Procedural Methodology for a Grounded Meta-Analysis of Qualitative Case Studies

Short Title: Grounded Meta-Analysis of Case Studies

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SUMMARY

University researchers conduct large numbers of case studies in the field of consumer studies each year and many are published in the research journals. Although illuminative and rich in description, qualitative data collected in case studies are singular and often lack generalizability. There is a need for comprehensive studies that subsume individual case studies related to consumer sciences in nutrition, apparel and clothing, consumer consumption, housing, and family studies.

The purpose of this paper is to present a step-by-step methodological procedure for a qualitative meta-analysis, using components of Straus and Corbin's (1990) grounded theory data coding technique. This research provides a systematic and rigorous research technique procedure for deriving hypothetical statements from multiple case studies in the consumer studies discipline as well as other academic disciplines. This method offers a way to overcome the limitation of individual, data-burdensome case studies bounded by context. It extracts conceptual trends across individual case study and eliminates these contextual boundaries. It fills a void in research techniques, by combining existing qualitative case study methods, grounded theory coding techniques, and meta-analysis to create generalizable hypotheses, grounded in the data. This methodology can provide testable hypotheses which contribute to the larger picture of an overall theory in the consumer studies or another academic field.

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INTRODUCTION

Vast numbers of case studies exist in consumer studies research. The increasing

contributions of qualitative researchers to the field have been both a blessing and a curse

to practitioners. Library databases, such as ABI/INFORM Global, EBSCOhost, or

ProQuest Dissertations and Theses offer access to hundreds of singular case studies

related to consumer sciences in nutrition, textiles and clothing, consumer consumption,

family studies, and related fields. They are abundant in the literature possibly because

researchers' time is channeled into developing and recording practical curricula for their

own universities. Case studies may be termed "illuminative evaluations" (Morgan, 1991,

p. 6) and consist of examining particular incidences or events and the complex meaning

associated with those events. Some researchers believe that case studies have limited

generalizability to the larger body of knowledge in consumer studies and efforts should

be made to contribute to the theoretical knowledge base of formal concepts. Concern also

exists over the possible lack of methodological rigor and reliability, the absence of

comparative analysis, and the lack of a cumulative nature; that is, case studies may not

relate to or extend earlier work (Morgan, 1991; Ogawa & Malen, 1991; Atkinson &

Delamont, 1993).

In spite of these potential shortcomings, qualitative case studies provide numerous

concepts practitioners can adapt to their own settings and they generate rich descriptions

of a particular context. However, the sheer number of case studies requires excessive

time to sort and examine. In 1970, Glass used a mining metaphor to describe the vast

quantities of unrelated research. The mines of science have mountains of accumulated,

unrefined ore. Many of the raw findings get buried under new accumulations, even

though science would be better served if the findings were refined and hammered into

usable metal (Glass, 1970). Four decades later, the need is greater than ever. Individual

qualitative case studies are singular in nature and there is a need for comprehensive

studies that subsume individual studies. Research has progressed to the point that there is

a need for identifying the "cement that glues" these unique case studies (DeWitt-Brinks

& Rhodes, 1992, p. 5).

The purpose of this study was to develop and use a scientific methodological

procedure for a meta-analysis of qualitative case studies that contributes to theory

development. This research method has merit for the readers of *International Journal of

Consumer Studies* because it provides a strategy for uniting the findings of unique

consumer studies cases into testable hypotheses. This paper provides, for the first time, a

step-by-step procedure for synthesizing multiple case study research and extracting major

themes and commonalities that emerge from, or are "grounded" in the data. This is

known as a **grounded qualitative meta-analysis** because it synthesizes qualifying

qualitative research and contributes to the development of hypotheses grounded in data.

This research redefines the traditional meta-analysis using qualitative grounded theory

data coding techniques, rather than quantitative standards. The hypotheses that emerge

from the cross-case analysis can be compared to testable hypotheses of existing theories

in consumer studies.

