The Trustworthiness of Content Analysis

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5.1 Trustworthiness in the Context of Qualitative Research

The terms reliability and validity were earlier used in both qualitative and quantitative studies. However, as qualitative methods became more popular, scholars began to debate which criteria were the most appropriate for determining trustworthiness. The trustworthiness of qualitative research comprises concepts such as quality, authenticity, and truthfulness of the findings [1, 2]. The discussion about trustworthiness criteria became active at the beginning of the 1990s. Altheide and Johnson [3] suggested that the terms plausibility, relevance, credibility, and importance of topic are the most relevant to trustworthiness, while Eisenhart and Howe [4] emphasised criteria such as completeness, appropriateness, comprehensiveness, credibility, and significance. Most qualitative researchers currently apply the criteria suggested by Whittemore et al. [5]—four primary and six secondary criteria—when assessing trustworthiness. The primary criteria apply to all qualitative research, whereas the secondary criteria provide supplementary benchmarks of validity that may not be relevant to every study. Therefore, the researcher must decide whether any of the secondary criteria are applicable to their study. The four primary criteria are credibility, authenticity, criticality, and integrity. Morse et al. [6] reminded researchers that while standards are useful for evaluating relevance and utility, they do not in themselves guarantee that the research will be relevant and useful. They claim that certain strategies, e.g., investigator responsiveness, methodological coherence, theoretical sampling, sampling adequacy, an active analytic attitude, data saturation, should be included in the qualitative research process if the researcher wants to ensure rigor [6]. The Oxford dictionary defines rigor as the quality of being extremely thorough and careful. Morse et al. [6] added to this definition

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by claiming that "without rigor, research is worthless, becomes fiction, and loses its utility" (p. 2). Lincoln and Guba [7] were the first to address rigor in their model of trustworthiness, which includes credibility, dependability, confirmability, authenticity, and transferability. In their framework, trustworthiness is the main parameter for appraising the rigor of qualitative research.

5.2   Trustworthiness: Credibility

Credibility is concerned with whether or not the research findings represent a credible, conceptual interpretation of the original data [7]. In other words, this criterion of trustworthiness examines if readers of the research believe what the authors are reporting. Credibility involves two aspects: carrying out the study in a way that ensures that readers will believe the presented findings and taking steps to demonstrate credibility in research reports.

A researcher's confidence that they are presenting truthful results has a large impact on credibility. This confidence is based on a carefully designed research process, detailed notes of how each phase of research was conducted, and a discussion of the strengths and limitations of the research in the final report. Whenever a researcher is considering the credibility of their research, they should be thinking about their experience, preconceptions of the studied phenomenon, and the context in which the study will be conducted. The main topic to consider is familiarity, and this includes two perspectives. First, a researcher who is very familiar with their research topic should understand that their experience and perceptions could influence the research results. This is because prior knowledge will inevitably affect the type of data a researcher collects, for example, criteria for participant selection or the choice of study documents, as well as how the researcher interprets the collected data. It is important to note that an extensive literature review will have the same effect. Hence, a researcher should carefully consider the objective of the literature review and what kind of literature review is most suitable based on the research topic and question(s). A reader will be able to judge how the researcher's preconceptions and earlier knowledge influenced the findings—as well as make sound conclusions about credibility—when the researcher can clearly explain their experiences, preconceptions, and/or reasons for conducting a literature review. Hence, researchers should discuss these issues in the research report and make their own conclusions about how each factor affected the research. On the other hand, a researcher who is not familiar with the researched phenomenon or the context in which it is studied may find it difficult to get rich and multi-sided data. Once again, the researcher should critically evaluate how these issues affect their findings. Initial knowledge is especially important for qualitative studies, as this knowledge will be pivotal to formulating research and planning data collection. An experienced researcher will be able to select the qualitative methods that are a correct match for their initial level of knowledge.

