Becoming a survey whisperer: applying a video conferencing tool in cognitive interviews to improve a questionnaire used in higher education research

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Published version

DONNELLY, Alan and HEATON, Caroline (2022). Becoming a survey whisperer: applying a video conferencing tool in cognitive interviews to improve a questionnaire used in higher education research. Sage.

Sage Research Methods: Doing Research Online

Becoming a Survey Whisperer: Applying a Videoconferencing Tool in Cognitive Interviews to Improve a Questionnaire Used in Higher Education Research

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Pub. Date: 2022

Product: Sage Research Methods: Doing Research Online

DOI: https://doi.org/10.4135/9781529603583

Methods: Cognitive interviews, Qualitative data collection, Survey research

Keywords: higher education, surveying, videoconferencing, probing, students, screening, ethical considerations, screens, rapport

Disciplines: Education

Access Date: April 17, 2023

Publishing Company: SAGE Publications, Ltd.

City: London

Online ISBN: 9781529603583

Abstract

This case study details the experiences of two researchers at a large university in the UK, in carrying out a series of cognitive interviews with students, to examine their interpretations of and responses to items on an institution-wide questionnaire. Cognitive interviewing refers to a set of techniques used to assess the ways in which individuals mentally respond to survey questions, with the aim of exploring the accuracy and consistency of interpretations and, if necessary, making revisions. The research was conducted as part of a wider initiative to review the institution's use of a standardized questionnaire to evaluate student module experiences and to engage students as co-designers. The case study describes how a face-to-face research activity was adapted for online delivery during the COVID-19 pandemic. It considers the three key options for conducting cognitive interviews remotely (telephone, videoconferencing, and web probing) and provides a critical reflection on the ethical and practical challenges and possibilities presented by using videoconferencing as the preferred method. We reflect on our own experiences as researchers, suggest key considerations for those who may wish to engage in online qualitative research activity, and offer links to further helpful resources, to help consolidate and extend readers' learning.

Learning Outcomes

By the end of this case study, students should be able to:

- Understand the various synchronous and asynchronous approaches to conducting cognitive interviews
- Articulate the challenges and opportunities of adapting face-to-face cognitive interviews for online research
- Understand the specific steps and practicalities involved in designing and conducting videoconferencing cognitive interviews
- Critically evaluate the suitability of using videoconferencing tools in cognitive interviews for your own research project, taking into account the research questions, technical requirements, resources, and ethical considerations

Project Overview and Context

It is commonplace for universities to ask students to provide feedback about their experiences on their programs of study, which includes degrees and courses. This information is gathered by universities in order to measure performance and inform reviews of these programs, improve teaching and learning practices, and listen and respond to the perspectives of students (Arthur, 2019). Surveys are among the most widely used methods for capturing student feedback. Beyond the national-level student satisfaction surveys, such as the National Student Survey (NSS) which is used in the UK, many individual institutions design and use their own surveys to capture data in greater detail, for example, at a module level. However, some of these "home-grown" surveys used to evaluate courses and modules have been criticized for being inadequately developed and tested prior to their implementation, which has resulted in concerns being expressed about their reliability and validity (Gibbs, 2010, p. 27; Oon et al., 2016). Many universities resort to using questions that align directly to course-level national student surveys (Arthur, 2019), with assumptions made that they are also fit for purpose at a module level, which is a different context. Bennett and Kane (2014) highlighted how students' interpretations of the same questionnaire item can vary significantly across student groups. Furthermore, there is a lack of opportunities for students to provide input into the tools used to collect feedback (Wiley, 2019), despite them being inundated with requests to participate in them (Van Mol, 2016).

This project focused on examining students' interpretations of, and responses to, questionnaire items on a module evaluation questionnaire (MEQ), used at a post-1992 university in the UK, through cognitive interviewing. Cognitive interviewing refers to a set of techniques used to assess the ways in which individuals mentally respond to survey questions (Willis, 2005). According to Tourangeau (1984), there are four stages to this process of interpreting and responding to questions: question comprehension, retrieval of information, judgment or estimation, and selection of a response to the question. There are two main techniques used in cognitive interviews to elicit information from participants that relate to each of these four stages: think-aloud and verbal probing. In the think-aloud technique, participants verbally express their thoughts while reading and responding to the questionnaire item, while the role of the interviewer is minimal and restricted to providing encouragement to the participant to "keep thinking aloud" (e.g., "remember to keep telling me what you are thinking about?"). The verbal probing technique places a greater emphasis on the interviewer, who asks specific questions after participants have finished reading and responding to the question (e.g., "can you tell me what this term means to you?").

Previous research on this topic has focused primarily on students' understanding of questions used in national

surveys of the student experience; for example, the UK Engagement Survey (Howson & Matos, 2014) and Postgraduate Taught Experience Survey (CooperGibson Research, 2014). This project was informed by a wish to improve understanding of students' engagement with an institution-specific questionnaire, which relates to learning experiences at the module level. The key objectives were:

- to determine how students understand and respond to individual questions,
- to identify any changes that should be implemented to questions, and
- to enact changes to the questionnaire which would enhance the usability of response data.

Section Summary

- The project sought to examine students' perceptions and interpretations of items on a university-wide questionnaire. It provided a means of facilitating partnership working in the development of the questionnaire which was used to capture students' experiences on their modules.
- Cognitive interviewing was identified as a method which enables a deeper understanding of individual perspectives and challenges assumptions about the transferability of national, course-based survey questions to the local module-level experience.
- Data collected through cognitive interviews were used to inform changes to the contents of the questionnaire.

