

Integrating Theory In Research and Dissertation Writing

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Integrating Theory In Research and Dissertation Writing

Framing the research question

Scholarly writing in social science and many other disciplines requires that the researcher be aware of the distinctions among topics, problems, theories, hypotheses, and counter-theories and counter-hypotheses.

Topics

Topics are broad areas of interest. In public administration, "the benefits of e-government" is a topic. In political science, "the role of third parties in America" is a topic. Even if framed as a pseudo-question (ex., "What is the role of e-government in America?", "What is the role of third parties in America?"), topics are simply subjects about which any number of questions might be asked.

Problems

A problem is a question about a topic. A research problem is a question which has three attributes:

1. It requires analysis because people do or at least could reasonably disagree about the answer;
2. One can bring empirical evidence to bear on the relative merits of alternative answers; and
3. Finding the best answer has theoretical and/or practical policy importance.

Problems related to topic examples above are "Will e-government increase trust in government?" and " Why have third parties been unsuccessful in the United States?"

Theory

A theory is a generalized analysis which identifies which types of variables are most useful in predicting outcomes pertinent to a problem. For example, rational choice theory predicts the variables with greatest explanatory power will have to do with the cost-benefit calculations of rational decision-makers. Based on this theory, a thesis would be, "Trust is built on a experience of a favorable cost-benefit ratio, which e-government affords to the citizen by providing immediate benefits at low cost." For the third party example, a thesis would be "American political structure imposes prohibitive costs on the potential third-party voter."

Hypotheses

Hypotheses are empirically investigatable statements of specific expectations which are implied by a theory

Hypotheses for the e-government theory above might be:

H1. The more e-services in a jurisdiction, the more the trust in government exhibited in opinion polls in that jurisdiction compared to other jurisdictions.

H2. The more e-services in a given year, the more the trust in government exhibited in opinion polls in that year compared to other years.

Hypotheses for the third party theory above might be:

H1. In electoral districts providing for election of the single candidate winning the most votes, the voter will perceive voting for a third party as "throwing away" one's vote.

H2. The more decentralized and undisciplined the leading political parties in a country, the better able are the candidates of leading parties to take positions which appeal to potential third-party voters.

Counter-theories and counter-hypotheses

The researcher cannot prove a theory "true." At a minimum, the researcher may try to prove a theory is not inconsistent with the data. Better, the researcher may consider two or more theories and try to show one is more consistent with the

data than are the others. It is desirable to investigate at least one counter-theory with its associated counter-hypotheses. Then, instead of trying to prove theory A is true (an impossible task), the effort can be reduced to the do-able task of showing theory A conforms to the data better than theory B.

For the e-government example, counter-theories might be:

A. Trust theory, holding that trust pertains foremost to agents, not services. An associated hypotheses might be that the more political leaders are trusted, the more government is trusted, regardless of the level of e-government services.

B. Technocratic theory, holding that trust pertains to perceived security and privacy with regard to information systems. An associated hypotheses might be that the more the perceived security, the more the trust in e-government and by extension, in government, regardless of the level of e-government services or public opinion toward political leaders.

For the third party example, counter theories might be:

A. Interest group theory, holding that third parties are organized as interest groups. An associated hypotheses might be that interest group membership requires strong appeals to activists, and that the activist orientation in turn differentiates the group from the center and makes electoral success less likely.

Hypotheses and variables

Forms of hypotheses

Hypotheses usually take the unconditional-directional form, “The more the independent variable A, the more the dependent variable B,” assuming a positive relationship. Other forms are

- the unconditional-nondirectional, “A is related to B”.
- the conditional-sufficient “If A, then B” and
- the conditional-necessary “If B, then A.”

Unconditional hypotheses vary in strength:

- Strong: Independent A is related to dependent B (nondirectional).

- Stronger: The more the A, the more the B (directional)
- Strongest: There will be a strong positive correlation of A with B. (directional with magnitude).

Clusters of variables

The independent variables appearing in hypotheses may form clusters, such as economic vs. political variables. The clusters of variables may be associated with different theories, such as economic variables with market theory or cultural variables with institutional theory. Indeed, one form of research writing seeks to show that one cluster is more important than another (ex., economic predictors are more important than sociocultural predictors).

