# Checklist of qualitative core quality criteria

Checklist of the seven core criteria for assessing the quality of qualitative studies (modified according to Steinke, 1999, p. 252ff., after Döring et al., 2023):

| **Core criteria** | **Sub-criteria** | **Implementation** |
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| **1. Intersubjective traceability**  *(How well can external parties comprehend the entire research process of the study in detail through the study documentation and thus also evaluate it?)* | * 1. Transparency   2. Explicitness | * *The research process is meticulously documented, for instance, through the use of a logbook maintained with the MAXQDA software.* * *The entire research process was subjected to an independent evaluation by an expert who was not involved in the research or the project itself.* * *The application and development of codified variables is given and presented in the method section according to the quality criteria.* |
| **2. Indication**  (*How well are the individual methodological decisions in the qualitative research process of the study justified with regard to their appropriateness for the research problem or the object of research?)* | 2.1 Indication of a qualitative approach in view of the research question | * *At the time of commencing the study, no knowledge had been acquired concerning the subject under investigation.* * *In order to gain insight into attitudes and mental models, a qualitative approach is generally considered to be highly effective. The rationale behind the choice of GTM is explained in detail in the methodology chapter.* |
| 2.2 Indication for the choice of method | * Justification and positive answers to the following questions:  1. Was enough leeway given to the comments and remarks of the persons examined? *Yes, the scope is available and transparency is described. The questions are listed according to the interview questionnaire and were posed in an open manner. This was verified through the transcripts.* 2. Were the researchers present in the field for a longer period of time? *Yes, both during the implementation (data collection) itself and during the entire research process.* 3. Is there a working alliance between researchers and informants? *Yes, according to the interviews conducted, this is the case. The time periods were carefully planned and correspond to the recommendations and usual methodological approach. This is extensively described in the Methods section and documented in the logbook.* 4. Were the methods selected appropriate to the subject matter? *Yes, the methods enable a systematic / scientific gain of knowledge. This is evident both from the research question and the definition of the research subject. Both were described in the Introduction as well as in the Methods section. Furthermore, the results achieved demonstrate a positive application of the chosen methods and the identification of the subject.* 5. Do the methods used allow irritations of prior knowledge? *Yes. Irritations are described. This is also provided by an inductive/deductive approach in the method design.* |
| 2.3 Indication of the transcription rules | * Justification of why the chosen transcription rules are appropriate for the research problem. *The transcription was carried out in such a way that annotations like "[clears throat]" or "[hesitates]" also create a clear picture of non-verbal and paraverbal behavior, which complements the pure transcription of the spoken content. The smoothing of insignificant aspects, such as adjusting dialects to standard German, is appropriate. The transcription also adheres to professional conventions.* |
| 2.4 Indication of the sampling strategy | * Explanation of why the sampling strategy chosen for the   Research problem is appropriate. *The sampling was achieved according to a sector analysis. This analysis is outlined and described in the Methods section. The sampling was iteratively adjusted to the respective research status, as prescribed by Grounded Theory. The sampling enabled the achievement of theoretical saturation and contributed to the intended goal attainment.* |
| 2.5 Indication of individual methodological decisions | * Justification of individual methodological decisions in the context of the overall study. Positive answers must be given to the following questions:  1. Are the different qualitative data collection and data analysis methods used co-indexed? *Established and previously tested procedures were chosen. These are both described accordingly and provided with the relevant references.* 2. Is the planned study design feasible from a pragmatic research perspective (time, cost, personal resources, effort for the interviewees) or are the costs and benefits of an already completed study in reasonable proportion? *Yes, the research economy can be considered as given. The timeline could certainly have been streamlined with a higher personnel allocation; however, it is important to consider that other aspects play a significant role, such as the allocated personnel resources. Not least, the thorough documentation of the essential aspects demonstrates that this study has an appropriate time investment.* |
| 2.6 Indication of evaluation criteria | * Research question, subject and choice of method are consistent with each other. *The evaluation criteria are logically and coherently presented in the Methods section. Additionally, the operationalization is clearly and comprehensibly described. Furthermore, this checklist is made available through online resources, thereby enabling a transparent process.* |