Considerations and Implications of Adapting the Research

The project was originally scheduled to take place in March 2020, but the COVID-19 pandemic resulted in nonessential face-to-face research activities across the university being postponed or adapted for alternative methods, in line with recommendations from the sector. We therefore decided to delay the cognitive interviews due to the ethical implications. In September 2020, we considered ways of restarting the project using alternative and flexible remote methods, with the uncertainty surrounding on-campus activities and face-to-face research still ongoing. This presented a major challenge, as the original research plans needed to be adapted to take into consideration the ethical dilemmas and practical issues of carrying out research remotely.

Revising the Method of Data Collection

Previous literature by Willis (2018), among others, has highlighted that cognitive interviews exploring the interpretation of questionnaire items are conducted most commonly in face-to-face settings, and Mohorko and Hlebec (2016) observed that this happens irrespective of how the survey will be delivered. Willis (2018) mentions that the exploration of alternative ways of conducting cognitive interviews requires significant future research. After a period of contemplation, we identified three potentially viable approaches to engaging with our participants: (1) telephone, (2) videoconferencing, and (3) web probing. Each option had its advantages and disadvantages.

The first approach to conducting cognitive interviews (by telephone) has been used in previous research. A study by Noel (2013) identified a few benefits of using telephones, such as its ease of use, cost, and time-effectiveness, and the ability to access more varied populations and groups who are time constrained. Lenzner et al. (2021) noted that telephone interviews can also overcome barriers with technology and internet accessibility and literacy. However, Noel (2013) identified the loss of nonverbal cues as a key barrier, which can make researchers overreliant on the audio footage for gauging participants' responses. The same study highlighted that use of the telephone can produce data that are less informative and poorer in quality. Difficulties were also noted in relation to tracking navigation of instruments and building rapport between the interviewer and participants, but the latter point has been challenged by Lenzner et al. (2021).

The second approach, which also involves synchronous engagement, focuses on using videoconferencing tools, such as Zoom and Skype. Using this approach, participants remotely complete the survey on a device while the researchers observe their behavior and responses in real-time. The respondent might be asked to share their screen so that their navigation of the questionnaire can be tracked by the interviewers. In addition to its flexibility and reach, videoconferencing has the major benefits of enabling nuanced findings to be produced, as participants' reactions and nonverbal cues are visible, and there are recording features embedded in the tools. Upadhyay and Lipkovich (2020) concluded that enabling participants to participate in interviews remotely at a location of their choosing, such as in their home, can engender a sense of safety, which may allow interviewees to feel more inclined to share honest views, and help recruit more diverse and inclusive samples. The same researchers noted that some issues were experienced by participants in relation to their use of devices and software, which reiterates a point made by Mohorko and Hlebec (2016) about ensuring

participants have access and sufficient knowledge to use the technology.

The third option, web probing, is an example of an asynchronous approach to conducting cognitive interviews, as data collection takes place without the active involvement of an interviewer. In this approach, participants are asked to complete a self-administered form by responding to each survey question before answering follow-up probing questions, which are predetermined by researchers and are usually located on a subsequent page of the survey. There are some benefits to using web probing, as participants can have greater autonomy by engaging at times that suit them and the data does not need to be transcribed, as it is immediately stored in an electronic format. However, there is a greater risk of instructions being misunderstood, as there is no opportunity for participants to receive further clarification from researchers about the tasks (Meitinger & Behr, 2016). It is more difficult to capture participants' reactions using the think-aloud technique using web probing, and there is a greater risk of responses being incomprehensible or ambiguous. Recent research carried out by Fowler and Willis (2020) has suggested that web probing and synchronous approaches generate similar data.

Reflecting on the evidence base and the viability and benefits associated with each approach, videoconferencing was deemed by us to be the most appropriate option. Videoconferencing fulfilled the requirements of the project by enabling us to socially interact with participants and observe nonverbal cues, both of which would be either more difficult or impossible, to achieve using telephone or web probing approaches. Furthermore, many students at the university had been using Zoom for teaching and learning activities over the previous 6 months, and we were confident that participants would be well versed in its use following consultations with members of the student population. Although security risks with Zoom have been noted by Lobe et al. (2020), we were able to address these by using official password-protected University accounts.

Ethical Implications

We consulted existing literature and research from across the sector to identify the major ethical considerations of carrying out qualitative research during a pandemic and to inform decisions about how to appropriately adapt our methods (Kara & Khoo, 2020; Ravitch, 2020). A summary of these considerations, published after our research, by Newman et al. (2021) provides a useful overview of the ways in which research can be adapted for remote delivery while minimizing risks. Some of these recommendations, which were consistent

with our thinking, are presented in Table 1 and focus on informed consent, privacy and confidentiality, compensation, and accessibility and resources.

Table 1. Key ethical considerations and recommendations when conducting research in a pandemic and adapting methods for online delivery, from Newman et al. (2021)

Ethical implication	Issues and recommendations
Informed consent	• Be mindful of the "negative psychological and social impacts of the pandemic when assessing capacity to provide informed consent" (p. 4). • Provide information to participants about the profile of the researchers to help increase transparency. • Consider sending consent forms in advance by email. • The process of withdrawing from the process could be made easier for participants in an online environment.
Privacy and confidentiality	• Encourage participants to find a private space, but it can be useful to agree an "exit plan" if disruptions occur (e.g., to end or continue with the research). The risks and implications of privacy invasion will vary on the topic and setting. • Consider using pseudonyms and virtual backgrounds. • Video recordings should only be made if there is a clear rationale and purpose. • Implement measures that will prevent participants from being able to record any sessions. • Consider where data is stored when using videoconferencing tools. Saving data on a cloud or hardware poses risks that need to be addressed.
Compensation/ incentives	• Participants should be "fairly compensated for their time, and to offset the costs of participation" but "undue inducement" must be avoided (p.7). • Examples of appropriate incentives may include e-vouchers or gift cards.
Accessibility and resources	• Participants and communities face exclusion from taking part if they do not have access to internet or devices or have a lack of digital literacy. • Presenting numerous options for participation can help promote flexibility and autonomy, for example, the option to use asynchronous methods.

