Bridging the Gap: A Researcher's Journey from Traditional Qualitative Methods to Tech-Driven Insights

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A B S T R A C T S

The integration of technology into qualitative research has introduced transformative opportunities and challenges, prompting researchers to evaluate traditional methods against technology-based approaches. This article examines the strengths, limitations, and effectiveness of these methods, focusing on participant recruitment, interview conduction, and transcription processes. Drawing on researchers' experiences from two qualitative projects involving breastfeeding mothers, this article compares traditional face-to-face interviews with online methods using platforms such as Zoom and Facebook. The findings reveal that while face-to-face interviews enable deeper interaction and contextual insights, they are logistically demanding and time-intensive. In contrast, technology-based methods enhance accessibility and efficiency, particularly for dispersed populations, yet may compromise non-verbal cues and transcription accuracy. Automated transcription tools, though time-saving, often fail to capture linguistic nuances, requiring manual verification for rigorous analysis. This article concludes that a hybrid approach leveraging the strengths of both methods ensures comprehensive data collection. Best practices for using technology in qualitative research are proposed to ensure the richness and contextual depth of the data while leveraging the benefits of modern tools.

Keywords / Kata Kunci — *qualitative research; technology; social media; data collection*

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1. INTRODUCTION

Qualitative studies are being increasingly utilised by researchers because they significantly impact research outcomes by providing deep, nuanced insights that are often essential for understanding human experiences within social contexts. This approach generates rich, contextually grounded data that can lead to new theories, practical recommendations, and culturally sensitive interventions [1]. Traditionally, qualitative data is obtained from face-to-face interviews, focus group discussion, observation, and document analysis. The advancement of technology has also revolutionised the qualitative research process.

Technology refers to the tools, software, and platforms that assist those conducting research. In the context of qualitative research, technology can be categorised based on how it supports various stages of the research process, from data collection to analysis and presentation [2]. As data collection tools, Zoom and Microsoft Teams can be used when conducting remote interviews, and they enable audio recording. Google Forms and SurveyMonkey can be used as platforms for distributing open-ended surveys. A qualitative researcher could use Otter.ai and Trint

to transcribe interviews. In addition, various types of data analysis software such NVivo and Atlas.ti can be used to analyse qualitative data. The use of these packages is not limited to textual data; they can also be used on photos and videos.

The discussion on the use of technology to facilitate the qualitative research process started in the 1980s, in line with the rise of personal computing. However, the concept gained further attention during the COVID-19 pandemic, when movement control orders limited research activity [3]. The integration of technology into qualitative research is also influenced by generational shifts, with young researchers more likely to explore and adopt new technologies in research methods [4]. Their ability to adapt research methods through technology enhances the inclusivity and relevance of qualitative studies across different populations. This ensures that qualitative research remains dynamic and responsive to the evolving digital landscape.

This paper aims to compare the effectiveness, strengths, and limitations of traditional qualitative research methods versus technology-based methods, particularly for recruiting research participants, conducting interviews, and transcribing interviews, based on the experience of the researchers. This paper also recommends best practices for integrating technology into qualitative research without compromising the depth or richness of data

2. RESEARCH METHODOLOGY

This section is divided into three parts: recruitment of the research participants, conducting the interviews, and transcribing the interviews.

2.1. Recruitment of research participant

For project 1, the lactation nurse of each selected maternal and child health clinic served as the key informant, who disseminated information about the study and identified potential participants. They were given a detailed explanation of the sampling criteria for the potential participants required by the project. The inclusion criteria were Malay, breastfeeding mothers who had an infant aged between two and 30 months old. Only Malay mothers were included in this study as it focused on issues related exclusively to Islam. Breastfeeding mothers were excluded from this study if their infant was less than 18 years old; or if they were unwilling to participate, had a mental disability, or had a child with a congenital disorder such as cleft palate or cerebral palsy; or if they were token breastfeeding. The data collection took six months, with the time interval between each interview being approximately one to two weeks. Of the 23 potential participants approached, three refused because their husbands did not give permission and five withdrew from the study due to time constraints. The participants were initially contacted by the researcher via a phone call. The researcher briefly introduced herself and the study, and she explained how she had gained access to their information. This was followed by a meeting during their clinic visit. The purpose of these contact visits was to establish a rapport and the mutual respect necessary for the interview. This rapport was reflected when, before and after the interview sessions, some mothers shared problems unrelated to the study topic.

The participants for project 2 came from all over Malaysia, including east Malaysia, and had various socio-demographic backgrounds. Twenty-eight mothers were Malay, one was Chinese, and one was Indian. The data collection was completed in nine months, with the time interval for each interview being approximately one to two weeks. The researcher posted a research advertisement on the Facebook Page of each breastfeeding and breastmilk donation community. The advertisements contained an information sheet and the selection criteria to facilitate recruitment. The inclusion criteria for the mothers were to be a Malaysian woman aged over 18 and who had experienced being either a donor mother (who had donated breastmilk) or a recipient mother (who had received donated breastmilk) from within a selected Facebook breastfeeding and breastmilk donation community, and the EBM was used for feeding purposes. Mothers were excluded if they were unable to speak Malay or English; were unreachable via online methods; or had an existing family relationship with the donor/recipient or they knew each other before milk sharing took place. Those interested in participating were required to provide their contact details via a Google Form.

