INNOVATIVE DATA COLLECTION METHODS FOR RESEARCH IN THE DIGITAL ERA

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ABSTRACT:

Data collection is a very important stage in social science research. In social science research, the data collection stage is very patient and challenging. The data collection methods are an important part of the research. During the collection of data, a researcher should identify the appropriate method of data collection based on the type and source of the data. If the researcher does not use the proper data collection method, they will encounter many difficulties while gathering the data, which may have an impact on their research. Therefore, the selection of data collection methods should be done with the utmost care. Before the COVID-19 pandemic, collecting face-to-face primary data from the research population was better. But when the social distancing era started, data collection in the traditional way in the field of teacher education became a challenging task for researchers. The researchers used several online data collection methods to deal with these challenges. Therefore, in this paper, researchers tried to identify online data collection methods for conducting the study or investigation in teacher education during the COVID-19 era.

Keywords: Teacher Education, Quantitative research, Qualitative research, Online methods of data collection, Covid-19 era

INTRODUCTION:

To prevent the infection of the COVID-19 pandemic, the policy of lockdown was adopted by most of the countries of the world. Which had an adverse effect on the social system, economic status, health, environment, academic activity as well as research in the field of teacher education. Whatever study is done in the field of teacher education, it is directly related to the teaching-learning process, psychological and social aspects of teachers, students, parents, and their social and educational conditions, case studies, etc. Apart from this, these days technology is also being studied by integration in the field of teacher education. In the field of teacher education, most of the researchers conducted face-to-face interaction with respondents and researchers. Data collection is an important stage for social science researchers. In this stage, the researcher has to be very careful and patient. During this period, the researcher should identify the appropriate method of data collection based on the types and population of the study. If the researcher does not choose an appropriate method of Data collection, then they will face many difficulties in this process and which may have an impact on their study. Traditionally most methods of data collection are based on face-to-face interaction with the researcher and the population of the study.

In social distancing, it is challenging to continue to collect data in 'traditional ways' (APHRC, 2021). But those traditional ways ended during the COVID-19 pandemic. Because this was an impossible work to conduct in those days. The pandemic was creating challenging situations and conditions in the field of teacher education. Because a large number of schools, colleges, and universities were deserted in those days. The researchers used several online data collection methods to deal with these challenges. Some already existing method of collecting data was becoming impractical during the social quarantine period. Because all human resources of academicians are involved in working from home (Sy et al., 2020). To overcome these challenges and to continue studies in the field of teacher education, a need was felt for alternative and innovative ways to replace traditional ways in both quantitative and qualitative ways of data collection method. In this paper, Investigators tried to identify online data collection methods for conducting studies in teacher education during the pandemic.

1. METHODS OF THE DATA COLLECTION FOR QUANTITATIVE STUDY DURING THE PANDEMIC IN THE FIELD OF TEACHER EDUCATION

Quantitative research focuses on collecting and analysing the numeric data to respond to the study-related items or test of null or directional hypotheses. It includes the practice of statistical techniques and data analysis tools to derive meaningful insights from the data.

In quantitative research, researchers typically start with a specific research question or hypothesis and design a study to gather data that can be measured numerically. They use structured data collection methods, such as surveys, experiments, or observations, to obtain quantitative data from a sample or population. The data collected may include responses to multiple-choice questions, ratings on scales, counts, or measurements.

Once the data is collected, researchers use statistical analysis to summarize, interpret, and draw conclusions from the data. This analysis can involve inferential statistics, like as mean, median, and standard deviation, to decode the features of the data set. It can also include inferential statistics, such as hypothesis testing and regression analysis, to make inferences or predictions about the population based on the sample data.

Overall, quantitative research is an available approach for investigating relationships, patterns, and trends in large data sets, allowing researchers to make evidence base conclusions on informed decision-making in the field of teacher education. In teacher education, commonly the techniques of data collection in quantitative study are the conducted of survey method through direct interaction with respondent and researcher.

But during the COVID-19 era, The lockdown, social distancing, wearing a mask, and quarantine protocols were strictly implemented by most of the countries of the world. This was a big challenge in the data collection period through a traditional way of survey method. This was strictly prohibited in this period. Online methods provide a convenient and effective way to collect quantitative data.