A key point was also made by Kara and Khoo (2020) that all members of society are potentially vulnerable

in a pandemic, which “overturns outdated paternalistic euro-western ideas that researchers must protect vulnerable participants” (p .128). The authors argue that there is a need to consider the well-being of all groups involved in the research process, including the researchers. All these points informed our research planning and practices, which are documented in this case study.

Section Summary

- The project was originally designed as a series of face-to-face research interviews and was postponed in March 2020 due to the COVID-19 pandemic, while alternative methods were explored.
- Three methods of delivery were considered: telephone interviews, the use of videoconferencing tools, and asynchronous web probing. Videoconferencing was decided upon as the most appropriate means of maximizing the engagement of our participants.
- Literature from the sector was used to inform the ethical considerations of adapting the research method, which related to informed consent, privacy and confidentiality, and accessibility.

Research Design

In designing the cognitive interviews, the research team considered a number of factors, including interview techniques, ethical issues, the identification of an appropriate sample, timescales, and the role of the interviewers.

Types of Techniques Used

The two most common techniques in cognitive interviewing, think-aloud and verbal probing, were both used to elicit information from participants in this study. The verbal probing technique was particularly helpful for targeting each aspect of the four cognitive processes that occur when participants respond to questions. Beatty and Willis (2007) recommend using both approaches together for completeness.

A practice activity, undertaken before the cognitive interviews, was carried out with several of our colleagues and students to test the technology. A few participants struggled to share their screen while simultaneously using the videoconferencing tool, navigating the survey, and reading aloud their thoughts. In terms of the process used for cognitive probing, we decided that the researcher leading the interview should share their screen, to guide the participant through the survey, and verbally read out each question and the response options available. The participant was then asked to think aloud their interpretation and response. The lead interviewer was responsible for using verbal probing questions after each question, which is called concurrent probing. We deemed concurrent probing to be more suitable than retrospective probing, where probes are asked after a set of questions or the entire survey, as it enabled information to be captured when it was "fresh in subjects' minds" (Willis, 2005).

A combination of proactive probes, which are developed in advance, and reactive probes, which are spontaneous and informed by participants' reactions, was used (Willis, 2005). Before any interviews took place, we suspected that certain terms used in existing survey questions were problematic and were worthy of scrutiny, so the proactive probes were useful for providing this focus. We were also wary of technological difficulties potentially impacting our ability to listen to participants and deploy spontaneous probes effectively, and therefore decided it would be sensible to establish a number of proactive probes as the basis for the interviews while building in flexibility to enable more spontaneous questioning.

Sampling

The sample of the research study was based on students who held the role of Course Representative in the 2019/2020 academic year and who were still enrolled at the university in the 2020/2021 academic year (n = 765). Course representatives fulfill their voluntary role by gathering and representing the views of their peers and providing a link between students and the university, via regular contact with their Course Leader and other members of teaching staff. Student representatives have been used in previous research undertaken to explore students' perceptions of module evaluation surveys, such as a recent study by Wiley (2019), and we deemed them to be in an appropriate position to reflect on students' engagement with the survey and how the data are used.

Every eligible student rep had the opportunity to express an interest in participating in this study, but a pur-

posive sampling technique was used to ensure that parts of the population with specific characteristics were included in the final sample, such as level of study and subject group. This purposive sampling technique is appropriate as the aim of the activity is to identify the presence of problems, and Willis (2005) advocates the importance of ensuring that the greatest cross-section of the target population is represented. This study had a target to recruit a minimum of 20 participants.

Interviews and Rounds

We were wary of the impact that staring at a screen intently for a prolonged period of time could have on participants and their focus and motivation. The cognitive interviews were subsequently scheduled to last no more than 45 minutes, which is shorter than the hour that is advocated by Willis (2005) for face-to-face interviews. Following an initial oversubscription in recruitment, a small number of participants withdrew from the process, leaving a total of 19 participants, in a total of three rounds, each of which included at least six students. These rounds were conducted iteratively, with the results of each one being analyzed to inform any modifications to questions. This process should continue until any common problems have been detected and addressed, but three rounds were deemed to be practical, proportionate to the scale of the study, and in line with recommendations proposed by Willis (2005). A total of 24 questions were tested over the three rounds, with no more than 12 questions used per cognitive interview.

Ethics and Incentive

Ethical approval was granted on 2 September 2020 using the university's research ethics approval process. All participants received access to the information sheet when the study was being circulated and promoted among the target population. All participants signed and returned consent forms and provided their approval for the video and audio footage to be recorded. Participation was voluntary and individuals could withdraw up to 2 weeks after the interview. No participants were identified during analysis or reporting. All data were stored on a secure and protected drive in a folder that was only accessible to the researchers. Each participant received an incentive for taking part, in the form of an e-voucher worth £20.

Interviewers

In this study, two researchers conducted cognitive interviews across the 19 interviews. In each interview, one of us took the role of being the lead interviewer, who was predominantly responsible for providing encouragement and probes to participants, while the other researcher was largely focused on recording their observations of participants and their responses. These roles were rotated on an interview-by-interview basis. Both of us had previously enrolled on a training course in the main techniques, design, and analysis of cognitive interviews, and have gained subsequent experience in conducting interviews and survey design. We had limited experience of carrying out cognitive interviews in an online environment.

Section Summary

- The project used a combination of think-aloud and verbal probing techniques to elicit information from cognitive interview participants. The lead interviewer was responsible for asking probes once the participant had responded to each question.
- Participants were drawn from a sample of experienced Course Representatives, who were asked to reflect on their engagement with the survey, and how the questions within it were being interpreted. Purposive sampling was used to ensure a spread of participants were represented, by the level of study and subject group.
- Ethical approval was given by the University and a total of 19 participants took part in the cognitive interviews, completed in three rounds, and conducted by one interviewer and one observer.