A limitation exists with this research technique in proposing new theories because

of the specific nature of individual case studies. This research was tested on four

dissertation case studies and although common hypotheses were developed across the

four case studies, they lacked the broad scope of an actual theory. Future researchers may

want to examine the question, can sufficient data be mined from individual case studies

to develop an overarching grounded theory in the fields of consumer studies?

Originally, this research was developed to identify commonalities among four

distance education pedagogical case studies, but this paper proposes that the same

scientific procedure can also be implemented to systematically meta-analyze existing

case studies across the discipline of consumer studies, as well as in other disciplines.

Orienting Conceptual Framework

A **meta-analysis** is a term used by quantitative researchers to review, assimilate,

and compare large amounts of existing data from multiple studies. A meta-analysis may

also be called a meta-assessment, meta-evaluation, meta-research, cross-case research,

cross-site synthesis, research synthesis, research integration, case survey, and integrative

review. Traditional meta-analyses transform data from multiple quantitative studies into a

common measure and use a standard statistical procedure. This determines the overall

effect and its relation to the subsample effect (Short, 1985). A meta-analysis is an

"analysis of analyses or a statistical summary of the findings of several quantitative

studies" (Glass, McGaw & Smith, 1981). There are three fundamental components of a

quantitative meta-analysis: 1) quantitatively synthesizing similar studies in a common

problem area; 2) looking at all of the research in the common problem area; and 3)

generalizing the findings.

The uniqueness of this research method is the application of a traditionally

quantitative measure to qualitative research, in this instance, case studies. Other

researchers have argued that the meta-analysis process can be adapted to qualitative

studies and have shown through their research how this can be done (Short, 1985;

Hossler & Scalese-Love, 1989; Miles & Huberman, 1991; DeWitt-Brinks & Rhodes,

1992; Schreiber, et al, 1997; Jenson & Rodgers, 2001; Glasmeier & Farrigan, 2005).

Rudel (2008) suggests that case study researchers standardize their data collection

methods to simplify a meta-analysis. A qualitative meta-analysis can offer a researcher

objectivity and generalizability in a research synthesis while preserving the subtle

nuances of real-life contexts (Miles & Huberman, 1991; Ogawa & Malen, 1991).This

research was designed to bridge the singularity of practical case studies with the

generalizability of a meta-analysis, thereby increasing the degrees of freedom and

offering greater explanatory power.

Unlike others' meta-ethnographic strategies designed to combine qualitative

and/or quantitative research (e.g., Noblit & Hare, 1988; Skrla, Scott & Benestante, 2001;

Au, 2007; Pope, Mays & Popay, 2007; Ivory, Tesfamariam, Oropeza & Christman,

2009), the procedures presented here are based on the strategies proposed in grounded

theory development (Strauss & Corbin, 1990). **Grounded theory** is a method of

scientific research that allows the researcher to inductively derive a theory by unique data

coding techniques that systematically analyze and interpret data (Strauss & Corbin,

1990). Grounded theory researchers aim for a cumulative development of theoretical

research in their discipline. Induction, cumulative development, systematic analyzing and

interpreting data are components of the process of grounded theory development and

were used in this carefully detailed study.

Drawing upon both the qualitative meta-analysis and the grounded theory

technique, researchers Hossler and Scalese-Love (1989) introduced a **grounded meta-**

analysis. This grounded meta-analysis allows for the synthesis of qualifying qualitative

research and the development of theory, grounded in data. The grounded theory process

in a qualitative meta-analysis focuses on building categorical relationships in a

cumulative fashion. Similar phenomena are grouped in categories and re-analyzed to

identify relationships. These categories become components in the conceptual

framework.

Rather than aiming specifically for identifying a theory which requires analysis of

much quantitative or qualitative research, the intent of this paper is to delineate the

precise procedural steps involved in systematically analyzing case studies to find

emergent themes and patterns that are useful in theory building from qualitative data. The

coding procedure is adapted from the Hossler and Scalese-Love (1989) methodology, but

the analysis of only case studies is a unique feature of the research. In addition, the

dissertation research provides detailed examples of the coding processes (Stall-Meadows,

1998). Future researchers are encouraged to apply this new procedure to the area of

consumer studies.