2.2. Conducting the interviews

For project 1, the interviews were conducted based on each participant's preference: 13 were interviewed at their home and another two were interviewed at their workplace. Therefore, the researcher needed to travel to the participant's location, with some located approximately 30 kilometres away. This was time-consuming and costly. The researcher also faced difficulties in scheduling interviews because the participants also had other commitments such as working and domestic childcare. In addition, the safety factor also had to be considered when conducting face-to-face interviews. Therefore, before each interview, for safety reasons, the police station nearest to the location was provided with a letter of notification containing the contact details of the researcher and the participant. A digital voice recorder was used to record the conversations for transcription and analysis. All the interviews were conducted in Malay. There was a case of a mother speaking in local dialect throughout her interview. However, the researcher could understand what she was conveying. If the interviewer did not

understand what was being said, the interview was summarised and paraphrased to obtain clarification. Prolonged engagement started with the phone call and the clinic visit enabled the researcher to establish a good rapport with the mothers. The rapport helped them feel comfortable about sharing their problems and feelings during their interview session.

In project 2, a total of 32 participants who passed the screening phase were interviewed using various platforms at mutually convenient times. Two interviews were conducted via Google Meet, 18 used Zoom, 9 used WhatsApp video calling, one used Microsoft Teams, and two used Duo. The majority of the interviews took place at night or during the weekend, and they lasted around 40 to 90 minutes. The majority of the participants spoke Malay. However, English was incorporated minimally into the interviews. All the interviews conducted via Google Meet, Zoom, and Microsoft Teams were recorded using the in-app audio recording, while an audio recorder device was used for the interviews conducted via Duo and WhatsApp video calls. Two interviews were excluded due to poor audio quality. The main challenges faced while conducting this study included poor internet connections, limited mobile data, and unfamiliarity with online interviews. One interview session was interrupted several times due to application malfunctions. As a consequence, the interview platform was changed. Having initially started with Zoom, the researcher and the participant decided to use WhatsApp video calling, followed by a phone call as the participant had a limited internet data plan. These situations might have indirectly influenced the emotions of both parties.

A rapport was established during the initial contact via WhatsApp messenger. When the researcher and participant do not know each other, building a good rapport can be particularly challenging. Therefore, researchers must connect effectively with the participants to make them feel comfortable about sharing their problems and feelings during the interview sessions. The researcher made a point of always turning on her video camera during the sessions so that the participants would be able to see the person to whom they were talking. The participants were also encouraged to turn on their video cameras, but a few refused as they feared their privacy would be compromised. During each interview, the researcher also wrote memos. However, this was quite challenging because of the limited visual field during the video calls and the refusal of some participants to turn on their video cameras. Therefore, the researcher had to pay attention to the participants' intonation and how they responded to the questions.

2.3. Transcribing the interviews

The process of transcribing the interview for project 1 was done by the same researcher who had conducted the interview. The audio recordings were listened to carefully many times after the interview, followed by data transcription to ensure the rigorousness of the data. Five to seven days were required to complete the data transcription for each interview.

Platforms like Zoom, Google Meet, and Microsoft Teams are also equipped with recording features that may facilitate interview transcription. For project 2, the researcher used Trint, a form of transcription software that can convert audio files into text. Based on the researchers' experience, using this software saves time since it can convert audio recordings to text much faster than manual transcription because the transcription process can take less than three hours, depending on the interview duration. However, the researchers noticed that the use of dialect or a language other than English might lead to misinterpretations when using transcription software. Background noise might also reduce the transcription quality

3. RESULTS AND DISCUSSION

The integration of technology into qualitative research has significantly transformed traditional approaches. Reflecting on the researchers' experiences when conducting these two projects, utilising technology provides opportunities and challenges that influence the depth, richness, and scope of a qualitative study.

3.1. Recruitment

A recruitment process through Facebook has been employed in other studies [5-6]. The researchers learned that the use of social media can also make the recruitment process more efficient, accessible, and responsive to the needs of diverse participant groups. This is because the users of social media platforms come from a wide range of backgrounds, including different age groups, ethnicities, socio-economic statuses, and geographical locations. For example, recruiting participants via a community of shared interest on Facebook provides a targeted group of potential participants. In the case of Project 2, breastfeeding and breastmilk donation communities on Facebook connect mothers who are passionate about breastfeeding. These communities serve as support systems and informational resources on breastfeeding and milk sharing within a safe and trusted environment. Thus, this recruitment approach is useful to engage the most relevant participants to the research topic.