Method in Action

Selecting Participants and Planning

An email was sent from us to all experienced Course Representatives within the institution, using data held on the university's student management system. Recipients were given an outline of the project objectives and

research method, as well as an accompanying participant information sheet, and they were asked to complete an online form to indicate their interest and availability in participating in an online cognitive interview. It was made clear that this was an optional activity, which was additional to the duties usually expected of a Course Representative, and that there would be no negative consequences resulting from their nonparticipation. Participants were also informed about the equipment that they would need, which included a device, preferably with a large screen and a camera and internet access and headphones (optional). All students had access to an account on the videoconferencing tool. Access to a private or quiet space to take part in the research was recommended. Once a date had been confirmed, we sent the consent form to participants via email.

Rapport and Researcher Approachability

We sent a follow-up email to each participant the day before the cognitive interview was due to take place to remind them about the arrangements. The link and password to the Zoom meeting, which were embedded in the email, were unique and only accessible to the researchers and the participant. This interaction provided a meaningful opportunity for us to interact with participants and to make our identities known, which Partlow (2020) stated can help to make the research process more transparent, and to provide reassurance about who we were and the purpose of the research. Maintaining contact with participants also made it easier for them to inform us if they wished to rearrange the date or time of the interview, which we were able to accommodate due to the flexibility of the online approach.

Introducing the Study

We launched the meeting in Zoom approximately 10 minutes prior to the agreed start time of the interview using the unique link and password. The use of a waiting room feature enabled participants to be verified before they joined, for example, to ensure that the appropriate student had turned up and to check that they were using their university-approved account. There was only one occasion where we had to deny a participant entry as they attempted to login with their personal account. After we informed the student about the requirements using the chat function in Zoom, they switched accounts, which enabled the highest standards of privacy and confidentiality to be maintained.

Once each participant entered the interview, we introduced ourselves as the researchers who were leading the project and we provided an overview of the research and the ethical guidelines the study was adhering to. Participants were asked if they had any questions and, in addition to written consent, additional verbal consent was sought to confirm that they were happy to continue. This dialogue provided an opportunity to check on the well-being of the participants, which is important at any point but was even more pertinent in the context of the pandemic. The audio and video quality of the online interaction was also assessed at this point, which allowed the device settings to be optimized.

Administering the Interview

Participants felt at ease with the interview being led by one of us, and we shared our screen with the participant with the online questionnaire open in our web browser, and it enabled the participant to focus on the cognitive interviewing task. We opted against allowing the participant to share their own screen and navigate the survey themselves, which would have been particularly difficult in the case of one participant who used a smartphone to complete the cognitive interview. However, we recognize that, by using this approach, it was not possible to monitor the pace of participants' completion of the survey, and there was the possibility that issues that are evident in the live environment, when participants will be completing the survey on their own, might be overlooked (Mohorko & Hlebec, 2016). In the first couple of interviews, we also experienced disruptions while sharing our screen due to interference from other software that was running (e.g., receiving notifications) and we had to remember to only share the browser window.

Introducing the Interview Questions

To introduce each participant to the think-aloud process, they were asked to answer and think aloud the practice question of "How many years have you been studying in education." After this exercise, all participants expressed confidence about the task, and a single practice exercise was deemed to be sufficient for participants to become familiar with the procedure. At the beginning of the study, we needed to encourage most participants to think aloud at some point, especially at the beginning of interviews when there were more frequent periods of pauses. When participants had finished verbalizing their response to each question, the interviewer used a range of planned and spontaneous probes to gain further clarification. The use of reminders

and probes became less common toward the end of interviews as participants became more accustomed to the task and articulated their responses more clearly and extensively.

Detecting Verbal and Nonverbal Reactions

Observation of nonverbal cues, such as body language and facial expressions, alongside verbal cues, were crucial to informing our understanding of participants' reactions and our use of spontaneous probing questions. Seitz (2015) pointed out that, since only the head and shoulders of the camera subject can usually be seen, it becomes "even more vital to listen to the tone of the participant's voice and be very conscious of their facial expressions" (p. 232). Following a period of silence, it was usually evident from participants' facial expressions whether they were confused or bemused (often indicated by frowning or squinting at the screen), bored or losing concentration (indicated by yawning, stretching, and/or regularly adjusting their position in their chair), or still thinking about their response. It was important to use verbal probing to clarify our interpretation of participants' nonverbal reactions, considering that there are differences in nonverbal communication across cultures and demographics (Phutela, 2015). Although most participants were engaged throughout the interviews, in hindsight, we believe that using fewer proactive probes would have been beneficial for maintaining their interest.

Dealing With Disconnections and Disruptions

Timing of reminders or probes became particularly challenging on the rare occasions that there were connection issues. In one example, a delayed connection resulted in long pauses in the interaction due to the hesitancy of the interviewer to intervene. A lag resulted in us potentially missing important information or nonverbal expressions, which influenced our deployment of probes. Having two researchers present for each interview was helpful to minimize the disruption as the observer was available to ask probes if the lead interviewer was affected (see Table 2).

Table 2. An example of discussion from the cognitive interview where, after the participant was asked about the questionnaire item "Staff teaching this module made the subject interesting," disruption occurred for the lead interviewer and the observer had to take over

Interviewer	How did you arrive at that answer?
Participant	I'd choose a course because you're interested in it. If you don't find it interesting, you should change your course. For some of the...
Interviewer	(overlapping) Thanks. Why would some…
Observer	Sorry, [name of participant] was still speaking.
Interviewer	Sorry, I had a delay, and I didn't think you were still speaking. Please continue.
Participant	Some of the business modules are nothing to do with what we wanted to learn and that was not at all interesting and I wasn't engaged with it, so that would have a completely different answer.
Observer	So what does the term interesting mean to you here?