| **3. Empirical anchoring**  *(How well are the ~~hypotheses and~~ theories formed ~~and/or tested~~ justified on the basis of the empirical data?)* | 3.1 Empirical anchoring for theory testing | * Use of codified procedures for empirically anchored theory testing:   a. Is there sufficient textual evidence for the generated theory? *There are sufficient textual references for the theory, the gaining of knowledge leads to the black box via the chosen path, the line of argumentation leads to the creation of the black box with the help of the transcripts, the empirical reference is given, saturation is achieved.*  b. How were contradictions, deviating or negative traps, events, etc. dealt with? *In both the discussion and the limitations, the authors have critically described their research. In addition, an outlook for further research projects and the gaps in this respect were mentioned.*  • Analytical induction  • Forecasts:  a. within the text: *This has been described in the Methods and Discussion section.*  b. about future behavior: *See above.*  • Communicative validation: *Not performed, not required by the method chosen.* |
| 4.1 Description of the contexts | * Technique of thinking ahead: *Yes, this is described transparently in the methodology section and in the discussion.* * Experience test: *Not required for methodological reasons.* * Case contrasting: *Not required for methodological reasons.* * Search and analysis of deviating, negative and extreme traps: *Yes, this is transparent in the methodology and in the discussion, but it was not the case.* * Selection of interview partners and limitation of generalization: *Yes, available and described in detail in the Methods section* |
| **4. Limitation**  *(How exactly is indicated on*  *what other conditions (contexts, Hille, study groups, phenomena, etc.) can the research results be generalized or to what extent is the generalizability limited?)* | 4.2 Identification of relevant factors for the study phenomenon  Conditions and contexts | * Explanation of how the researchers reflect on their subjective perspectives and roles in the research process. Various aspects and sub-aspects should be addressed:   + Is the research process accompanied by self-observation? *Yes, through reflection within the team and keeping a research diary.*   + Are personal prerequisites for researching the object of investigation reflected? *Yes, these were reflected upon and critically scrutinized. This can also be seen in the research diary.*  1. Are the methodological approach and the object of investigation appropriate for the researcher? *Yes, this is given and described in detail in the methods section.* 2. Do you reflect on your own requirements as a member of a particular professional group? *Yes, see 5.1.* 3. Is the cultural background of the researchers reflected? *Not necessary here.*   Is there equal attention as an attitude towards the research topic and the role of the researcher? *Yes, this is given and documented accordingly. In addition, an external researcher is involved to ensure intersubjectivity* |
| 4.2 Identification of relevant factors for the study phenomenon |
| **5. Reflected subjectivity**  *(How comprehensively and convincingly do the researchers reflect their own subjective positions and roles (e.g. research interest, social and biographical background) in relation to the phenomenon under investigation and to the persons (groups) under investigation?* | Reflective subjectivity is not broken down into sub-criteria, but refers to the researcher's self-reflection throughout the research process. | * Explanation of how the researchers reflect on their subjective perspectives and roles in the research process. Various aspects and sub-aspects should be addressed:   + Is the research process accompanied by self-observation? *Yes, through reflection within the team and keeping a research diary.*   + Are personal prerequisites for researching the object of investigation reflected? *Yes, these were reflected* * *external researcher is involved to ensure intersubjectivity* |
| **6. Coherence**  *(How coherent and consistent is the theory and are the interpretations based on the data?)* | Coherence is not broken down into sub-criteria, but refers to the interpretations and theories generated by the study. | * Explanation of the value of the study results, in particular the newly formed hypotheses and theories:   + *Nota bene: The posed research question and its corresponding context were thoroughly presented in the article. Within the framework of the discussion, the described relevance was clearly highlighted. Based on the results obtained here, both practical applications can be facilitated and subsequent research projects can be initiated.*   + Does the theory contain explanations for the phenomenon of interest? *Yes, the respective chapters were able to establish a clear connection to the initially described research problem, address it, and provide an outlook for further research.*   + To what extent does theory inspire solutions to problems? *Digitalization and new technologies are already finding their way into rescue service systems. Many studies have shown advantages over older systems. Theory-practice transfer and application by personnel is therefore crucial.* |
| **7. Relevance**  *(How great is the contribution of a basic research qualitative study to the advancement of scientific knowledge in the sense of describing the subject matter and developing theories (theoretical relevance)?* | 7.1 Relevance of the question  7.2 Relevance of the developed theory: What contribution does the developed theory make? | * *The research question is relevant because new technologies, including artificial intelligence, are becoming more prevalent in emergency services and emergency call centres. The theory generated is also highly relevant to the field due to its practical implications and focus on the people involved.* |
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