***CONCEPTS USED IN QUALITATIVE RESEARCH***

***1,TRUSTWORTHINESS***

Trustworthiness or rigor of a study refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study (Pilot & Beck, 2014). In each study, researchers should establish the protocols and procedures necessary for a study to be considered worthy of consideration by readers (Amankwaa, 2016). Although most experts agree trustworthiness is necessary, debates have been waged in the literature as to what constitutes trustworthiness (Leung, 2015). Criteria outlined by Lincoln and Guba (1985) are accepted by many qualitative researchers and will be the focus of this column. These criteria include credibility, dependability, confirmability, and transferability; they later added authenticity (Guba & Lincoln, 1994). Each of these criteria and the typically used procedures will be outlined. Not all procedures are used in each study. Data trustworthiness has four key components: credibility, transferability, dependability, and confirmability.

**Credibility :** Triangulation and member checks help establish credibility and contribute to trustworthiness. Other factors include prolonged engagement with and [persistent observations](https://www.thebalancesmb.com/differences-primary-and-secondary-research-2296908) of research subjects.Triangulation asks the same research questions of different study participants and collects data from different sources through different methods to answer the same questions. Member checks occur when researchers asks participants to review the data collected by interviewers and the researchers' interpretations of that data. Participants generally appreciate the member check process because it gives them a chance to verify their statements and fill in any [gaps from earlier interviews](https://www.thebalancesmb.com/market-research-was-born-in-the-field-proctor-and-gamble-2297142). Trust is an important aspect of the member check process.

**Transferability :** Transferability generalizes study findings and attempts to apply them to other situations and contexts. Researchers cannot prove definitively that outcomes based on the [interpretation of the data](https://www.thebalancesmb.com/scoring-and-reporting-in-surveys-research-2297092) are transferable, but they can establish that it is likely.[Purposive sampling](https://www.thebalancesmb.com/how-do-probability-and-non-probability-samples-differ-2296696), a form of nonprobability sampling, is used to maximize specific data relative to the context in which it was collected. This differs from the aggregate information that would be the outcome in quantitative research. Purposive sampling considers the sample subjects' characteristics, which are directly related to the research questions.

**Dependability :** Many qualitative researchers believe that if credibility has been demonstrated, it is not necessary to also and separately demonstrate dependability. However, if a researcher permits parsing of the terms, then credibility seems more related to validity, and dependability seems more related to reliability. Sometimes data validity is assessed through the use of a data audit. A data audit can be conducted if the [data set is both rich-thick](https://www.thebalancesmb.com/defining-and-measuring-customer-brand-experience-2296834) so that an auditor can determine if the research situation applies to their circumstances. Without sufficient details and contextual information, this is not possible. Regardless, it is important to remember that the aim is not to generalize beyond the sample.

**Confirmability :**Qualitative research can be conducted to replicate earlier work, and when that is the goal, it is important for the data categories to be made internally consistent. Authors Yvonna S. Lincoln and Egon G. Guba stated in their 1985 book "Naturalistic Inquiry" that researchers must devise rules that describe category properties and that can, ultimately, be used to justify the [inclusion of each data bit](https://www.thebalancesmb.com/designing-market-research-applying-cognitive-theory-2296989) that remains assigned to the category as well as to provide a basis for later tests of replicability.It's important for other researchers to be able to replicate the results to show that those results are a product of independent research methods and not of conscious or unconscious bias.

***2, SATURATION OF DATA***

In broad terms, saturation is used in qualitative research as a criterion for discontinuing data collection and/or analysis. Guest et al. ([2006](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR29): p. 60) refer to it as having become ‘the gold standard by which purposive sample sizes are determined in health science research.’ A number of authors refer to saturation as a ‘rule’ (Denny [2009](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR12); Sparkes et al. [2011](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR61)), or an ‘edict’ (Morse [1995](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR49)), of qualitative research, and it features in a number of generic quality criteria for qualitative methods (Leininger [1994](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR41); Morse et al. [2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR51)). Saturation is defined within the literature in varying ways—or is sometimes undefined—and raises a number of problematic conceptual and methodological issues (Dey [1999](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR13); Bowen [2008](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR5); O’Reilly and Parker [2013](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR56)). Drawing on a number of examples in the literature, this paper seeks to explore some of these issues in relation to three core questions:

* ‘What?’—in what way(s) is saturation defined?
* ‘Where and why?’—in what types of qualitative research, and for what purpose, should saturation be sought?
* ‘When and how?’—at what stage in the research is saturation sought, and how can we assess if it has been achieved?

