and inclusion of additional important content. Piloting can be particularly helpful to provide the interviewer with additional practice and may provide insight into the type of information that may

be found during the actual study and insight into any emotional responses to anticipate.

## SELECTION OF SUBJECTS

Once the questionnaire has been finalized, the next step is to select subjects to interview. This is based on a number of factors, most importantly the research question, but also availability of contacts. Qualitative researchers typically employ one or more *purposeful* or *purposive* sampling strategies (as opposed to random samples often used in quantitative research) to deliberately gather data from subjects who are most likely to be able to address their research questions. Examples of purposeful sampling strategies include: homogenous sampling—where participants share a common characteristic, snowball sampling—where the researcher begins with a small number of interviewees and queries them for suggestions as to relevant contacts, and stratified sampling—where key characteristics (strata) are identified and participants are invited from each of these strata.<sup>10</sup>

## INVITATION TO INTERVIEW

No matter what sampling method(s) is chosen, a standard invitation must be created (e.g., email, letter, or script for verbal invitations). This should include a personalized introduction of the researcher, the purpose of the study, a description of what participation entails (including a realistic expectation of time commitment and what portions of the interview will be recorded), and any compensation for participation. This invitation should adhere to the standards set forth by the researcher's institutional review board (IRB). In the invitation, it is helpful to include potential dates/times for scheduling the interview and/or to allow the participant to offer others. Additionally, an offer can also be made to conduct scheduling through the participant's administrative assistant. The more streamlined the process for the subject, the more successful the researcher will be in gaining participation. If the researcher is interviewing people with whom they are well acquainted, it may be helpful to include a personal note at the beginning of the correspondence about the plans and direct them to read the included formal invitation.

## INTERVIEW CONDUCTION

The quality of data obtained during an interview is highly dependent on the interviewer. For novice interviewers, it is beneficial to conduct a few rehearsal interviews in advance of formal data collection. Reviewing the recordings (audio or visual) of these practice interviews and seeking feedback from mock interviewees, can hone interview skills. Consulting or observing experienced interviewers can provide valuable insights and tips for success. For

unstructured or semistructured interviews, we recommend that one researcher familiar with the research question and content area conduct all of the interviews. This ensures that the interviewer has an understanding of the overall picture and will be well equipped to guide questions. This is less important when using a structured questionnaire as multiple interviewers could be trained to read a standard script.

The interviewer should ensure that their environment is quiet and free from distractions and that the participant feels comfortable and knows what to expect from the interview process. From an ethical perspective, the researcher must also consider any implicit or explicit power differentials or cultural differences between the researcher and the interviewee. While most IRBs consider the relationship between supervisors and trainees in their review, it may be wise for the researcher to carefully consider whether they should interview colleagues or anyone with a perceived conflict of interest. It is also important to reflect on any cultural differences and anticipate barriers these may raise during the interview. Asking participants how they view the interview process and for any preferred norms of conduction prior to starting the interview can help navigate these differences. Taking time to explain the structure of the interview, explicitly communicating what information will be recorded (i.e., audio, video, both) and what will happen after the interview concludes is vital. Next, the researcher should invite the interviewee to ask any questions and obtain their consent to proceed with the interview. There are many recording options available ranging from simple handheld voice recorders to video conferencing platforms that allow both audio and video recording. Recording equipment should be checked to ensure that it is properly functioning prior to the start of the interview and researchers must comply with any laws about recording voice or video.

An interviewer's goal is to maximize depth of response from the participant. Demonstrating active listening and maintaining eye contact throughout the interview can help engage many participants. The interviewer should be aware of cultural norms and conduct the interview with sensitivity. For example, in some instances, establishing eye contact may entice the interviewee to share their opinions, while in other settings, it may be viewed as an intrusion to their privacy. During the interview the researcher should be listening much more than talking. Interviewers can probe for deeper responses with follow-up questions that relate to the participants' responses and are also relevant to the research question. It is helpful for the interviewer to encourage the participant to elaborate or define key concepts they describe; simple probes such as "Tell me more" can be surprisingly effective. Whenever possible, the interviewer should try to use the participant's own language to ask questions. This has the benefit of demonstrating their engagement in the conversation, ensuring understanding by the participant, and optimizing the flow of the conversation. Note taking, if done unobtrusively, may help in identifying both follow-up questions and topics to ask during the interview and informing the analysis process. Keep in mind that the focus should always be on the interviewee. At the conclusion of the

interview, the interviewee can be invited to share any additional thoughts.

The researcher may consider sharing their understanding of the comments and any key concepts or themes noted during the interview and checking for confirmation from the participant. This is a form of real-time member checking (confirming that your interpretation of an interviewee's statement aligns with their intended meaning) and can help increase the trustworthiness of the findings. This can take place in real time as the questions are being answered or at the conclusion of the interview or each section. A verbal expression of appreciation for their time and insight at the conclusion of the interview along with a statement of how they might be apprised of the eventual results is indicated.

Immediately after the interview, it is often helpful for the interviewer to jot down notes about the experience. These may include personal perceptions about the reactions of the subject, in-depth clarifications about the context of an answer that may be known to the interviewer, or other key facts that may stimulate recall when it is time for data interpretation. A written or electronic thank you note expressing their important role in elucidating the study question with a promise to share the results when available closes the loop as an appreciation of time spent.