<div align="center">METHOD</div>

The data needed for this qualitative meta-analysis are case studies. For the

original research, these researchers selected four dissertation case studies from a list of 18

focused on teaching attitudes and actions. Each dissertation was evaluated using a

modified Case Study Coding Form (see Figure 1) that contains quality-assessing criteria

proposed by Hossler and Scalese-Love (1989). The purpose of the form is to standardize

the data collection instrument for all the case studies. Based on the initial Case Study

Coding Form, the data are recombined to develop and link similar categories and

concepts across case studies. To meet the evaluation criteria, the case study must include

a thick, rich description of the research methodology and findings, as well as evidence

enabling assessments of validity and reliability.

Reliability, or the establishment of replicability is the likelihood that a different researcher would arrive at similar analyses and conclusions when reviewing the same data (Yin & Heald, 1975; Morgan, 1991). When expanded to meta-analyses, this concept suggests the establishment of strategies that can be used during the initial decision to include or exclude a case study from the meta research. They recommended more than one researcher evaluate each case study's fit with the predetermined selection criteria. "The amount of interanalyst agreement is then the measure of reliability" (Yin & Heald, 1975, p. 373). Reliability during the coding process can be posed as a question (Yin & Heald, 1975; Nicotera, 1993). Would another researcher develop and link similar categories and concepts across case studies? Reliability is enhanced when the researcher carefully leaves an audit trail, delineating precise steps for conducting the study (Yin & Heald, 1975).

Validity has been likened to "recognizable reality." Do the subjects involved in the case study feel the researcher's account has a "ring of truth?" (Morgan, 1991, p. 12). Reviewing multiple qualitative studies poses a risk to validity because "the rules of inference employed are usually unstated" (Guskin, 1984, p. 76). Guskin cautioned researchers against assuming that coding data is the key to ensuring validity. Yin and Heald (1975) believed "there is no satisfactory way of knowing how to generalize from community to community or from one time period to another" (Yin & Heald, 1975, p. 377). Ogawa and Malen (1991) propose the "establishment of clear definitions, accurate measures, and sound indicators of the phenomenon under study" (p. 277) because clear conceptual definitions allow the researcher to determine which documents to include or exclude as data (Ogawa & Malen, 1991).

Components of the Case Study Coding Form include open-ended questions on overall quality, problem statement, reliability, validity, research questions, purpose, major concepts, data sources and triangulation, site, subjects, method, descriptive adequacy, findings, conclusion, recommendations, and limitations. Each component is assigned a confidence level based on clarity of descriptions and a rating is assigned. Low ratings should be excluded. A low rating is based on: 1) Inadequate richness or thickness of description and outcomes; 2) excessive researcher or participant biases; and 3) case study researchers reporting non-significant findings to justify their biases (Hossler & Scalese-Love, 1989). Figure 1 is an example of a Case Study Coding Form that can be used to evaluate the research for inclusion in the qualitative meta-analysis. The terms, sure, not sure, and no information should be used to classify each component on the form.

[Insert Figure 1 here]

Once a case study is evaluated and selected for the qualitative meta-analysis based on completeness of evidence, the process of **open, axial,** and **selective coding** are performed separately for each case study. The process entails breaking down the data into phenomena, then recombining the data into similar formats, significantly simplifying the grounded meta-analysis procedure and allowing for familiarity with the individual case studies. At each coding level, the researcher completes a cross-case comparison. This constant comparative method contributes to the internal validity of the research.

Open Coding

The initial coding procedure, open coding, is defined as "the process of breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss & Corbin, 1990, p. 61). Data were fractured, and similar concepts were grouped into identifiable

categories, with properties and dimensions. This coding process involves recording (line by line) identifiable relevant data from commentary and transcriptions in the case study dissertations. Each mentioned concept or phenomena is listed only once, but frequency of occurrence should be noted.

To better explain the open coding process, Figure 2 depicts a short excerpt from an extensive list of concepts and phenomena derived from data in one of the original selected dissertations. For detailed information on any of the coding processes, refer to the original research (Stall-Meadows, 1998). The original research dealt with distance education teachers' attitudes and actions across disciplines, but the process can be used across a variety of settings in consumer studies as well as in other disciplines.