Credibility can be improved by making sure that the study participants are appropriate in terms of the research question and that data saturation is reached during data collection, i.e., that the sample size was correct. Researchers are expected to evaluate whether the sample size was appropriate or not when they report information about the sample.

Researchers can improve the credibility of their studies through several additional methods; however, each of these methods, if applied incorrectly, can also threaten the credibility of the research. First, it may be beneficial for the researcher to spend some time with the study participants before the data collection phase begins. This may allow the researcher to identify some of the realities experienced by the participant group and enable the participants to get comfortable interacting with the researcher(s). As a result, the researcher will get familiar with the participants and have a better understanding of which questions will elicit responses that are relevant to the research aim. Researchers who use open data collection should consider how they will handle diverse descriptions of experiences and prevent interviewer bias. An example of an open question is: "Could you please tell me, how do you take care of yourself?" In this situation, the researcher should be careful not to influence the participants' answers so that they obtain inductive data. Hence, the researcher has to make sure that they do not manipulate or lead the participant to answer in a certain way when asking broad questions. Researchers can mitigate the risk of hurting study credibility by pre-testing interviews to gain an understanding of what types of responses the questions will yield, and whether these responses are relevant to the research aim. It may be beneficial to record or/and transcribe the interview. When interpreting the results of a pre-test, the researcher should consider if they gave the participants enough time to answer, whether they in any way influenced the participant, and whether they were able to ask the participants further detailed questions. Researchers should remember that pre-testing their data collection instrument can be a useful learning experience that will demonstrate their research skills before the actual data.

Researchers can also strengthen the credibility of their study by developing example interview questions for a 'critical reference group'. This means that the researcher will present potential interview questions to a group and then evaluate their responses to these questions. It is important to note that the members of this group need to be familiar with the research topic to serve as a useful reference group; in other words, this group should reflect the sample that will be used in the study. In addition, triangulation during data collection, i.e., gathering data from different sources such as interviews, observations, and documents, may increase credibility. It should be noted that this will not always be possible, and the researcher must decide whether this step is necessary, or even feasible. For the research to be credible, any interviews should be taped and transcribed.

The data analysis phase is another key factor to credible research. Hence, the researcher will need to choose an appropriate unit of analysis and present the analytical process in great detail (see Chaps. 2 and 3). The researcher must pay close attention to how the analysis matrix is developed whenever deductive analysis is

used. An approach that is highly structured may have a large influence on the study process and guide the researcher to the answers that they want. This will obviously impact the credibility of the study. As discussed earlier, the researcher must describe their research in a transparent manner so that the reader can make an informed decision about the credibility of the research.

5.3 Trustworthiness: Dependability

Dependability is defined as an assessment of the quality of the integrated processes of data collection, data analysis, and theory generation (for example, conceptual structures or theoretical models) [7]. It refers to the stability of data over time and varying conditions. Furthermore, dependability is concerned with consistency across the research starting point, data collection, and analysis (Fig. 5.1). For example, a study that has an open starting point—which means that the researcher does not have strong theoretical knowledge about the research phenomenon—should include an open, unstructured data collection method and an open analysis. A study shows high dependability if another researcher can readily follow the decision trail used by the initial researcher [7]. As such, the researcher should include tables, figures, and attachments that explain the categorisation process in the final report. These resources can help the reader evaluate the entire categorisation process, as well as recognise any overlap between the created categories. A qualitative study is sometimes impossible to conduct as it was planned. The researcher may, for example, notice that the open data collection does not work because the interviews do not provide rich information or there are difficulties in recruiting enough participants. As a result, they will need to modify the data collection method so that it is more

Trustworthiness; Dependability

STARTING POINT OF RESEARCH

☐ How does it effect on whole process?

SAMPLE

☐ How does it effect on whole process?

DATA COLLECTION

☐ How does it effect on whole process?

DATA ANALYSIS

☐ How does it effect on whole process?

RESULTS

REPORT

☐ How well and logically does it integrate the whole process?