The researcher may reason inductively, clustering the variables and inducing a theory consistent with that cluster being the most important in explaining variance in the data. That is, the researcher may brainstorm a large number of hypotheses related to the dependent variable, then cluster them, then identify theories with clusters.

Or the researcher may reason deductively, deducing the cluster of causal variables indicated to be the most explanatory by any given theory. That is, the researcher may consider alternative theories, brainstorming what each would lead to as predictive hypotheses.

Regardless of whether derived inductively or deductively, the list of hypotheses is the list of variables that need to be operationalized. That is, every variable mentioned in a hypothesis must be measured in the researcher's survey instrument or other measurements.

Inducing hypotheses from transcripts

In social science, an important mode of inductive reasoning draws theory from transcripts, whether from open-ended interviews, the written word, or from other media. Theory is implied in such sources because theory provides a framework by which the world is understood, even if the individual does not think of it as "theory." Consider the following excerpt from a technology journal:

"Why do people adopt new technologies? People change habits when the pain of their current situation exceeds their perceived pain of adopting a possible solution. I call that the "change function." It may seem simplistic.

Consider the Internet refrigerator. Is there a crisis users are experiencing that a connected fridge addresses? Short answer: no. My refrigerator works fine, even if I can't surf the Web while looking for tomato juice. Is buying an intelligent refrigerator perceived as painless? Again: no. You have to waste a morning waiting for delivery and connection, and then, inevitably, more time listening to Barry Manilow while waiting for telephone tech support. For most earthlings, the payoff doesn't justify all that. Technologists think we'll gladly adopt an innovation when it's manifestly smarter. But change is an emotion-laden process. Disrupting, game-changing technologies? No way. Most of us despise being disrupted and don't wish to be game-changed.

The technologies that stand the best chance of winning us over are enhanced editions of products we already understand. Flat-panel televisions, for example, are much better televisions with low perceived pain of adoption. Everyone "gets" what a basic television is all about. There's nothing to learn. At the same time, flat-panel TVs address a powerful need. True, it's both subtle and self-fulfilling: It's the psychic pain we feel for not having one. Since 19% of televisions sold in 2005 were flat panels, the technology appears set to hit a societal tipping point. Anyone who doesn't have one will feel deeply embarrassed about it. If that's not a crisis, I don't know what is."

(Source: <http://www.fastcompany.com/magazine/105/next-essay.html>)

From this source the researcher may induce the following hypotheses:

1. The more the cost of foregoing technology exceeds the cost of adopting technology, the more likely technology will be adopted.
2. The cost calculus has a threshold function: cost of adoption must be significantly less than cost of non-adoption due to human preference against change.
3. The more the new technology conforms to what people are already used to, the lower that cost of adoption will be perceived.
4. The cost calculus regarding emotional factors (ex., peer-related embarrassment) is a significant dimension of decisions to adopt or not adopt technology.

Theory and hypotheses about causal connections are everywhere. Grounded theory, ethnography, and narrative analysis (all covered in separate volumes of the Statistical Associates Publishers' "Blue Book" series at <http://www.statisticalassociates.com>) are among the approaches which revolve around an inductive approach to theory and hypothesis formation based on "found data" in everyday sources and transcripts.

Types of research studies

While there are as many types of research studies as there are researchers, most research articles and dissertations fall in one of seven categories: the classic empirical study, the methodological study, the baseline study, the restudy, the experiment, the qualitative analysis, and the purely theoretical analysis.

1. The classic empirical study

There is a dependent variable. The researcher studies its correlates, including all correlates thought important in the literature. The researcher screens to see if bivariate relationships are in the general direction and strength expected. Then the researcher introduces control variables to see if the relationships are spurious and to see the effect of control variables, using a multivariate statistical technique.

The multivariate technique may model only the dependent variable (ex., linear regression or hierarchical linear modeling) or the technique may model independent variables as well (ex., structural equation modeling or partial least squares modeling).

The data must be comparative, either cross-sectional (different units observed in the same time period) or time series, or both.