[Insert Figure 2 here]

After all transcribed ideas and actions are recorded as concepts and phenomena, similar concepts or phenomena are grouped according to categories. These categories or labels should be broad enough to encompass the related concepts or phenomena. Figure 3 represents the open coding stage of developing the category labels for a dissertation case study exploring distance education pedagogy. This should be done for all of the selected case studies in the meta-analysis. The categories may or may not be used across all the selected dissertation case studies. Although a category may be used in more than one dissertation case study, the dimensions within the category may be different. In other words, the meaning of the category label might be different even though the same term may be used. In the original research, none of the categories were used in all four reviews.

[Insert Figure 3 here]

The final component of open coding entails dimensionalizing each property according to frequency, duration, degree or other conditions which could later be developed into hypotheses. Figure 4 represents the dimensional profile process in open coding. It depicts an excerpt of the original dimensionalizing process for one of the distance education pedagogy dissertation case studies in the original research. Again, this same process can be used for case studies in home economics or consumer studies instruction and researchers are encouraged to expand this process to other areas in consumer studies.

[Insert Figure 4 here]

Axial Coding

Axial coding recombines the data in a new way. Connections are made between categories, with a result of more complex subcategories. Each story is conceptualized into a formal statement, showing the relationships among categories. According to Strauss and Corbin (1990), the paradigm model of axial coding consists of linking "subcategories to another category in a set of relationships denoting causal conditions, phenomenon, context, intervening conditions, action/interactional strategies and consequences" (p. 99). What results is the following paradigm model: A (causal conditions) leads to B (phenomenon), which leads to C (context), which leads to D (intervening conditions), which leads to E (action/interactional strategies), which leads to F (consequences) (Strauss & Corbin, 1990). This is illustrated in Figure 5:

[Insert Figure 5 here]

Causal Conditions (A). These are events leading to the phenomenon and more than one causal condition may be responsible for the development of a phenomenon.

Specific words in the data, such as "due to," "on account of," or "because of" may be indicators of causal conditions.

Phenomenon (B). This is the central or overarching explanatory idea of the data set. The actions/interactions are directed at managing or handling the phenomenon. The phenomenon is identified by asking the question, "To what are these data referring?"

Context (C). This is the specific condition under which the phenomenon occurred. It may be identified in the data with words, such as "when," "how," "what type of," and "duration." Context may also be identified by asking the question, "Under what conditions did this occur?"

Intervening Conditions (D). These are outside influences that may speed or slow the action/interaction. These are identified by asking the question, "Which conditions facilitated or constrained the actions/interactions?"

Action/Interactional Strategies (E). These are evolutionary and are usually sequenced in a purposeful manner, leading to a goal. They refer to how the phenomenon is managed and the reflexive or purposeful actions in response to the phenomena. They are identified by asking the question, "What was done or said in response to the phenomena?"

Consequences (F). These are the outcomes of the action/interactional strategies. They refer to what happened as a result of the action and interaction. They are identified by asking the question, "What happened as a result of the action/interaction?" Consequences may actually or potentially occur, and may happen immediately or in the future. If actions and interactions do not occur in response to a phenomenon, these failed

actions/interactions are also consequences. Figure 6 represent a sample of axial coding in the original research of distance education pedagogy.

[Insert Figure 6 here]

Selective Coding

Selective coding involves the integration of concepts into theories. It requires a higher level of thinking and an abstract level of analysis. The rich and comprehensive categories developed during open and axial coding becomes a picture of reality, or a story line. This reality is conceptual, comprehensible, and grounded in the data.

There are five main steps in selective coding: 1) Explicating the story line or briefly describing and conceptualizing the most encompassing of categories into the core category; 2) Relating other categories to the core category by means of the paradigm model; 3) Developing hypothetical statements to validate the relationships among categories; 4) Refining the abstract story line by rewriting the story in a less technical form, presenting relationship statements within the narrative; and 5) ultimately developing hypotheses that relate to the categories at the dimensional level for each individual case study.

