

Perspectives taken on saturation

The perspective taken on what is meant by saturation within a given study will have implications for when it will be sought. Taking the fourth model of saturation identified earlier—the data saturation approach, as based on the notion of informational redundancy—it is clear that saturation can be identified at an early stage in the process, as from this perspective saturation is often seen as separate from, and preceding, formal analysis. Decisions about when further data collection is unnecessary are commonly based on the researcher's sense of what they are hearing within interviews, and this decision can therefore be made prior to coding and category development. In a focus group study of HIV perceptions in Ghana, Ganle (2016) used the notion of saturation to determine when each focus group discussion should terminate. Such a decision would seem, however, to relate to only a very preliminary stage of analysis and is likely to be driven by only a rudimentary sense of any emergent theory. A similar point can be made in relation to Hancock et al.'s (2016) study of male nurses' views on selecting a nursing speciality. They talk of logging each instance in which their focus group participants 'discussed a theme', with saturation then judged in relation to the number of times themes were discussed. Though not elaborated upon, this appears to imply a very narrow definition of a theme as something that can be somehow 'observed' during the course of a focus group. However, interpretations at this stage regarding what might constitute a theme, before even beginning to consider whether identified themes are saturated, will be superficial at best. Moreover, conclusions reached at this stage may not be particularly informative as regards subsequent theory development—pieces of data that appear to be very similar when first considered may be found to exemplify different theoretical constructs on detailed analysis, and correspondingly, data that are empirically dissimilar may turn out to have much in common theoretically. Judgments at this stage will also relate to a framework of themes and categories that is theoretically immature, and that may be subject to considerable modification; for example, the changes that may occur during the successive stages of open, selective and theoretical coding in grounded theory (Glaser 1978).

With regard to the second model identified, inductive thematic saturation, the fact that the focus is more explicitly on reaching saturation at the level of analysis—i.e. in relation to the (non-)emergence of new codes or themes—might suggest it will be achieved at a later stage than in data saturation approaches (notwithstanding the concurrent nature of data-collection and analysis in many qualitative approaches). However, focusing on the emergence or otherwise of codes rather than on their theoretical development still points us towards saturation being achieved at a relatively early stage. Hennink et al. (2017) highlight this in a study on patient retention in HIV care, in which they found that saturation of codes was achieved at an earlier point than saturation of the 'dimensions, nuances, or insights' related to codes. Hennink et al. argue that an approach to saturation relying only on the number of codes 'misses the point of saturation' (2017: p. 15) owing to a lack of understanding of the 'meaning' of these codes.

In contrast to data saturation and inductive thematic saturation, the first model of saturation considered, theoretical saturation⁷ as based on the grounded theory notion of determining when the properties of theoretical categories are adequately developed⁸ indicates that the process of analysis is at a more advanced stage and at a higher level of theoretical generality. Accordingly, Zhao and Davey (2015: p. 1178) refer to a form of saturation determined by *theoretical completeness*⁹ and ceased sampling *when dimensions and gaps of each category of the grounded theory had been explicated*,¹⁰ and Bowen (2008) gives a detailed account of how evidence of saturation emerged at the level of thematic categories and the broader process of theory construction.

Saturation as event or process

A key issue underlying the identification of saturation is the extent to which it is viewed as an event or a process. Commonly, saturation is referred to as a *point*¹¹ (e.g. Otmar et al. 2011; Jassim and Whitford 2014; Kazley et al. 2015), suggesting that it should be thought of as a discrete event that can be recognized as such by the analyst. Strauss and Corbin (1998: p. 136), however, talk about saturation as a *matter of degree*¹², arguing that there will always be the potential for *the new*¹³ to emerge¹⁴. They suggest that saturation should be more concerned with reaching the point where further data collection becomes *counter-productive*¹⁵, and where the *new*¹⁶ does not necessarily add anything to the overall story or theory. Mason (2010) makes a similar argument, talking of the point at which there are *diminishing returns*¹⁷ from further data-collection, and a number of researchers seem to take this more incremental approach to saturation. Aiken et al. (2015: p. 154), for example, refer in their interview study of unintended pregnancy to being *confident of having achieved or at least closely approached thematic saturation*.¹⁸ Nelson (2016), echoing Dey's (1999) earlier view, argues that the term *saturation*¹⁹ is itself problematic, as it intuitively lends itself to thinking in terms of a fixed point and a sense of *completeness*²⁰. He thus argues that *conceptual depth*²¹ may be a more appropriate term²² at least from a grounded theory perspective²³ whereby the researcher considers whether sufficient depth of understanding has been achieved in relation to emergent theoretical categories.

On this incremental reading of saturation, the analysis does not suddenly become *rich*²⁴ or *insightful*²⁵ after that one additional interview, but presumably becomes richer or more insightful. The question will then be *how much saturation is enough?*²⁶, rather than *has saturation occurred?*²⁷Footnote 7 This is a less straightforward question, but one that much better highlights the fact that this can only be a matter of the analyst's decision²⁸ saturation is an ongoing, cumulative judgment that one makes, and perhaps never completes,²⁹Footnote 8 rather

than something that can be pinpointed at a specific juncture.