## PREPARATION OF DATA FOR ANALYSIS

Once the interview is completed, the recording must be transcribed for analysis.<sup>11</sup> This can be done by the researcher or an independent transcriptionist. One advantage of having the researcher transcribe the interviews is an additional opportunity to review the data. Additionally, the researcher is likely to have in-depth knowledge of the vernacular used and so the transcript may have less errors. It should be noted that transcription is a time-intensive process that researchers may not be able to accommodate themselves. Enlisting the assistance of a transcriptionist will save time but may require compensation. Alternatively, there are commercially available transcription software programs for this purpose.<sup>12</sup> If enlisting the assistance of others in transcription, it is essential to adhere to confidentiality and data security processes. Regardless of how the initial transcription is created, it is important that the interviewer review the transcript (preferably proximate to the time of the interview) to check for errors and make any necessary corrections prior to analysis. Often, these include the interviewee's reference to individuals or institutions or may include jargon not familiar to the transcriptionist. In preparation for formal analysis, it may be helpful to write short notes or memos while reviewing transcripts regarding any key concepts that stand out or questions that arise. Most word processing programs have a comment feature to assist in this step. All transcripts should be anonymized prior to formal analysis. Labeling the data with line and page numbers can also assist in easy referencing during the analytic phase.

We provide an overview of the key steps to conduct interviews for medical education research in Table 1. A detailed description of how to

**TABLE 1** Step-by-step approach to the qualitative interview

Main steps	Further considerations	Pearls	Pitfalls to avoid
Develop questionnaire (Instrument)	<ul style="list-style-type: none"> <li>- Select an existing instrument</li> <li>- Develop a new instrument</li> </ul>	<ul style="list-style-type: none"> <li>- Be mindful of length</li> <li>- Align questions with study aim(s)</li> <li>- Utilize a coherent organization structure to questions</li> </ul>	<ul style="list-style-type: none"> <li>- Irrelevant questions</li> <li>- Poorly worded or ambiguous questions</li> </ul>
Gather validity evidence for study instrument	<ul style="list-style-type: none"> <li>- Content validity</li> <li>- Response process validity</li> </ul>	<ul style="list-style-type: none"> <li>- Dedicate time and effort to gather as much validity evidence to support the instrument as possible</li> </ul>	<ul style="list-style-type: none"> <li>- Not piloting instrument prior to use</li> </ul>
Select study subjects (purposeful)	<ul style="list-style-type: none"> <li>- Homogeneous sampling</li> <li>- Snowball sampling</li> <li>- Stratified sampling</li> </ul>	<ul style="list-style-type: none"> <li>- Have a thoughtful rationale for the sampling strategy considering which participants will be best able to address the research question</li> </ul>	<ul style="list-style-type: none"> <li>- Random selection of subjects</li> <li>- Failure to consider important stakeholder views</li> </ul>
Invite subjects to an interview	<ul style="list-style-type: none"> <li>- Develop invitation</li> <li>- Invite</li> </ul>	<ul style="list-style-type: none"> <li>- Streamline all communications</li> <li>- Include purpose of study and description of participation</li> </ul>	<ul style="list-style-type: none"> <li>- Not including a realistic estimation of time required for the interview</li> <li>- Not describing the study objectives</li> </ul>
Conduct the interview	<ul style="list-style-type: none"> <li>- Proper environment</li> <li>- Rapport</li> <li>- Explain format</li> <li>- Consent</li> <li>- Choose data gathering/recording strategy</li> <li>- Active listening</li> <li>- Response process validation</li> </ul>	<ul style="list-style-type: none"> <li>- Create a comfortable, open environment</li> <li>- Listen more than speak</li> <li>- Perform real-time member checking</li> </ul>	<ul style="list-style-type: none"> <li>- Failure to consider cultural or power differential factors during the interview</li> <li>- Failure to test recording equipment</li> <li>- Exceeding the allotted time for the interview.</li> <li>- Talking too much or directing responses</li> </ul>
Prepare the data for analysis	<ul style="list-style-type: none"> <li>- Transcription of interviews</li> <li>- Review of transcriptions by interviewer</li> <li>- Clarifying comments by interviewer</li> <li>- Anonymize transcriptions</li> </ul>	<ul style="list-style-type: none"> <li>- Write memos as you review transcripts</li> <li>- Assure transcripts are anonymized and prepared for review</li> </ul>	<ul style="list-style-type: none"> <li>- Not reviewing transcripts proximate to interview to correct errors</li> <li>- Forgetting to anonymize transcripts</li> </ul>

Note: A step-by-step approach to the qualitative interview from choosing this method to the point of analysis.

conduct the analysis is provided in Part 2 of this series, and an introduction to using software assisted analysis is presented in Part 3.<sup>11,12</sup>

## CONCLUSION

Interviews provide a rich and dynamic method of collecting data in qualitative research that can provide thoughtful insight into the study question. We have described a step-by-step process for conducting interviews that may be useful for those who are conducting qualitative medical education research. By incorporating these steps into the planned study, researchers can increase the clarity and depth of the data as well as the validity of the findings.

## CONFLICTS OF INTEREST

The authors have no potential conflicts to disclose.

## AUTHOR CONTRIBUTIONS

Jaime Jordan, Samuel O. Clarke, and Wendy C. Coates conceived and designed the manuscript. Jaime Jordan drafted the manuscript and Samuel O. Clarke and Wendy C. Coates contributed substantially to its revision.

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