This approach could be adopted in Project 1. Many organisations such as health institutions have started using social media as platforms by which to disseminate information about themselves. Therefore, the researcher may ask them for help in publicising a study on the Facebook Page. This method could help the researcher increase the visibility and discoverability of a research advertisement, thus facilitating the recruitment process. The

advertisement must be clear in terms of the study topic and conduct, as well as the participant selection criteria. Screening potential participants is recommended because voluntary sampling often produces a wide range of respondents, and the screening process ensures that those who volunteer meet the specific study requirements.

3.2. Interview

The integration of technology into qualitative research has both revolutionised and challenged traditional methods. As demonstrated through the two projects discussed, each approach offers distinct advantages and limitations. Project 1 supports the notion that traditional methods using face-to-face interviews enable deep, personal interactions and the capture of rich, contextual data, but they are often time-consuming and logistically complex [7]. On the other hand, technology-based methods, as used in Project 2, support the use of social media for recruitment and online platforms for interviews. They also provide greater accessibility, efficiency, and flexibility, particularly in reaching diverse and geographically dispersed participants [8].

A previous study emphasised how using video-conferencing as a tool for collecting data was beneficial for accessing hard-to-reach populations [9], such as those engaging in illegal behaviour or stigmatised in society [10]. Examples of such people include those with substance use disorder, those living with HIV AIDS, anti-vaxxers, and LGBTQ communities. In Project 2, discussing milk sharing may appear highly sensitive and often leads to disagreement due to several factors. The subject involves concerns about the safety and quality of expressed breastmilk [11-13]. Therefore, the selection of online interviewing may influence participation and enable the issues to be discussed openly.

Technology can be subject to technical limitations. Internet connectivity issues, software glitches, and hardware failures can disrupt the research process. Therefore, a contingency plan is needed to ensure the reliability of data. Furthermore, the researcher had to consider other participant-related factors that might have influenced the success of online interviewing, such as their internet literacy, internet access, and the availability of a gadget supported by an internet data plan [7].

3.3. Audio devices and transcription software

Transcribing interviews verbatim using the conventional method involves manually listening to the recorded audio of an interview and typing out every word spoken by both the interviewer and the participant. Although detailed and time-consuming, this process is essential for ensuring accuracy in qualitative research. The use of transcription software could give researchers new experiences and perspectives since the transcription software might speed up the process, thereby saving time [14].

Reflecting on the researchers' experiences in Project 2, transcription software must be used judiciously because using it exclusively could jeopardise the richness and depth of the data obtained. This is because qualitative scholars have emphasised the need for tedious transcribing procedures, which enable the researcher to become more immersed in the data to understand the meaning conveyed by the participants [15]. In addition, the use of transcription software will prevent the capture of non-verbal data during an interview, yet this is useful for information exchange.

TABLE 1. Hybrid Approach Integrating Traditional and Technology-Based Methods in Qualitative Research

Research Process	Traditional Method	Technology-based Methods	Hybrid Approach
Participant recruitment	Key informants from healthcare settings. Direct communication to establish rapport.	Use of social media platforms to reach diverse populations. Online forms for data collection.	Social media can serve as the first contact point, followed by personalized interactions to clarify study details and confirm participant suitability.
Conduct of the interview	Face-to-face interviews for deeper personal interaction and contextual understanding.	Online interviews for accessibility and flexibility.	Researchers can offer both options, allowing participants to choose the mode they are most comfortable with, ensuring inclusivity and accessibility.
Transcription	Manual transcription for immersion and accuracy, capturing non-verbal cues.	Automated transcription tools for speed and efficiency.	The time saved by using software for initial drafts allows researchers to focus on analysis and interpretation. During the manual review, researchers gain deeper familiarity with the data, fostering insights into underlying themes and patterns.

For this reason, a comprehensive manual review is suggested to ensure a transcript satisfies the requirements needed for qualitative analysis. A hybrid approach that combines technology's efficiency with a meticulous manual review is also recommended. To obtain a useful context for analysis, the researcher must manually add non-verbal clues to the transcripts, such as pauses and changes in voice tone. It is highly recommended that transcripts are manually reviewed by those conducting an interview so that they can become more immersed in the data. In addition, poor audio quality and background noise must also be considered when using transcription software [16]. Therefore, the use of high-quality audio recording devices should enhance the audio clarity and allow more accurate transcriptions.

Table 1 summarizes the hybrid approach which integrates traditional and technology-based methods across various stages of qualitative research. By combining the strengths of both approaches, the hybrid method ensures a balance between depth and efficiency, while maintaining the rigor and richness of the data.

4. CONCLUSIONS

The key to successful qualitative research lies in striking a balance between traditional and modern methods, ensuring that technology enhances rather than diminishes the quality of the data collected. Researchers must remain adaptable, continuously refining their techniques to maintain the integrity and richness of their findings. By doing so, researchers can harness the full potential of both conventional and technology-driven approaches, leading to more comprehensive and impactful research outcomes.

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