Here are some popular online methods of quantitative data collection:

1.1 Online Surveys Method for quantitative data collection tools during Covid-19 pandemic

Online surveys are a widely used method to collect quantitative data. Microsoft Office packages can also provide to create online surveys or questionnaires (Torrentira, 2020) and distribute them to the target audience via email, social media, or website links. Participants can respond at their convenience, and the responses are automatically collected and can be analysed later.

1.2 Online Experiments an effective way to collect the data

Conducting experiments online can be an efficient way to collect quantitative data. Other tools that have been used by researchers can use specialized platforms like Amazon Mechanical Turk and SurveyMonkey for market surveys or Prolific to recruit participants and run experiments remotely (Boas et al., 2020). These platforms will offer tools for randomization, control group assignment, and data collection.

1.3 Using Google Forms as an online data collection Tool in Research

During the COVID-19 critical period, when interpersonal interaction and physical data collection methods may be restricted or challenging, online data collection tools like Google Forms have become particularly valuable. For building connections and sharing information, social media is one of the best effective platforms (Glazier and Topping, 2012).

By using Google Forms, the researcher or investigator can collect data without any physical contact. Respondents can access and submit their valuable responses from their own devices, whether it's a computer, laptop, tablet, smartphone, etc. This contactless approach is essential for maintaining distance in measures and reducing the risk of various transmission or spread of the coronavirus. Google Forms offers a user-friendly and efficient way to collect and manage data, making it a popular choice for surveys, feedback collection, event registrations, and more. Participants can access the surveys and respond to the questions through their computers or mobile devices. Online surveys offer convenience, scalability, and the ability to reach a large number of respondents.

Overall, the Online Google Forms serves as a reliable and convenient web-based data collection tool. During the COVID-19 pandemic, enabling researchers, organizations, and individuals to gather valuable data while adhering to social distancing guidelines and minimizing physical interactions. Hence, with Many barricades and mobility during the COVID-19 period, researchers and respondents are protected and very cozy.

1.4 Using QR Code to Originate an electronic survey questionnaire in Teacher Education

During the COVID-19 pandemic, QR codes have gained significant popularity as a contactless data collection and information-sharing method. They provide a touch-free way for participants to access surveys, forms, and other data collection tools. Using a QR code to originate an electronic survey questionnaire in teacher education research can provide and conveniently and efficiently converse URLs to collect the data from participants. QR code is a matrix-type barcode that can also be featured by encapsulation of the link of the Google form survey questionnaire (Pandya & Galiyawala, 2014).

By leveraging QR codes, researchers streamline the data collection process and encourage higher response rates among teacher education participants. However, ensure that you adhere to ethical guidelines and protect the privacy of participants' data throughout the research process.

QR codes can be utilized to collect or share participant information securely. Researchers can generate unique QR codes linked to participant profiles, allowing participants to scan the code to access their own data, review study details, or provide additional information as required.

2. THE COLLECTION OF DATA FOR QUALITATIVE INVESTIGATIONS AND FINDINGS IN THE FIELD OF TEACHER EDUCATION DURING THE COVID-19 PANDEMIC

Traditionally, the techniques of data collection commonly used for qualitative study include direct contemplation and offline interviews of individuals, phalanx, race, or culture. This is a novel standard in qualitative studies (Sy et al., 2020). The qualitative investigation is very specific in report building with the participants to create a comfortable environment. Because the research study participants' acquaintance and exercise (Hennink, 2020).

Collecting data for qualitative research during the Covid-19 pandemic requires adaptations and considerations due to restrictions and safety concerns.

Here some methods and approaches you can consider for data collection during this time:

2.1 Remote interviews
For the purpose of research, interviews remotely through video conferencing platforms such as Zoom, Microsoft Teams, or Skype allow to connect with participants while maintaining social distancing. Schedule interviews at mutually convenient times, and consider using a secure platform that ensures privacy and confidentiality.

2.2 Mobile phone or telephone interviews
During the COVID-19 era, observation and offline interviews cannot be held to collect qualitative data by the researcher (Torrentira, 2020). If internet connectivity or technology limitations are a concern, conducting interviews over the phone call is an alternative option. Prepare interview guidelines in advance and ensure a quiet and uninterrupted environment for both researcher and participants. In this method, the researcher directly asks the question to the respondents, and the respondent directly responds to the asked question, and the researcher quickly audio record or note down audio the responses of participants in the field notes. Researchers can conduct structured or semi-structured interviews over the phone. This method allows for real-time interaction, enabling researchers to clarify questions and probe further. Phone interviews are particularly useful when access to the internet or technological devices is limited for some participants.