Uncertainty and equivocation

A desire to identify a specific point in time at which saturation is achieved seems often to give rise to a degree of uncertainty or equivocation. In a number of studies, saturation is claimed, but further data collection takes place in an apparent attempt to "confirm" (Jassim and Whitford 2014: p. 191; Forsberg et al. 2000: p. 328) or "validate" (Vandecasteele et al. 2015: p. 2789) this claim; for example:

After the 10th interview, there were no new themes generated from the interviews. Therefore, it was deemed that the data collection had reached a saturation point. We continued data collection for two more interviews to ensure and confirm that there are no new themes emerging (Jassim and Whitford (2014: pp. 190-191).

Furthermore, a reluctance to rely on evidence of saturation sometimes indicates that saturation is being used in at best an unclear, or at worst an inconsistent or incoherent, fashion. For example, Hill et al. (2014: p. 2), whilst espousing the principle of saturation, seem not fully to trust it:

Saturation was monitored continuously throughout recruitment. For completeness we chose to fully recruit to all participant groups to reduce the chance of missed themes.

Similarly, Jackson et al. (2000: p. 1406) claim that saturation had been established, but then appear to retreat somewhat from this conclusion:

Following analysis of eight sets of data, data saturation was established; however, two additional participants were recruited to ensure data saturation was achieved.

Constantinou et al. (2017) propose that, given the potential for uncertainty about the point at which saturation is reached, attention should focus more on providing evidence that saturation has been reached, than on concerns about the point at which this occurred. Thus, rather curiously, they propose that it "does not hurt to include all interviews from the initial sampling" (2017: p. 13). This view is inherently problematic, however, as not only does it imply that saturation is a retrospective consideration following the completion of data collection, rather than as

guiding ongoing sampling decisions, but one could also argue that saturation loses its relevance if all data are included regardless of whether or not they contribute further insights or add to conceptual understanding. This approach appears to indicate a preoccupation with having enough data to show evidence of saturation, i.e. not too few interviews, rather than saturation aiding decisions about the adequacy of the sample.

Whilst the above suggests ambivalence towards assessing the point at which saturation is achieved, others report having made the conscious decision to continue sampling beyond saturation, appearing to seek additional objective evidence to bolster their sampling decisions. For instance, in investigating staff and patient views on a stroke unit, Tutton et al. (2012: p. 2063) talk of how, despite having achieved saturation, "increased observation may have increased the degree of immersion in the lives of those on the unit", whilst Naegeli et al. (2013: p. 3) look to gain "more in-depth understanding" beyond the saturation point. Similar points are made by Kennedy et al. (2012: p. 859), who talk of looking for "novel aspects" after the achievement of saturation, and Poletti et al. (2007: p. 511), who propose the need to "fill gaps in the data" following saturation. These examples suggest a view that there is something of theoretical importance that is not captured by saturation, though it is unclear from the explanations given as to exactly what this is. Footnote 9

Another indication of an ambivalent view taken on saturation is suggested by Mason's (2010) observation that sample sizes in studies based on interviews are commonly multiples of ten. This suggests that, in practice, rules of thumb or other a priori guidelines are commonly used in preference to an adaptive approach such as saturation. Quite frequently, studies that adopt the criterion of saturation propose at the same time a prior sample size (e.g. McNulty et al. 2015; Long-Sutehall et al. 2011). In a similar way, Niccolai et al. (2016) sought saturation during their analysis, but also state (p. 843) that:

An a priori sample size of 30 to 40 was selected based on recommendations for qualitative studies of this nature and the anticipated complexity and desired level of depth for our research questions.

Fusch and Ness (2015: p. 1409) appear to endorse this somewhat inconsistent approach when advocating that the researcher should choose a sample size that has "the best opportunity for the researcher to reach data saturation". Footnote 10

This tentative and equivocal commitment to saturation may reflect a practical response to the demands of funding

bodies and ethics committees for a clear statement of sample size prior to starting a study (Oâ€™Reilly and Parker 2013)â€™perceived obligations that, in practice, may be given priority over methodological considerations. However, it may also arise from the specific but somewhat uncertain logic that underlies saturation. Determining that further data collection or analysis is unnecessary on the basis of what has been concluded from data gathered hitherto is essentially a statement about the unobserved (what would have happened if the process of data collection and/or analysis had proceeded) based on the observed (the data collection and/or analysis that has taken place hitherto). Furthermore, if saturation is used in relation to negative case analysis in grounded theory (i.e. sources of data that may question or disconfirm aspects of the emergent theory) the logic becomes more tenuousâ€™a statement about the unobserved based on the unobserved. Footnote 11 In either case, an uncertain predictive claim is made about the nature of data yet to be collected, and furthermore a claim that could only be tested if the decision to halt data collection were to be overturned. Additionally, the underlying reasoning makes specific assumptions about the way in which the analysis will generate theory, and the earlier in the process of theory development that this occurs the less warranted such assumptions may be. Accordingly, researchers who confidently propose saturation as a criterion for sampling at the outset of a study may become less certain as to how it should be operationalized once the study is in progress, and may therefore be reluctant to abide by it.

Reference

[Combining Case Study Designs for Theory Building: A New Sourcebook for Rigorous Social Science Researchers](#)

[Qualitative Research in Counselling and Psychotherapy](#)