 **‘What?’—in what way(s) is saturation defined?**

In their original treatise on grounded theory, Glaser and Strauss ([1967](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR26): p. 61) defined saturation in these terms: The criterion for judging when to stop sampling the different groups pertinent to a category is the category’s *theoretical saturation*. *Saturation* means that no additional data are being found whereby the sociologist can develop properties of the category. As he sees similar instances over and over again, the researcher becomes empirically confident that a category is saturated. He goes out of his way to look for groups that stretch diversity of data as far as possible, just to make certain that saturation is based on the widest possible range of data on the category. Also writing from a grounded theory standpoint, Urquhart ([2013](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR66): p. 194) defines saturation as: ‘the point in coding when you find that no new codes occur in the data. There are mounting instances of the same codes, but no new ones’, whilst Given ([2016](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR23): p. 135) considers saturation as the point at which ‘additional data do not lead to any new emergent themes’. A similar position regarding the (non)emergence of new codes or themes has been taken by others.

According to Starks and Trinidad ([2007](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR62): p. 1375), however, theoretical saturation occurs ‘when the complete range of constructs that make up the theory is fully represented by the data’. Whilst not wholly explicit.If we move outside the grounded theory literature,[5](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/%22%20%5Cl%20%22Fn5) a fourth perspective becomes apparent in which there are references to *data* saturation, rather than *theoretical* saturation (e.g. Fusch and Ness [2015](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR20)).[6](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#Fn6) This view of saturation seems to centre on the question of how much data (usually number of interviews) is needed until nothing new is apparent, or what Sandelowski ([2008](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR60): p. 875) calls ‘informational redundancy’ (e.g. Francis et al. [2010](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR19); Guest et al. [2006](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR29)). Grady ([1998](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR27): p. 26) provides a similar description of data saturation as the point at which:

New data tend to be redundant of data already collected. In interviews, when the researcher begins to hear the same comments again and again, data saturation is being reached… It is then time to stop collecting information and to start analysing what has been collected.

Whilst several others have defined data saturation in a similar way (e.g. Hill et al. [2014](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR34): p. 2; Middlemiss et al. [2015](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR48); Jackson et al. [2015](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR36)), Legard et al. ([2003](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR40)) seem to adopt a narrower, more individual-oriented perspective on data saturation, whereby saturation operates not at the level of the dataset as a whole, but in relation to the data provided by an individual participant; i.e. it is achieved at a particular point within a specific interview:

Probing needs to continue until the researcher feels they have reached saturation, a full understanding of the participant’s perspective (Legard et al. [2003](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5993836/#CR40): p. 152).

From this perspective, the researcher’s response to the data—through which decisions are made about whether or not any new ‘information’ is being generated—is not necessarily perceived as forming part of the analysis itself. Thus, in this model, the process of saturation is located principally at the level of data collection and is thereby separated from a fuller process of data analysis, and hence from theory.

***3, CONTENT ANALYSIS***

Three different definition of content analysis are provided below.

* Definition 1: “Any technique for making inferences by systematically and objectively identifying special characteristics of messages.” (from Holsti, 1968)
* Definition 2: “An interpretive and naturalistic approach. It is both observational and narrative in nature and relies less on the experimental elements normally associated with scientific research (reliability, validity and generalizability) (from Ethnography, Observational Research, and Narrative Inquiry, 1994-2012).
* Definition 3: “A research technique for the objective, systematic and quantitative description of the manifest content of communication.” (from Berelson, 1952)

**Uses of Content Analysis**

* Identify the intentions, focus or communication trends of an individual, group or institution
* Describe attitudinal and behavioral responses to communications
* Determine psychological or emotional state of persons or groups
* Reveal international differences in communication content
* Reveal patterns in communication content
* Pre-test and improve an intervention or survey prior to launch
* Analyze focus group interviews and open-ended questions to complement quantitative data

**Types of Content Analysis**

There are two general types of content analysis: conceptual analysis and relational analysis. Conceptual analysis determines the existence and frequency of concepts in a text. Relational analysis develops the conceptual analysis further by examining the relationships among concepts in a text. Each type of analysis may lead to different results, conclusions, interpretations and meanings.

**Conceptual Analysis**

Typically people think of conceptual analysis when they think of content analysis. In conceptual analysis, a concept is chosen for examination and the analysis involves quantifying and counting its presence. The main goal is to examine the occurrence of selected terms in the data. Terms may be explicit or implicit. Explicit terms are easy to identify.

General steps for conducting a conceptual content analysis:

1. Decide the level of analysis: word, word sense, phrase, sentence, themes

2. Decide how many concepts to code for: develop pre-defined or interactive set of categories or concepts. Decide either: A. to allow flexibility to add categories through the coding process, or B. to stick with the pre-defined set of categories.

* Option A allows for the introduction and analysis of new and important material that could have significant implications to one’s research question.
* Option B allows the researcher to stay focused and examine the data for specific concepts.

3. Decide whether to code for existence or frequency of a concept. The decision changes the coding process.

* When coding for the existence of a concept, the researcher would count a concept only once if it appeared at least once in the data and no matter how many times it appeared.
* When coding for the frequency of a concept, the researcher would count the number of times a concept appears in a text.