Hypotheses should be written as statements using the format: Under these conditions, this happens; whereas under these conditions, this happens (Strauss & Corbin, 1990). In generating hypotheses, the 51 percent rule should be applied, meaning those hypotheses appearing in more than half of the case studies can be broadened and extracted. Hypotheses are developed based on recurring conceptual relationships that emerge from the studies. According to Strauss and Corbin (1990), these composite hypotheses may be used for the formulation of a theory and each should be compared

against other theoretical hypotheses suggested in related literature. For this research,

seven hypotheses were formulated using the 51 percent rule, but the limited number of

case studies that were analyzed prevented positing a new theory of distance education

pedagogy.

<div align="center">ORIGINAL RESEARCH RESULTS</div>

In the original research in distance education pedagogy, instructional activities

and attitudes were identified by breaking down the data in each case study dissertation

into discrete phenomena, grouped according to classification. The diversity of the case

studies created numerous categories, many used for only one of the studies reviewed.

However, several general hypotheses were developed, representing similar relationships

in at least 51 percent of the dissertations. Below are the seven grounded hypotheses

supported by the studies reviewed:

Hypothesis 1: Under conditions where faculty view teaching at a distance

positively, they believe the most important benefit is serving students in remote locations;

whereas under conditions where faculty view teaching at a distance negatively, they

believe the main drawback is the lack of face-to-face communication with students

(supported by all four studies).

Hypothesis 2: Under conditions of teaching at a distance, instructors experience

more difficulty keeping remote-site students attentive and motivated; whereas under

conditions of teaching face-to-face, instructors experience less difficulty keeping students

attentive and motivated (supported by all four studies).

Hypothesis 3: Under conditions of teaching at a distance, instructors rely heavily

on creating verbal exchanges and interactive techniques to overcome the lack of face-to-

face interaction; whereas under teaching in a face-to-face setting, instructors rely more heavily on visually monitoring students and reading student body language, and less on creating a discussion atmosphere (supported by all four studies).

Hypothesis 4: Under conditions when the instructor traveled to the remote site to meet the distance students, s/he had a more positive rapport with students; whereas under conditions before the instructor traveled to the remote site, s/he had a less positive rapport with students (supported by three studies).

Hypothesis 5: Under conditions of preparing to teach a distance education course, instructors devote more time to preparing instructional materials; whereas under conditions of preparing to teach a course in a traditional classroom, instructors devote less time to preparing instructional materials (supported by three studies).

Hypothesis 6: Under conditions in which departmental budget cutbacks require faculty to teach at a distance, faculty may be less receptive to teaching a distance education course; whereas when faculty are not required to teach at a distance, they may be more receptive, even requesting, to teaching a distance education course (supported by three studies).

Hypothesis 7: Under conditions in which faculty teach at a distance, they rely more heavily on support personnel, such as peer coaches, computer experts, technicians or students at receiving sites; whereas when faculty teach in a traditional, face-to-face classroom, they are more likely to work autonomously (supported by three studies).

In sum, under the conditions of distance education, instructor attitudes include beliefs that this pedagogical method:

- Serves remotely-located students,

- Lacks important face-to-face interactions,

- Inhibits teacher motivation of students,

- Requires more verbal communication than teaching face-to-face,

- Involves extra time to develop materials,

- Is improved when instructors travel to receiving sites, and

- Faculty volunteers feel more positively about teaching at a distance than faculty draftees.

Two other hypotheses were determined to be unusual or anomalic because they each appeared in only one dissertation and were divergent from traditional pedagogical issues. These anomalies can be windows into unusual circumstances worthy of exploring in more depth:

1) Under conditions where the instructor perceives group dissension, the instructor tries to bring the students to a consensus; whereas under periods of relative agreement among students, the instructor asks thought-provoking questions to get the students to analyze their own belief; and

2) Under conditions of instructor as a pioneer, before actually teaching a course, s/he experiences excitement and feelings of "breaking new ground;" whereas under conditions of instructor as frustrated middleman, well into the semester, s/he experiences a disappointment over lack of course and students' outcomes.