2. The methodological study

Studies in the literature may have used a particular statistical method. The researcher may use this method and also use a newer method so as to compare results, typically showing the newer method sheds more light on the problem. For example, for many years students of diffusion theory used logistic regression but then Cox regression was shown to be a better approach to event history analysis. Similarly, neural network forecasting has been shown to be more effective than forecasting based on linear regression, at least in some circumstances. As a third example, educational research long relied on conventional cross-sectional modeling until hierarchical linear modeling was shown to be more accurate for many types of educational data.

3. The baseline study

The researcher may be the first to gather data on a theoretically important topic. Just obtaining baseline data is important in its own right, even if the analysis is largely descriptive rather than analytical as it is in other types of studies.

4. The re-study

The researcher may take a respected study and re-do it to see if it is still valid for the same population. Or the researcher may take a study using data in one setting and see if it is the same in a different setting. This type of research is also called the validation study.

5. The experiment

The researcher conducts a true experiment with test and control groups. Often students are used as subjects due to availability but in principal subjects are representative of the population to which the researcher wishes to generalize, and the sampled subjects are randomly assigned to the test and control groups. In social science, empirical prisoner's dilemma game research is of this type.

6. Qualitative analysis

There are many types of qualitative techniques, including case studies, participant observation, and narrative analysis. Some, such as content analysis, bridge qualitative and quantitative perspectives. A qualitative study still needs to be exploring something theoretically important. Evidence must still be gathered pertinent to a dependent variable. The qualitative method must match the dependent variable being studied, as, for instance, using narrative analysis to study perceptions of managers vs. clients.

7. The theoretical study

Based on review of the literature, alternative theories related to the research problem are developed. Deduction is used to draw out implications of each theory. Implied empirically-testable differences among theories are inventoried. All this is also done in classic empirical studies, but in a theoretical dissertation. theory development is much more formal and more extensive. Deductive approaches which use pure theory, without

empirical data, are found in such fields as game theory, rational choice theory, decision theory, and macroeconomics, to name a few. In such studies, emphasis is not on the conformity of theory and hypotheses to empirical data but rather on logically drawing out corollaries from theorems.

Examples of Types of Use of Theoretical Frameworks

Type 1: How many dimensions are there in causal space and which are most important?

In this type of theoretical framework, prior theory has defined the topic in terms of a certain number of dimensions but the author seeks to show the number and/or meaning of the dimensions is different. Classic examples are the many articles in psychology which have explored how many types of "IQ" exist and what they are. To illustrate this type of theoretical framework we use an article by Andreas Balthazar (2009) titled, "Institutional Design and Utilization of Evaluation: A Contribution to a Theory of Evaluation Influence Based on Swiss Experience." Considering the topic of management utilization of evaluation research, prior studies had defined influence over such utilization in terms of two factors: environment-related and process-related (Cousins & Leithwood, 1986, 1993). Balthazar set out to demonstrate that there were three, not two, dimensions to evaluation utilization.

In Balthazar's theoretical framework the three dimensions were environmental (ex., political climate, characteristics of the decision-maker, and availability of other information sources), process-related (ex., cost-benefit ratio, potential for implementation, comprehensibility), and institutional (ex., unit responsible for evaluation, unit assuming costs, trigger for evaluation). In this type of research, the researcher would ordinarily use a procedure such as confirmatory factor analysis using structural equation modeling to demonstrate the validity of the three-factor measurement model.

Balthazar's central purpose was to understand which of the three factors were most important for each of five types of utilization: instrumental, conceptual, symbolic, process, and general. Measures representing the three influence factors were used in logistic regression to predict a binary variable

coded 0 = evaluation not utilized, 1 = utilized. Logistic regressions were run for each of five types of utilization.

Balthazar was able to show that the factor indicators which were important in influencing utilization of evaluation differed according to the type of utilization. Balthazar concluded that it is not that environmental factors are more important than process factors or vice-versa, as prior theorists contended, but rather that there is a third dimension, representing institutional factors, and the importance of each of the three dimensions varies by type of utilization.

Type 2: Further developing/elaborating on an existing theory

This type of research effort places its emphasis on theory elaboration. To illustrate this type of theoretical framework we use an article by Rotem Bresler-Gonen & Keith Dowding (2009), titled "Shifting and Shirking: Political Appointments for Contracting out Services in Israeli Local Government. These authors noted that models based on principal-agent theory concentrate on policy drift: policies as implemented by agents tend to drift from the parameters envisioned by the principals. Bresler-Gonen and Dowding argued that there were two types of policy drift: policy shifting (agents' policy preferences differ from those of the principals) and agent shirking (the agent does not implement policy in a competent manner).