There were a couple of occasions where participants were disrupted by friends or family members, who entered the location where the interview was taking place and presented a risk to privacy. These issues were resolved immediately as the participant explained the situation to the individual and kindly asked them to leave. Conducting research remotely can lead to researchers having limited control of the participants' environment and lead to distractions. After any disruption occurred, we found it useful to summarize key points previously made by the participant as a way of checking that our interpretations were accurate and re-establishing focus.

Closing the Cognitive Interview

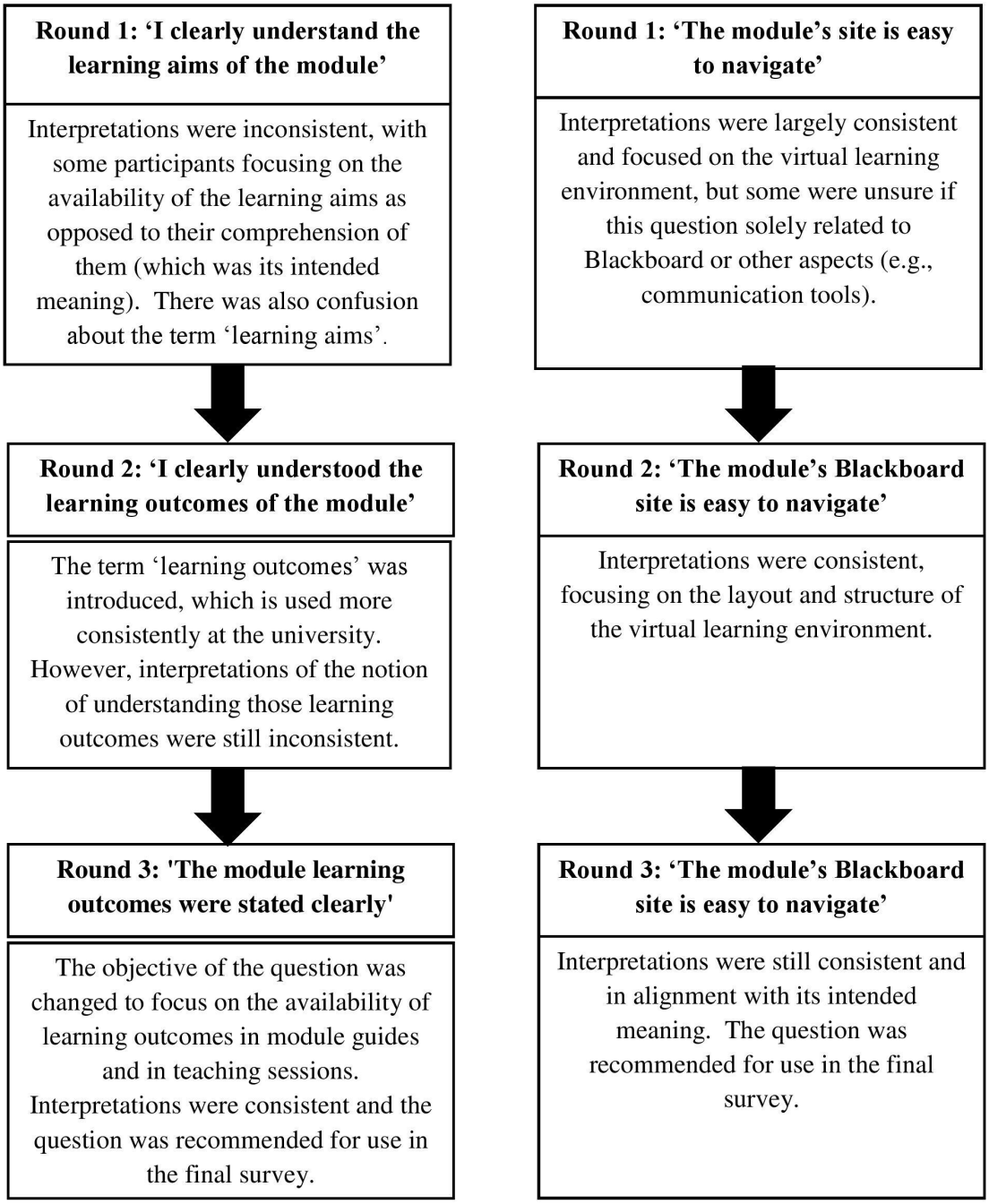
The participant was thanked for their contribution at the end of their interview and the researchers reiterated key points about data use, confidentiality, and outputs from the project, including when they would receive a report summarizing the interview findings. Many participants reflected on their experiences of taking part in the interviews and most were positive at being given the opportunity to help shape the content of an institutional tool used to capture student feedback. Immediately after each interview, the data that were recorded on

the interviewer's encrypted hardware was transferred to the university's secure storage network. The reflective notes written by the observer were also saved in this same location.

Making Changes to Survey Questions

The data derived and analyzed from the cognitive interviews highlighted that the 19 interviews that had been conducted were effective for improving the survey. However, there was a range of outcomes across the questions tested. Several were interpreted quite consistently across interviews, in alignment with their intended meaning. In contrast, other questions were identified as problematic, predominantly in relation to being interpreted broadly and/or misinterpreted, which resulted in changes being made to the wording or the focus of the question between rounds (see Figure 1). This latter point was not surprising, as there were a few questions which we had identified beforehand as being problematic as they did not adhere to good design principles of questionnaire design. Some of these were questions which had been transferred from one context (course-level surveys) to another (module-level survey) and assumed to be fit for purpose. When issues were found and could not be rectified, we made recommendations for the questions to be excluded from the final survey.

Figure 1. Example of how two questions which were changed over the three rounds of cognitive interview.