The seven grounded hypotheses were compared against 13 hypotheses developed earlier by Holmberg (1995) about distance education teaching. Although a few similarities existed, it was determined that Holmberg's (1995) hypotheses could be described as "how to facilitate learning in a distance education setting," while the

grounded hypotheses derived from this research could be described as "what perceived differences exist between distance education pedagogy and face-to-face pedagogy?" In most disciplines, the research perspectives are broad and a researcher may find it difficult to "add to" an existing theory. When using secondary data, such as existing case studies, the researcher is limited to hypotheses derived from the data, rather than having the freedom to generate his or her own hypotheses. Thus, it is important for the researcher to select numerous case studies and focus on the broadest concepts in order to generate broad hypotheses that might be compared to an existing set of hypotheses or theory.

DISCUSSION

Although the original research used to develop this methodology pertained to case studies in distance education pedagogy, this method could be applied to case studies in any field of consumer studies. To apply this process, a researcher will follow the same sequential and cumulative steps. The researcher chooses a collection of case studies that focus on a particular area. For example, a search of the Dissertations and Theses database identified 111 case studies on home economics, 255 case studies on parenting, 186 case studies on nutrition, and 13 case studies on family housing. The analysis process would then begin with the reading of identified case studies. After a thorough perusal, each case study would be evaluated by means of a Case Study Coding Form. The researcher would code the usable case studies using the grounded theory data coding techniques of open, axial, and selective coding procedures (Strauss & Corbin, 1990). By breaking down the case study data and then recombining them into similar formats, the researcher significantly simplifies the complex procedure.

After coding the individual case studies, the findings would be reviewed side by side with a goal of extracting commonalities in concepts and themes from the cross-case analysis. These findings would be presented as broad, testable hypotheses, grounded in data. Once the hypotheses are developed, the researcher should compare them to existing theories. These hypotheses should be considered for their contribution to a theory in the particular field of consumer studies. In addition, the researchers are encouraged to compare anomalic hypotheses or digressions from expected phenomena. Anomalies can be windows into unusual circumstances worthy of exploring in greater depth.

This research method is characterized by a meshing of previous research results. Hossler and Scalese-Love (1989) are credited with demonstrating that qualitative data can be meta-analyzed and they provided a general outline for the process. Strauss and Corbin (1990) provided a detailed procedure for grounded theory development.

Researchers using this methodology will discover that the case study researchers report data in unique ways. The difficulty of the grounded meta-analysis procedure is reconfiguring each unique case study into a general format, suitable for deriving conceptual hypotheses. This methodology is useful for a singular case analysis and a cross-case analysis. The methodology provides specific, as well as general insights.

This research method is designed to pave the way for other researchers to meta-analyze numerous, unique case studies, similar in topic, but different in methodology. This research lends support for qualitative researchers who argue that a meta-analysis can be just as effective for qualitative data, as it is for the quantitative data for which is was originally designed.

CONCLUSIONS

This grounded meta-analysis research process offers a comprehensive and sequentially-stepped cumulative procedure for analyzing multiple case study data. This step-by-step guide may be used by novice researchers and at the same time is intended to be tested by seasoned researchers. This cross-case analysis includes both reliability and validity measures, and can be replicated by other researchers.

In disciplines, such as education, social sciences, and consumer sciences, a plethora of case studies may be available, but they bear little relation to one another. A lack of generalizability has been a limitation. This research method offers a way to overcome this limitation, condensing multiple, data-burdensome case studies and extracting conceptual trends across individual case study boundaries. It fills a void in research techniques, by combining existing qualitative case study methods and meta-analyses into a procedure that is suitable for testing theories and developing new hypotheses that may become part of a grounded theory in consumer studies.

To take the research a step further, it is recommended that other researchers explore the question, "Can a single grounded meta-analysis of qualitative case study data generate a theory?" Most likely, they will determine that it is difficult to conduct a single piece of short-term research and generate a theory grounded in data. However, this methodology can provide testable hypotheses which may contribute a portion to the larger picture of an overall theory in their discipline.

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