Bresler-Goene and Dowding studied a set of 10 cases in three Israeli cities where political appointments were made to push through structural changes to contract out services. The Tel Aviv case study, to take one of 10 case examples, revealed a four-stage process:

1. First a career executive was appointed, without policy agreement and with only medium monitoring, leading to policy shifting as predicted by principal-agent theory.
2. Then a political appointee was appointed, with policy agreement but low monitoring, leading to policy shirking. The authors infer that solving the principal-agent shifting problem cannot be done simply by using agents who agree with policy.
3. Then a more experienced political appointee was brought in, with policy agreement and with monitoring increased from low to medium. This resulting in no policy shifting but also not implementing the policy, albeit

not due to shirking. Even adding moderate experience and moderate monitoring was not satisfactory.

4. Then a highly experience career executive was appointed, with policy agreement and high monitoring, and finally principal-agent cooperation was achieved (no shifting, no shirking, policy is implemented). Lesson: The principal achieved desired results only by combining policy agreement with the costs of career experience and high monitoring. There is no easy and cheap solution to the principal-agent problem.

In general, the findings of the authors demonstrated that political appointees are less effective than career bureaucrats, so that solving shifting often increases shirking, especially when monitoring is reduced. The agency problems thus created were only solved by increasing monitoring and returning to career civil servants.

Type 3: Refuting an existing or newly proposed theory

In this type of theoretical framework a proposed new theory is evaluated to see if it is a better fit to the data than one or more existing theories. The purpose is not so much to elaborate on existing or new theories (Type 2, above) as it is to refute the existing or a newly proposed theory. To illustrate this type of theoretical framework we use an article by Michele Hoyman and Christopher Faricy (2009) titled, "It Takes a Village: A Test of the Creative Class, Social Capital, and Human Capital Theories." Hoyman & Faricy analyzed a new theory of urban economic growth (creative class theory) and two older theories (human capital and social capital theories of urban economic growth).

In this article, the new theory was that proposed by Richard Florida, who had argued that a "creative class" was inextricably connected with surges in urban growth. This article, using data from 276 metropolitan statistical areas, empirically tested the creative class theory as compared to the human and social capital models of economic growth.

The three theories examined were creative class theory (CC), human capital theory (HC), and social capital theory (SC). In addition, the authors also looked at intellectual capital theory (IC). Variables were developed to measure these three.

- CC was operationalized as % of workforce in occupational categories deemed "creative"

- HC was operationalized as % with a college degree
- IC was based on classification of colleges in the metropolitan statistical area
- SC was operationalized as the proportion of 501(c)3 organizations per population (501(c)3 is an Internal Revenue Service code for nonprofit and charitable organizations).

On the independent variable side, the authors also included certain variables thought to correlate with CC, such as tolerance variables. There were also various control variables such as region, race.

The dependent variables were three measures of urban growth: job growth from 1990 to 2004, average annual wage change from 1990 to 2004, and the average annual wages in 2004 -- all for 276 metropolitan statistical areas.

The CC, HC, and SC independent variables were run against the dependent variables separately, then combined in one model. As such, the authors wrote (p. 312):

"As such, this article will address the following questions: Does the presence of a creative class correlate with economic growth? Does the variable of human capital account for positive economic results across urban areas? Does social capital, as represented by the density of voluntary associations, which is a new measure developed by the authors, relate to economic performance? Finally, when all three theories are tested in one model, does one theory account for most of the urban income and job growth across cities? "

The separate CC, HC, and SC models were simply bivariate correlation matrices. For instance, all the CC variables were correlated with all the growth dependent variables. The authors found most of the bivariate correlations involving CC were either non-significant or showed a negative correlation of CC with growth, contrary to theory expectations. On the other hand, models involving the competing theories were found to explain the economic growth variables to a significant degree.

The authors' results demonstrated that the creative class was not related to growth, whereas human capital predicted economic growth and development and social capital predicted average wage but not job growth. Additionally the authors found that clusters of universities correlated highly with economic

growth. In general, the creative class was not significantly related to any of the three dependents. The authors thus showed that creative class theory is not useful for explaining urban economic growth.