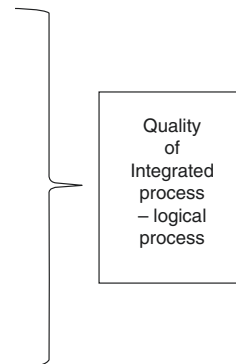Quality of Integrated process – logical process

Fig. 5.1 A consistent research process supports dependability

structured. From the perspective of dependability, the researcher will now also have to adopt a more theoretical starting point and apply structured analytical methods that are relevant to the research question.

There are several ways through which a researcher can strengthen the dependability of their data analysis. These include independent coding-recoding, peer examination, dialogue among co-researchers, panel discussion, and face validity. A researcher can re-analyse their data (either the entire data set or a smaller part of it) to check the consistency of the data analysis technique. For example, a researcher can analyse their data twice and assess how the results answer the research question. However, this approach may not be effective as it is highly plausible that the researcher will remember how they conducted the analysis the first time.

Another alternative is peer examination, in which another researcher analyses the data and assesses how their results compare to the original findings. This includes a certain level of risk because both researchers will analyse the data from their own perspectives. Hence, the peer reviewer needs a detailed introduction that will cover the motivation for data analysis, along with the approaches that were used. If more than one person analyses the data, it may be beneficial to calculate the data agreement coefficient (ICR). A value >80% reflects a valid assessment by both researchers [8]. However, an ICR assessment cannot always be performed. Furthermore, an inductive content analysis is usually only performed by one researcher because it is time-consuming and tedious. A peer examination may not be relevant for inductive content analyses because this technique is used to identify concepts based on subjective interpretation of the data.

Dialogue among colleagues is also relevant to credibility, and researchers should ask colleagues who are familiar with the research subject to read through the findings and share their candid opinions about study credibility. In these situations, tables or pictures that depict the development process of each main category are useful. The results section should start with examples of identified open codes, for example, quotations from the collected data, and end with the main categories. Having another researcher read through the research report can be useful because another set of eyes may notice overlap between the identified categories that the primary researcher missed. When the steps of the data analysis are presented clearly, another researcher can notice flaws in the research, for example, incomplete data abstraction or the grouping of too many items under one category. Furthermore, research that presents a large array of main concepts may indicate that the researcher was not able to group the data under the correct categories. For this reason, the researcher should always specify the number of identified categories and/or concepts—preferably through clear tables or figures—when describing the analysis process.

In essence, the issue underlying the choice to test face validity or give the research to a peer for evaluation is a lack of confidence, and certain scholars argue that a researcher should not need someone else to analyse their data. A detailed description of the analytical process is a good starting point from which a researcher can build confidence about the trustworthiness of their research.

5.4   Trustworthiness: Confirmability

Confirmability is a measure of how well the study findings are supported by the collected data [7]. This aspect of trustworthiness is concerned with the connection between the data and the results. Hence, when considering confirmability, a researcher should evaluate whether their findings are solely shaped by the data collected from respondents, or do the results reflect some of the researcher's bias, motivation, or other interests [7]. The reader should be able to examine the data to confirm that the results or author interpretations reflect the data. A researcher can enhance confirmability by using 'audit trails', which means that the researcher will include written field notes, memos, or excerpts from a field diary to support the connection between the data and findings. However, this practice includes the same problems that were described earlier, i.e., written notes and diary entries are intended for the researcher rather than for outsiders. As such, researchers should understand that including 'audit trails' can also potentially harm the trustworthiness of their research. This criterion is closely related to the concept of authenticity, which is described in the next section and can also be used to gauge the connection between the data and results.