Round 1: 'I clearly understand the learning aims of the module'
Interpretations were inconsistent, with some participants focusing on the availability of the learning aims as opposed to their comprehension of them (which was its intended meaning). There was also confusion about the term 'learning aims'.
Round 2: 'I clearly understood the learning outcomes of the module'
The term 'learning outcomes' was introduced, which is used more consistently at the university. However, interpretations of the notion of understanding those learning outcomes were still inconsistent.
Round 3: 'The module learning outcomes were stated clearly'
The objective of the question was changed to focus on the availability of learning outcomes in module guides and in teaching sessions. Interpretations were consistent and the question was recommended for use in the final survey.
Round 1: 'The module's site is easy to navigate'
Interpretations were largely consistent and focused on the virtual learning environment, but some were unsure if this question solely related to Blackboard or other aspects (e.g., communication tools).
Round 2: 'The module's Blackboard site is easy to navigate'
Interpretations were consistent, focusing on the layout and structure of the virtual learning environment.
Round 3: 'The module's Blackboard site is easy to navigate'
Interpretations were still consistent and in alignment with its intended meaning. The question was recommended for use in the final survey.

Reaching Saturation

By demonstrating the ways in which individual questions can be interpreted differently by student participants, we highlighted the difficulty of designing a standardized questionnaire for a whole university that is interpreted consistently by students. Given the size of the institution and the number of potential questionnaire respondents, we were unable to reach a point of saturation in our research. Beatty and Willis (2007) described this point as being when the members of the target population are interviewed until "they yield relatively few new insights" (p. 296). However, Willis (2005) acknowledged the role of timing and resourcing in determining how much data can be feasibly collected. While more participants and rounds of testing would have been required to reach a point of saturation in this study, we believe it has demonstrated the effectiveness of cognitive interviews in improving surveys within small-scale projects (Ryan et al., 2012).

Section Summary

- Participants were recruited by email and accessed the interview via a unique link, which required password authentication and a University login.
- The lead interviewer introduced the research and used a practice question to set participants at ease.
- Screen-sharing was used in the navigation of the survey, and the interviewer was supported by the observer in addressing technical issues and identifying/responding to the needs of the participant.
- Participants were notified of the next steps, and the interview recordings were used alongside the observer's notes to analyze the findings.

Practical Lessons Learned

Post-interview reflections on the process led to the following conclusions about the key considerations for researchers engaging in online synchronous cognitive interviews.

Project Planning and Design

Conducting our cognitive interviews was time-consuming and required detailed planning by us, with support from a colleague in our professional services team. We had clearly outlined the purpose of our project and anticipated outcomes as part of a detailed project plan, setting out our objectives, timeline, anticipated outputs, stakeholders and participants, resources, roles and responsibilities, and plans for ethical approval, communications, risk management, and data management.

We were confident that our chosen method of data collection was fit for the purpose. We had identified cognitive interviewing as a valuable tool to facilitate collaborative working between staff and students, resulting in increased understanding of individual perspectives on the interpretation of language commonly used in Higher Education in relation to the learning experience. We found it to be accommodating as an iterative process which enabled us to test new variations on existing questionnaire items. Literature from the sector was used to inform our considerations of adapting the research method.

Our institutional process of seeking ethical approval is a rigorous one, which helpfully required us to ensure that we had considered issues relating to confidentiality, participant information, the right to withdraw, access requirements, and the well-being of our participants. Consultation conducted with members of the target population, which happened before the research, helped to address key ethical concerns including any potential exclusion of participants. Further consideration of the technical requirements relating to the use of equipment, internet access, screen time, document-sharing, and live/recorded audio-visual arrangements required additional attention, and a practice interview was used to test our methodology and equipment and confirm our timings.

Participation

Our pre-interview communications helped to ascertain any individual access requirements and build rapport with participants to maximize engagement. We adopted recommendations to make our profiles known and accessible to participants to help make the research process more transparent. Participants were given multiple opportunities to ask questions about the research before, during, and after the cognitive interviews.

The role of the observer eased some of the pressure placed on the interviewer (e.g., in relation to addressing technical issues or being able to provide cover if the connection was lost) and offered an opportunity for greater focus on nonverbal cues. Post-interview discussions between the interviewer and observer and the availability of two accounts of the proceedings added to the richness of the data.

Our mix of predetermined and spontaneous probes gave us the security of knowing that we were prepared for each interview and the flexibility of asking follow-up questions and exploring areas of uncertainty in more detail. Beginning with a simple introductory question meant that participants were put at ease and were more prepared to articulate their thinking and share their views openly, particularly by the end of the interview.

The ability for us to witness nonverbal reactions and maintain rapport with participants with relative ease, in addition to the potential to observe how participants navigate questionnaires via the use of screen sharing, highlights that videoconferencing technology replicates many of the advantages of face-to-face interviews.

Inter and Post-interviews

The schedule of conducting 19 cognitive interviews and three rounds of testing across 12 consecutive working days was intense. While the use of technology can make the delivery of cognitive interviews cost and time-effective, we made the mistake of scheduling the interviews within a condensed period of time. We felt exhausted at times, particularly after staring at device screens for significant periods of time, when conducting interviews, watching recordings back, or analyzing the data. The length of each cognitive interview was suitable at 45 minutes but, in hindsight, our experience emphasized the need for us, as researchers, to give greater priority to our own well-being (Kara & Khoo, 2020), include more rest periods between interviews and, if necessary, ask for the project deadline to be extended (Boynton, 2020). Willis (2005) also noted that there needs to be time between interviews “to develop a testing protocol, to write up testing results, to confer with other interviewers, and to modify the questionnaire both between rounds and subsequent to the final round.”