Type 4: Refuting an existing theory and suggesting an alternative

In this type of research effort, an existing theory is rejected and a different one upheld in its place. To illustrate, we use an article by Christopher Michael Shea, Bryan J. Weiner, & Charles M. Belden (2013) titled "Using Latent Class Analysis to Identify Sophistication Categories of Electronic Medical Record Systems in U.S. Acute Care Hospitals." Shea and his coauthors noted that the literature theorized that hospital implementation of information technology proceeded in stages reflecting increased sophistication. The authors showed that stage theory was too simplistic. In its place the authors developed a theory focused around three levels of sophistication and identified correlates of each class of sophistication.

A stage model of electronic medical records (EMR) implementation was tested using Guttman scaling techniques and was found not to be a valid characterization of the development of EMR systems. That is, indicators of the theory-implied stages did not scale because EMR development could skip or reorder stage elements based on local circumstances.

Therefore, using latent class analysis, Shea and his coauthors developed a three-class (not stage) model of EMR sophistication. EMR system sophistication was classified into basic, intermediate, and advanced systems.

Logistic regression procedures then were used to identify whether specific organizational variables correlated to EMR class membership. These variables measured delivery system capacity, hospital capacity, information system leadership structure, and information system planning practices and strategies. Multinomial logistic regression results suggested that the best predictors of EMR sophistication were the size of the delivery system, having a disaster recovery backup facility for information systems, and pursuing a best-of-suite vendor selection strategy.

Type 5: Developing better instrumentation for a major theoretical construct

In this type of research the objective is to develop and validate a better instrument for measuring a critical construct in the field. To illustrate, we use an article by David H. Coursey & S.K. Pandey (2007) titled "Public Service Motivation Measurement: Testing an Abridged Version of Perry's Proposed Scale. In this article Coursey and Pandey developed a short scale to measure "public service motivation" as a proposed replacement for the prevalent 24-item Perry scale. Because long instruments are associated with subject fatigue and non-response, a shorter instrument was a better instrument.

Coursey & Pandey used data from the National Administrative Studies Project, consisting of mail surveys of managers engaged in information management activities working in state-level primary health and human service agencies. The authors conducted a confirmatory factor analysis to confirm their measurement model for the "public service motivation" construct. Coursey & Pandey's findings corroborated Perry's theorized dimensions of public service motivation. Results indicated good support for the shortened scale compared to Perry's original work.

Theory in the research article or dissertation outline

Introduction and literature review: Outline

Forming a workable research paper, thesis, or dissertation outline is half the battle of writing. An outline is part of the roadmap which tells the reader where the story is going. It is also an important tool in the author's own reasoning process. A bad outline will lead the researcher down endless mazes and yield an unreadable final product. A good outline will ease and encourage the researcher along the path to success.

The outline below contains typical elements for the two chapters in a dissertation or sections in an article which are most related to theory: the introduction and the literature review.

Chapter 1: Introduction

Statement of the research problem

Contextual background

Theoretical relevance

Policy relevance

Research statement

Chapter 2: Literature review

Differentiation of planned research from existing literature

Literature review grouped by hypotheses

Hypotheses related to theories and models

(Common groupings: internal v. external, individual vs. intraorganizational vs. environmental, economic vs. social, etc.)

Summary with meta-analytic table and crosswalk of hypotheses to literature

Introduction and literature review: Details

Details about each of the subsections in the outline above are now discussed, following the outline.

Chapter 1

Introduction

The introduction gets disproportionate reader attention and deserves polishing and re-polishing by the writer. Keep in mind that what you say at the beginning is apt to be the standard by which you are judged at the end. Typically, the introduction contains a statement of the research problem, discusses the problem's context in terms of practical policy and/or academic theory, and sets forth a statement of the proposed research, to be elaborated upon in subsequent sections. The introduction is also the place where the writer clearly identifies the audience for the writing, and indicates whether it is assumed that that audience is already cognizant of certain knowledge pertinent to the research at hand information which, for a different audience, might otherwise have to be set forth in the paper, thesis, or dissertation.