2.3 Online surveys/questionnaires
Develop online surveys or questionnaires using platforms like Google Forms or SurveyMonkey. These tools enable you to create and distribute surveys easily, collect responses, and analyze the data. Make sure to design clear and concise questions and provide detailed instructions for participants. For the survey monkey live survey, there is no need for a pen and paper for the survey to be conducted. For this internet coverage and more time is needed to complete the survey. SurveyMonkey provides better security for purchases plan (Halim et al, 2018).

2.4 Virtual focus groups
During the COVID-19 pandemic, offline interviews were hardly restricted to qualitative studies in the field of teacher education. In the condition of that time, video conferencing was one of the sufficient techniques to collect real-time data, live and offline mode yet remote (Torrentira, 2020). It's similar to remote interviews, researcher can conduct virtual focus groups using video conferencing platforms. Invite a group of participants to discuss specific research topics. Moderation is essential to ensure everyone has a chance to participate. At present time, video conferencing technology can replace the actual face-to-face interview may include Skype, Microsoft Teams, zoom or google meet, google hangout meeting, GoToMeeting, Zoho Meeting, Cisco WebEx, or in the form of Webinar (Gray et al, 2020).

2.5 Online Ethnography
Explore online communities, forums, and social media platforms relevant to your research. Observe and engage with participants in these spaces to gather data on their experiences, behaviors, and attitudes related to race, culture, and particular groups. During this, Researcher takes note of any ethical considerations and obtains informed consent when necessary.

2.6 Document Analysis
Since face-to-face interaction and observation was not possible, the document analysis provides reflection and novel idea about the experiences of the respondent of the study (Lupton, 2020).

Analyze existing documents, diaries, reports, articles, or online content related to the research topic and collect and review relevant data to gain insights into people's experiences, policies, or societal changes during the pandemic. During the COVID-19 pandemic, face-to-face observation was the most appropriate method for phenomenological ethnographic research related to field of the teacher education.

2.7 Remote observations

If the research involves observing behaviour or interactions, consider remote observation methods. This could involve using video recordings, live streaming, or accessing publicly available recordings that align with particular research objectives remember to prioritize ethical considerations during data collection, including informed consent, privacy, and confidentiality. Adapt your research methods and strategies to the online environment while ensuring the quality and validity of the collected data.

2.8 Postal or Mail Surveys

Sending out paper-based surveys via mail can be an option for data collection, particularly for populations with limited access to the internet or technology. However, this method may have longer response times and lower participation rates compared to offline or online surveys.

3 CONCLUSION

This paper explores the challenges faced by researchers in teacher education during the COVID-19 critical period and suggests online methods the data collection as available alternative. The paper focuses on the unique circumstances faced by teacher educators and the need to adapt research methodologies to ensure data collection can continue despite the restrictions imposed by the pandemic.

The paper outlines various online data collection methods that can be used during the pandemic. These methods include online surveys, virtual interviews, and online focus groups.

The authors discuss the limitations of traditional data collection methods, such as face-to-face interviews, classroom observations, and focus groups, which became impractical due to social distancing measures and lockdowns. They highlight the importance of exploring online alternatives to ensure the continuity of research in teacher education. The advantages of online surveys as a data collection method include their ability to reach a large number of participants and their convenience in data collection and analysis. They offer recommendations for designing effective online surveys, including the use of clear and concise questions and the consideration of participant demographics.

Virtual interviews are also highlighted as a valuable method for collecting data during the pandemic. The authors discuss the use of video conferencing platforms for conducting interviews, emphasizing the importance of establishing rapport and creating a comfortable environment for participants. They provide tips on conducting virtual interviews effectively, such as using open-ended questions and active listening techniques. The authors discuss the advantages and limitations of each method, providing practical guidance on how to effectively implement them.

The authors also acknowledge the potential challenges and limitations associated with online data collection methods, including technological barriers, access issues, and the need for digital literacy. They provide recommendations for researchers to overcome these challenges and enhance the validity and reliability of their research findings.

Overall, this paper serves as a comprehensive guide for researchers in teacher education, offering insights into alternative online data collection methods that can be used during the pandemic period. Shortly, Online data collection methods in conducting the study in the period of the COVID-19 Pandemic offers a comprehensive way of online data collection methods for researchers in teacher education. It provides practical guidance, considerations, and recommendations for successfully implementing these methods during the challenging circumstances of the COVID-19 pandemic.

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