5.5   Trustworthiness: Authenticity

Authenticity describes the extent to which researchers fairly and faithfully show a range of realities [7]. Research that has sufficient authenticity will include various citations that clearly demonstrate the connection between the results and data. These citations should be used systematically throughout the text, for example, each identified category should include at least one relevant citation. Furthermore, it is important to include citations from different participants, as several previous studies have presented citations that reflect only one participant. In this situation, the reader may wonder whether this was the only participant who expressed something that was relevant to the research question. The researcher should also be able to demonstrate that the citation originates from the original data, for example, by using an 'identification' code. For example, the code 'BC35' could demonstrate that the participant is a woman (B), a teacher (C), and 35-years old. However, the researcher must ensure that the identification codes are in line with current data protection guidelines and cannot be used to identify the participant. There is also a risk of including too many authentic citations. To avoid this, the researcher should ensure that there are not more citations than text in the results section, as this may cause readers to question the researcher's ability to interpret the collected data. A researcher should always consider the value of including a certain citation. If the citation simply repeats what has been mentioned earlier, it might be boring for the reader and does not add any value.

5.6   Trustworthiness: Transferability

Transferability describes the degree to which research findings will be applicable to other fields and contexts [7]. Researchers who are concerned about transferability should question whether their results will hold in another setting or group of

participants. It is important to note that transferability is not the same as generalisation in quantitative research. It is important to note that transferability is not the same as generalisation in quantitative research because transferability is also concerned with how readers will extend the results to their own situations, whereas generalisation covers the extension of results from a sample to a broader population. Transferability is affected by every stage of research, including the choice of research context and topic. For example, the results from a study that focuses on the interactions between nurses and patients in an orthopaedic ward may not be transferable to the medical ward setting. This is because care and treatment in orthopaedic wards differs from that in internal medicine wards, so it can be assumed that the interactions between nurses and patients in these two settings focus on different issues. However, the results from the orthopaedic ward study may be transferable to another surgical ward because these wards have some similar elements, for example, patients are waiting for operations, which means that they may have some fears about their situation and/or they need assistance in basic daily activities. During the research planning phase, a researcher should consider transferability by clearly describing the sampling techniques, potential inclusion criteria, and participants' main characteristic so that other researcher can assess whether the results drawn from this sample are applicable to other contexts. Transparent reporting of the research process and results is critical to achieving sufficient transferability. Every researcher is responsible for providing enough information about their study so that the audience can evaluate whether the findings are applicable to other contexts. Hence, researchers who want to present transferable knowledge should consider the following question while writing their results and discussion: How, and to what extent, are these findings transferable to other settings?

5.7   Conclusion

A key element of trustworthiness is the sample. It must be appropriate and comprise participants and/or documents that are relevant to the research topic. Purposive sampling may be useful for building an appropriate sample, but data saturation is the most important measure of sampling adequacy because it provides the optimal sample size. Data saturation ensures that the gathered data can be organised into categories, concepts, and themes, which, in turn, verifies that the analysis is complete. Researchers who want to provide trustworthy analyses should consider performing a preliminary analysis after a few interviews or once they have collected some data from the study documents. Researchers should also keep in mind that the chosen unit of analysis will influence trustworthiness. A broad unit of analysis may be difficult to manage and can have various meanings, while a narrow unit of analysis may result in fragmentation. Both of these situations will negatively affect trustworthiness. Trustworthy research must be systematically reported and include clear indications of the connections between the data and results. The content and structure of concepts or narrative results should be clearly presented, and a researcher can provide figures to help the reader better understand the significance of the results. Failure to report the results in an appropriate way will threaten the trustworthiness of the study.

Elo et al. [9] published a checklist that researchers can use to improve the trustworthiness of studies that apply content analysis. This checklist is especially beneficial during the planning of a qualitative study, as it will ensure that the researcher pays attention to every issue that can affect trustworthiness. The checklist also provides valuable tips for the reporting of results, for example, researchers can use this guide to critically evaluate their research in terms of strengths and weaknesses to trustworthiness. Following the discussion of trustworthiness in this chapter, the next chapter will present ethical issues in the context of qualitative research and content analysis.

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