A good introduction has given the reader a beginning-to-end overview of the entire work. The body goes back and starts at the beginning again but presents

each element in much greater detail. In writing the portion of the outline which forms the body the researcher may find it helpful to write out one sentence (not just a heading) for each of his or her main points. Although headings are the type of outline many used in their high school days, outlining using full sentences is much less ambiguous and makes for clearer argumentation.

Statement of the research problem

The statement of the research problem is where the researcher sets forth the subject and makes the case that it merits the reader's interest. Without overburdening the reader with too many details to be presented in subsequent sections, the statement of the research problem should indicate the general nature of the hypotheses to be investigated. It should also demonstrate that these raise questions about which researchers might disagree -- that there are policy and/or theoretical issues involved. That is, the statement of the research problem defines the scope and general direction of the proposed research and presents the motivation for interest.

Contextual background

The section on the context of research is not the literature review section though it is directly related to it. Without reviewing the literature in detail, in the contextual background section the researcher makes a fuller presentation of the objectives mentioned in the problem statement. That is, here there is a fuller presentation of the theoretical and practical importance of the research. However, the presentation is still a summary and not the full literature review. Often, after completing the literature review, the researcher may be in a better position to refine the contextual background section.

Theoretical relevance

While purely policy-oriented writing is common and important, if at all possible the researcher should relate the proposed research to theory reflected in the literature of the field. This prefigures and may even be a little redundant with the literature review. In the section on theoretical context the researcher is only hitting the highlights and main points. If there is no such theory, of course, the researcher is well advised not to force an inappropriate framework onto his or her topic simply for the sake of "being theoretical." However, there is also an opportunity in this section to set forth original typologies, frameworks, and theories of one's own.

Policy relevance

While purely theoretical writing is quite acceptable, if the research has policy implications these should be highlighted here. This prefigures and may be somewhat redundant with the findings and conclusion sections. However, in the section on policy context, the researcher is only suggesting how findings of the research at hand may relate to existing policy debates or existing or proposed legislation. If there are no policy implications, of course, the researcher should not force an inappropriate framework onto his or her topic simply for the sake of "being relevant."

The research statement

The research statement is a relatively short concluding section to the introduction in which the researcher recapitulates the research problem and its theoretical and policy importance, and then summarizes where the rest of the dissertation or article is going. The summary includes discussion of the general nature of the literature review, types of hypotheses, data collection strategy, and methodological procedures to be invoked. Key terms are also defined at this point. In essence, the research statement is an extended abstract of the entire body. While some redundancy with later sections is expected, comprehensive treatment is avoided in the research statement.

Chapter 2: Literature review

It is easy and common to write bad literature reviews. Bad reviews lose the reader in details and irrelevancies, give the impression the writer is meandering, and tempt the reader simply to skip ahead to the section on methodology. Good reviews relate the literature to the hypotheses section which will follow and keep the "story line" of the work in the forefront. This requires omitting much perfectly fine and hard-gotten literature research which, while interesting and important in other contexts, is simply not very relevant to the research questions at hand. In dissertations and books, background material may go in an appendix rather than distract from the story line in the body.

Differentiation of planned research from existing literature

In this section the research makes explicit how his or her proposed research confirms, disproves, qualifies, extends, or is an original addition to the literature of the discipline. These are not mutually exclusive categories as, obviously, the

research may confirm one set of theories, disprove others, or provide the basis for synthesis of seemingly contrary findings in the existing literature.

Literature review grouped by hypotheses

In general, it is not a good idea to arrange the literature review in chronological order or in journalistic order (the inverted pyramid from most important to least important). Reading the literature will help the researcher refine his or her hypotheses, which in turn points deeper into the literature, and so on in an iterative process. After a few iterations of writing and revising, the researcher should know what hypotheses are to be investigated and the literature should be organized according to clusters of hypotheses. Formal hypotheses need not be presented in the literature review but it is still possible to organize in parallel. For instance, one set of hypotheses may deal with economic independent variables and another set with educational variables, so the literature review would have sections paralleling this. If hypotheses are related to theories, the organization of the literature review may be organized by competing theories. Other common groupings are internal vs. external causes, individual vs. intra-organizational vs. environmental, and economic vs. social factors.

Summary

Many find it useful to have a metanalytic table summarizing the literature, and to have a crosswalk table relating the hypotheses to the literature..