Our combination of written notes, interview transcripts, video recordings, and impressionistic discussions between interviewers were all helpful in enabling us to analyze our findings. The recording features embedded into the videoconferencing tool were valuable in enabling us to watch the videos and evaluate our own performances. After reflecting on the recordings, a few areas of improvement were highlighted which we have subsequently attempted to address, for example, reducing the number of planned probes and allowing par-

ticipants to have more time to respond before we intervene with reminders or probes.

Section Summary

- The researchers found it helpful to carry out careful project planning and ensure that the chosen method of data collection was fit for purpose. Videoconferencing was found to be an effective means of carrying out cognitive interviews and stimulating engagement from participants.
- Pre-interview communications and a balance of professionalism and informal discussion during the interview helped to emphasize the approachability of the researchers and build rapport.
- The interview schedule was intense and time-consuming, highlighting the need to build in rest periods between rounds, to support the well-being of the research team.

Conclusion

This case study focused on the ethical, methodological, and practical challenges of adapting face-to-face cognitive interviews to an online approach using a videoconferencing tool. In our experience, videoconferencing tools provided a viable alternative approach for conducting cognitive interviews to explore the accuracy, and consistency of interpretations of questionnaire items, identify sources of confusion, and make revisions. The observation of nonverbal reactions, the relative ease of building rapport with participants, and the potential to track how participants navigate questionnaires means that this approach replicates many of the advantages of face-to-face interviews. The absence of barriers relating to geographical restrictions presents opportunities to access individuals and communities who are more widely dispersed.

We would recommend using videoconferencing tools to carry out cognitive interviewing, as part of a multi-method approach to creating and improving questionnaires, irrespective of the scale of the project. However, we urge readers to “avoid falling into the trap of describing online research as only solely opportunistic” (Partlow, 2020, p. 119). The well-being of all groups involved in the research process, including participants and researchers, must be prioritized ahead of any benefits associated with this approach, for example, by ensur-

ing that prolonged periods of screen time are avoided and building in sufficient rest time between interviews. We emphasize the importance of ensuring that methods are used that do not exclude participants. As long as the research is carried out in an ethical and transparent manner, the use of videoconferencing tools for cognitive interviews is an advantageous option that can be used across a variety of disciplines.

Classroom Discussion Questions

1. The case study highlights three remote approaches to conducting cognitive interviews (telephone, videoconferencing, and web probing). Do you think there are any other approaches that we should have considered?
2. What are the strengths and challenges of conducting cognitive interviews using videoconferencing tools?
3. What are the key ethical considerations when asking participants to engage in online research?
4. What precautions should be taken in online research to protect the well-being of researchers?
5. What other approaches can be used alongside cognitive interviewing to test and develop questionnaires?

Multiple Choice Quiz Questions

1. Which of the following is an aim of cognitive interviewing?

◯ **a.** To explore individuals' willingness to participate in surveys

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is B.

○ **b.** To understand how individuals process and respond to survey questions

Correct Answer

Feedback: Well done, correct answer.

○ **c.** To clarify survey questions to individuals and help them to provide an answer

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is B.

2. Why was the purposive sampling approach used?

- ◯ **a.** To identify a wide range of problems from a cross section of the target population

Correct Answer

Feedback: Well done, correct answer.

- ◯ **b.** To achieve a sample that was statistically representative of the target population

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is A.

- ◯ **c.** To make it as easy as possible to recruit participants from the target population

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is A.

3. Which one of the following cognitive interview approaches is best suited for observing non-verbal reactions, such as facial expressions, of participants?

- **a.** Telephone

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is B.

- **b.** Videoconferencing

Correct Answer

Feedback: Well done, correct answer.

- **c.** Web probing

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is B.

4. What equipment was needed in this case study for participants to take part in the cognitive interview using a videoconferencing tool?

- **a.** A printed copy of the questionnaire and a device

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is C.

- **b.** A device, internet access, and a tape recorder

Incorrect Answer

Feedback: This is not the correct answer. The correct answer is C.

◯ **c.** A device, internet access, headphones (optional) and access to the videoconferencing tool

Correct Answer

Feedback: Well done, correct answer.

Further Reading

Kara, H., & Khoo, S. M. (Eds.). (2020). *Researching in the age of COVID-19 Volume II: Care and resilience*. Policy Press. 10.2307/j.ctv18dvt4f

Newman, P. A., Guta, A., & Black, T. (2021). Ethical considerations for qualitative research methods during the COVID-19 pandemic and other emergency situations: Navigating the virtual field. International Journal of Qualitative Methods. 10.1177/16094069211047823

Ryan, K., Gannon-Slater, N., & Culbertson, M. J. (2012). Improving survey methods with cognitive interviews in small-and medium-scale evaluations. *American Journal of Evaluation*, 33(3), 414–430. 10.1177/

1098214012441499

Upadhyay, U. D., & Lipkovich, H. (2020). Using online technologies to improve diversity and inclusion in cognitive interviews with young people. *BMC Medical Research Methodology*, 20(1), Article 20:159. 10.1186/s12874-020-01024-9

Willis, G. B. (2005). *Cognitive interviewing*. SAGE Publications. 10.4135/9781412983655

Willis, G. B. (2015). The practice of cross-cultural cognitive interviewing. *Public Opinion Quarterly*, 79(S1), 359–395. 10.1093/poq/nfu092

Web Resources

‘How to be a survey whisperer: Using cognitive interviewing to co-design a Module Evaluation Questionnaire’: https://www.youtube.com/watch?v=HJt3PDv0skc

Cognitive interviewing resources at Student Engagement, Evaluation and Research (STEER), Sheffield Hallam University: https://blog.shu.ac.uk/steer/category/research/cognitive-interviewing/

References

Arthur, L. (2019). Evaluating student satisfaction - restricting lecturer professionalism: Outcomes of using the UK national student survey questionnaire for internal student evaluation of teaching. *Assessment & Evaluation in Higher Education*, 45(3), 331–344. 10.1080/02602938.2019.1640863

