

Ecological Triangulation: An Approach for Qualitative Meta-Synthesis

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The two most often noted approaches to qualitative meta-analysis are the “metaphoric translation” approach within the field of ethnography (Noblit & Hare, 1988) and a thematic synthesis approach most often associated with grounded theory (Patterson, Thorne, Canam, & Jillings, 2001). These approaches have merit. They fall within traditional qualitative inquiry, highlight the importance of context, and both tend to focus on research questions that seek meaning of “lived experiences” of groups and individuals. For example, the research questions have often been in regard to the exploration of meaning of illness or health.

Within the “empirically evidenced based” community, however, research questions become more focused on synthesizing the cumulative evidence that a particular intervention produces positive outcomes. In other words, what intervention works for what kinds of outcomes for what kind of persons under what kinds of conditions? This focus necessitates an ecological framework, i.e., “What are the mutually interdependent relationships among behavior, persons and environments.

Given an ecological framework for qualitative meta-synthesis, then the concepts of “meta-synthesis” and “triangulation” become foundational. The work of (Zhao, 1991) and the application of his work by (Patterson, Thorne, Canam, & Jillings, 2001) suggest that a meta-synthesis should include an analysis of theory (meta-theory), an analysis of method (meta-method) and an analysis of findings (meta-analysis). An aggregation of findings alone does not lead to sufficient understanding of the research phenomenon. The analysis of the role of theory and methods within the studies under examination must also be a part of the synthesis procedure.

Triangulation, a concept introduced by Webb, Campbell, Schwartz, & Sechrest (1966) and then applied to qualitative inquiry by Denzin (1978) captures the notion of importance of looking at phenomenon from a variety of vantage points. The concept is borrowed from the fields of navigation and physical surveying, but within the scope of research methodology it is not dissimilar to the often-noted Campbell & Fiske’s (1959) position of the importance of “multi-method –multi-trait” approach. Within qualitative inquiry, the triangulation concept includes the strategies of multi-data sources, multi-data collection methods, multi-researchers, and multi-theoretical approaches.

The interpretation of triangulation can “lean” in the positivist direction where the focus is on finding confirming evidence from multiple sources to a “lean” in the constructivists direction where the focus is on the complexity of multiple views. Regardless of the “leaning,” triangulation has become an important ingredient in the establishment of trustworthiness (validity) of qualitative inquiry.

While the two historical approaches of “metaphoric analysis” and “thematic analysis” can inform important research questions, the questions that are posed within evidenced based synthesis framework, calls for an approach that builds on the concept of triangulation within an ecological perspective. This is referred to as the “ecological triangulation” approach to qualitative meta-synthesis.

The essence of the ecological triangulation approach is the development of procedures that focus on the mutual interdependence among theory, method, and findings – findings that provide insights into what interventions work to produce what outcomes with what persons in what settings or environments. For example, the trustworthiness or validity of a positive outcome for an intervention is enhanced if it is shown to occur under diverse conditions with diverse groups using diverse methodological and theoretical approaches.

The ecological triangulation approach focuses on theory, method, interventions, persons, settings/environments and outcomes and the transactional relationship among these variables. Procedures for data extraction should be in concert with this approach. For example, from each research study included in the synthesis data must be extracted and analyzed that inform the following questions: What theoretical framework was employed in the study (meta-theory)? What methods were used in the study (meta-method)? And, what interventions with what persons under what conditions produced what outcomes (meta-analysis)? Once the data is retrieved, the quality of the research determined, and the data extracted (procedures common to quantitative meta-analysis) – the triangulation analysis follows. In this analysis the focus is to determine what evidence across cases (articles) do theory, method, and the analysis of persons and conditions support interventions with positive results. Given that the studies under review are qualitative – then the analysis is obviously based on a “text” data set rather than a “numerical” one. Again, given the nature of text and the number of studies most likely to be included in a large synthesis, the analysis task becomes

complex. Tools must be employed to help in this analysis process and for qualitative researchers the tools of choice are the Computer Assisted Qualitative Data Analysis Software (CAQDAS).

Numerous CAQDAS tools are on the market (Fielding & Lee, 1998; Weitzman & Miles, 1995). While there are both advantages and disadvantages to the utilization of CAQDAS (Fielding & Lee, 1991) the complexity of the synthesis task within the ecological triangulation framework necessitates its use. Of the many options available, NVivo a product of Qualitative Solutions and Research Pty. Ltd., Melbourne, Australia often becomes the “software of choice.” NVivo allows for large and complex data sets, provides a dual document and coding system, and includes a sophisticated search strategy that allows text, code, attribute, Boolean, and proximity searches. Particularly attractive to the ecologically triangulation framework is the ease in which a research article by attribute (and value) matrix can be developed. The procedure allows an attribute and its associated values to be deduced from the literature to produce a “start list” and then augmented by inductive coding as the analysis proceeds. Put simply, the software supports both the deductive and inductive development and employment of attributes that describe theory, method, interventions, persons, conditions, and outcomes.

What does this attribute matrix look like? At this stage in our project we are expecting several hundred studies and we have identified within the qualitative analysis effort 30 plus attributes with values for the attributes ranging from 2 to 16. In other words, the matrix may be a 400 X 30 cell matrix with 2-16 data points within each cell.

Searching and sorting the attribute and value database to develop patterns associated with interventions that have positive outcomes accomplish the synthesis within the ecological triangulation framework. How well an intervention “works” comes from finding its efficacy across theory, methods, conditions, and persons. This method of analysis provides the opportunity to explore the role of theory and method in the assessment of positive outcomes as referenced in the Campbell & Fiske (1959) multi-method/multi trait matrix.

To conclude:

To implement an evidenced based synthesis of qualitative research; an “ecological triangulation” framework has been presented. This approach focuses on the attribute values associated with theory, method, and the components of analysis (intervention, persons, environments, and outcomes). Through the process of searching, sorting, and synthesis interventions are sought that have positive outcomes that can be described in relation to theory, method, persons, and settings/environments.

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