Meta-analysis is the process of formulating hypotheses, gathering literature on these hypotheses, refining the hypotheses and adding more, gathering more literature, and doing this through several cycles until one stabilizes on a final set of hypotheses backed up by relevant literature. The meta-analytic table is a way of summarizing the results of this literature review.

Meta-analysis is the systematic study of past research articles with a view to coming to an overall conclusion about the relationship of one or more independent (causal) variables to a dependent (effect) variable of interest. By being systematic, you clarify your own thoughts, make your story line clearer to the reader, and may even make the literature review publishable in its own right.

By combining the results of many similar studies, often ones with small sample sizes, it may well be possible to come to stronger conclusions about the

relationships under study than can be one through any one existing study alone, and this may lend more stability to the list of hypotheses you will be investigating.

Meta-analytic schedules may contain these fields: the citation, the dependent variable(s), the independent variable(s), the control or modifier variable(s), the population or sample, the methodological procedure used, the relationship model (actual hypotheses), the findings, and a residual discussion/comment field.

For example, in a meta-analytic table, the rows may be hypotheses, grouped by in-text references. This assumes a separate table of numbered hypotheses, of a format like:

H1. The higher the percentage of full-time police involved in community policing, the lower the burglary rate.

For further discussion of meta-analysis, see Cook, Cooper, & Cordray (1992).

Appendix: Outlining Checklist

- ✓ Have you examined some examples of outlines for similar dissertations, theses, or articles, to determine what seems most applicable to your own context? Hint: look at Dissertation Abstracts Online, available on Dialog Information Services through most reference libraries.
- ✓ Have you obtained guidelines from your academic department or publisher so as to assure your outline conforms to stylistic requirements which vary from discipline to discipline and publisher to publisher?
- ✓ Does your title contain key words which form a "mini-abstract" of your paper, thesis, or dissertation, and which make clear what your dependent variable is?
- ✓ Do you avoid abbreviations in your title?
- ✓ Does your abstract include all relevant key words for electronic search purposes?
- ✓ Does your abstract include your main findings, not just an indication of the area you are studying?
- ✓ Does your outline start with a description of a problem to be studied and a clear explanation of why the problem is important in the profession, in theory and/or in policy terms?
- ✓ Have you clearly identified your target audience (ex., practitioners, theorists, agency policy-makers)?
- ✓ Have you avoided giving equal weight to main and supporting ideas in your outline?
- ✓ Have you outlined the methodology you propose to use to investigate the issues you have selected, and have you demonstrated how triangulation (a multi-method approach) might enhance your research design?
- ✓ Is your outline arranged in a way that the story line stays in the forefront, and the story builds to a climax in the conclusion?
- ✓ Would an impartial reader understand the logic of your research from your outline (give it to some friends and test this out!)
- ✓ Do you follow familiar organizing principles, such as arranging your coverage in subsections from general to specific or from abstract to concrete?

- ✓ Does the content correspond to your heading levels in your outline, such that the higher the heading level, the more important the topic? Or are important, key parts of your story line hidden away in obscure subsections of your outline?
- ✓ In associating content with heading levels, have you observed the principle of coordination (that similar levels of generality should have similar heading levels). For instance, if outline level "A" is "Reproductive System" and "B" is "Nervous System," it would be a violation of coordination to let "C" be "The Heart," Rather, "C" would be "Circulatory System" and "The Heart" would have to be a subtopic of "C."
- ✓ Does your outline serve as a summary of your work?
- ✓ Will your conclusion correspond to your introduction?
- ✓ Have you let the evidence speak for itself, using a professional tone which avoids normative or dramatic adjectives like "unprecedented," "obvious," "overwhelming," or "striking"?
- ✓ Have you given space to discuss contrary, partially supportive, and negative findings as well as findings in support of your thesis?
- ✓ Have you arranged for peer review feedback for your outline?
- ✓ In terms of the sheer format of the headings in your outline, have you observed parallelism? That is, are headings at the same level expressed similarly in similar terms (ex., you might use terms like campaigning, voting, and electing; or you might use "to campaign," "to vote," or "to elect," ; or you might use these terms as adjectives -- but you would violate parallelism if you "mixed and matched" types of grammatical form).

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