Beatty, P. C., & Willis, G. B. (2007). Research synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287–311. 10.1093/poq/nfm006

Bennett, R, & Kane, S. (2014). Students’ interpretations of the meanings of questionnaire items in the National Student Survey. *Quality in Higher Education*, 20(2), 129–164. 10.1080/13538322.2014.924786

Boynton, P. (2020). Do the best you can: researcher safety in a pandemic. In H.Kara & S. M.Khoo (Eds.), *Researching in the age of COVID-19 Volume II: Care and resilience* (pp. 119–127). Policy Press. 10.2307/j.ctv18dvt4f.6

CooperGibson Research. (2014). Cognitive review of survey items at postgraduate level. https://www.heacademy.ac.uk/system/files/downloads/PTES%20Cognitive%20Review_CGR.pdf

Fowler, S., & Willis, G. B. (2020). The practice of cognitive interviewing through web probing. In P.Beatty, D.Collins, L.Kaye, J. L.Padilla, G.Willis, & A.Wilmot (Eds.), *Advances in questionnaire design, development, evaluation and testing* (pp. 451–469). John Wiley & Sons. 10.1002/9781119263685.ch18

Gibbs, G. (2010). Dimensions of quality. The higher education academy. https://www.advance-he.ac.uk/knowledge-hub/dimensions-quality

Howson, C. B. K., & Matos, F. (2014). UK Engagement Survey 2014: Full report of the cognitive testing. https://immagic.com/eLibrary/ARCHIVES/GENERAL/HEA_UK/H141111H.pdf

Kara, H., & Khoo, S. M. (Eds.). (2020). Researching in the age of COVID-19 Volume II: Care and resilience. 10.2307/j.ctv18dvt4f

Lenzner, T., Hadler, P., & Neuert, C. (2021, March12). How to conduct cognitive interviews in times of COVID-19. GESIS. https://blog.gesis.org/how-to-conduct-cognitive-interviews-in-times-of-covid-19

Lobe, B., Morgan, D., & Hoffman, K. A. (2020). Qualitative data collection in an era of social distancing. *International Journal of Qualitative Methods*, 19, 160940692093787. 10.1177/1609406920937875

Meitinger, K., & Behr, D. (2016). Comparing cognitive interviewing and online probing: Do they find similar results.

Mohorko, A, & Hlebec, V. (2016). Degree of cognitive interviewer involvement in questionnaire pretesting on trending survey modes. *Computers in Human Behavior*, 62, 79–89. 10.1016/j.chb.2016.03.021

Newman, P. A., Guta, A., & Black, T. (2021). Ethical considerations for qualitative research methods during the COVID-19 pandemic and other emergency situations: Navigating the virtual field. *International Journal of Qualitative Methods*, 20, 160940692110478. 10.1177/16094069211047823

Noel, H. (2013, May). Conducting cognitive interviews over the phone: Benefits and challenges. http://www.asasrms.org/Proceedings/y2013/files/400282_500777.pdf

Oon, P. T, Spencer, B, & Kam, C. C. S. (2016). Psychometric quality of a student evaluation of teaching survey in higher education. *Assessment & Evaluation in Higher Education*, 42(5), 788–800. 10.1080/02602938.2016.1193119

Partlow, E. (2020). Prioritizing inclusion, ethical practice and accessibility during a global pandemic: The role of the researcher in mindful decision making. In H.Kara & S. M.Khoo (Eds.), *Researching in the age of COVID-19 volume II: Care and resilience* (pp. 119–127). Policy Press.

Phutela, D. (2015). The importance of non-verbal communication. *IUP Journal of Soft Skills*, 9(4), 43–49.

Ravitch, S. M. (2020, March23). The Best Laid Plans…Qualitative Research Design During COVID-19. MethodSpace. https://www.methodspace.com/blog/the-best-laid-plans-qualitative-research-design-during-covid-19

Ryan, K., Gannon-Slater, N., & Culbertson, M. J. (2012). Improving survey methods with cognitive interviews in small- and medium-scale evaluations. *American Journal of Evaluation*, 33(3), 414–430. 10.1177/1098214012441499

Seitz, S. (2015). Pixilated partnerships, overcoming obstacles in qualitative interviews via Skype: A research note. *Qualitative Research*, 16(2), 229–235. 10.1177/1468794115577011

Tourangeau, R. (1984). Cognitive aspects of survey methodology: Building a bridge between disciplines. In T.Jabine, M.Straf, J.Tanur, & R.Tourangeau (Eds.), *Cognitive aspects of survey design: Building a bridge between disciplines* (pp. 73–100). The National Academies. 10.17226/930

Upadhyay, U. D, & Lipkovich, H. (2020). Using online technologies to improve diversity and inclusion in cognitive interviews with young people. BMC Medical Research Methodology, 20(1), 159. 10.1186/s12874-020-01024-9

Van Mol, C. (2016). Improving web survey efficiency: The impact of an extra reminder and reminder content on web survey response. *International Journal of Social Research Methodology*, 20(4), 317–327. 10.1080/13645579.2016.1185255

Wiley, C. (2019). Standardised module evaluation surveys in UK higher education: Establishing students' perspectives. *Studies in Educational Evaluation*, 61, 55–65. 10.1016/j.stueduc.2019.02.004

Willis, G. B. (2005). *Cognitive interviewing*. SAGE Publications. 10.4135/9781412983655

Willis, G. B. (2018). Cognitive interviewing in survey design: State of the science and future directions. In D.Vannette & J.Krosnick (Eds.), *The Palgrave Handbook of Survey Research*. Palgrave Macmillan. 10.1007/978-3-319-54395-6_14

https://doi.org/10.4135/9781529603583