4. Decide on how you will distinguish among concepts:

* Should text be coded exactly as they appear or coded as the same when they appear in different forms? For example, “dangerous” vs. “dangerousness”. The point here is to create coding rules so that these word segments are transparently categorized in a logical fashion. The rules could make all of these word segments fall into the same category, or perhaps the rules can be formulated so that the researcher can distinguish these word segments into separate codes.
* What level of implication is to be allowed? Words that imply the concept or words that explicitly state the concept? For example, “dangerous” vs. “the person is scary” vs. “that person could cause harm to me”. These word segments may not merit separate categories, due the implicit meaning of “dangerous”.

5. Develop rules for coding your texts. After decisions of steps 1-4 are complete, a researcher can begin developing rules for translation of text into codes. This will keep the coding process organized and consistent. The researcher can code for exactly what he/she wants to code. Validity of the coding process is ensured when the researcher is consistent and coherent in their codes, meaning that they follow their translation rules. In content analysis, obeying by the translation rules is equivalent to validity.

6. Decide what to do with irrelevant information: should this be ignored (e.g. common English words like “the” and “and”), or used to reexamine the coding scheme in the case that it would add to the outcome of coding?

7. Code the text: This can be done by hand or by using software. By using software, researchers can input categories and have coding done automatically, quickly and efficiently, by the software program. When coding is done by hand, a researcher can recognize error far more easily (e.g. typos, misspelling). If using computer coding, text could be cleaned of errors to include all available data. This decision of hand vs. computer coding is most relevant for implicit information where category preparation is essential for accurate coding.

8. Analyze your results: Draw conclusions and generalizations where possible. Determine what to do with irrelevant, unwanted or unused text: reexamine, ignore, or reassess the coding scheme. Interpret results carefully as conceptual content analysis can only quantify the information. Typically, general trends and patterns can be identified.

**Relational Analysis**

Relational analysis begins like conceptual analysis, where a concept is chosen for examination. However, the analysis involves exploring the relationships between concepts. Individual concepts are viewed as having no inherent meaning and rather the meaning is a product of the relationships among concept. There are three subcategories of relational analysis to choose from prior to going on to the general steps: Affect extraction,Proximity analysis,Cognitive mapping

General steps for conducting a relational content analysis:

1. Determine the type of analysis: Once the sample has been selected, the researcher needs to determine what types of relationships to examine and the level of analysis: word, word sense, phrase, sentence, themes.
2. Reduce the text to categories and code for words or patterns. A researcher can code for existence of meanings or words.
3. Explore the relationship between concepts: once the words are coded, the text can be analyzed for the following:

* Strength of relationship: degree to which two or more concepts are related.
* Sign of relationship: are concepts positively or negatively related to each other?
* Direction of relationship: the types of relationship that categories exhibit. For example, “X implies Y” or “X occurs before Y” or “if X then Y” or if X is the primary motivator of Y.

4. Code the relationships: a difference between conceptual and relational analysis is that the statements or relationships between concepts are coded.
5. Perform statistical analyses: explore differences or look for relationships among the identified variables during coding.
6. Map out representations: such as decision mapping and mental models.

***4,INDEPTH INTERVIEW***

In-depth interviews are a qualitative data collection method that involves direct, one-on-one engagement with individual participants. In-depth interviewing can take place face-to-face, or –– in some cases –– over the phone. However, for the latter to be effective and to deliver reliable information, the interviewer must be highly skilled to prevent data loss. In-depth interviews are sometimes referred as depth interviews, or by the a acronym IDI. As with all [**data collection methods**](https://www.cfrinc.net/cfrblog/best-practices-in-data-collection-methods-and-techniques-testing-your-survey), including (but not limited to) online surveys, direct mail surveys, email surveys, focus groups, mystery shoppers and so on, there are both advantages and disadvantages of in-depth interviews. We highlight both below:

**In-Depth Interview Advantages**

* Interviewers can establish rapport with participants to make them feel more comfortable, which can generate more insightful responses – especially regarding sensitive topics.
* Interviewers have greater opportunity to ask follow-up questions, probe for additional information, and circle back to key questions later on in the interview to generate a rich understanding of attitudes, perceptions, motivations, etc.
* Interviewers can monitor changes in tone and word choice to gain a deeper understanding. (Note, if the in-depth interview is face-to-face, researchers can also focus on body language.)
* There is a higher quality of [**sampling**](https://www.cfrinc.net/cfrblog/market-research-sampling) compared to some other data collection methods.
* Researchers need fewer participants to glean useful and relevant insights.
* There are none of the potential distractions or peer-pressure dynamics that can sometimes emerge in focus groups.
* Because in-depth interviews can potentially be so insightful, it is possible to identify highly valuable findings quickly.

**In-Depth Interview Disadvantages**

* In-depth interviews are quite time consuming, as interviews must be transcribed, organized, analyzed, and reported.
* If the interviewer is not highly skilled and experienced, the entire process can be undermined.
* The process can be relatively costly compared to other methods. (However, telephone in-depth interviews vs. in-person can significantly reduce the costs.)
* Participants must be carefully chosen to avoid bias, and this can result in a longer vetting process.
* Participants typically expect an incentive to participate, and this must be carefully selected to avoid bias.