INTEGRATIVE RESEARCH REVIEW

An integrative review summarizes past research and draws overall conclusions from the body of literature on a particular topic. The body of literature includes EVERYTHING that meets your inclusion/exclusion criteria. Everything also means that quantitative as well as qualitative studies can be included. There are many benefits to doing an integrative review. These include: (1) evaluating the strength of the scientific evidence; (2) identifying gaps in current research; (3) identifying conflicts within the field of study; (4) identifying the need for future research; (5) bridging between related areas of work; (6) identifying central issues in an area; (7) generating a research question; (8) identifying a theoretical or conceptual framework; and, (9) exploring which research methods have been used successfully (1).

You will need to answer four (4) questions in your review: (1) what is known; (2) what is the quality of what is known; (3) what should be known; and (4) what is the next step. How you answer these questions will be part of the evaluation process for your review (1).

One nice thing about the integrative review is that it is the only one that lets you combine diverse methodologies (for example, experimental and non-experimental research) and contributes to the presentation of varied perspective on your topic. This comes with a price. It is not easy to combine these different methodologies. You must ensure that your review does not suffer from a lack of rigor, or invites inaccuracy and bias into the review process and that it can be replicated. Another plus is that if you started out wanting to do a meta-analysis but ran into a lack of qualified studies, an integrative review is an appropriate alternative (2).

Harris M. Cooper wrote the book (literally) on the integrative research review (IRR) in 1984. In this book, and subsequent books on this topic, he outlined and described in detail how to use this process. Cooper breaks down the process of doing an IRR into five stages: (1) problem formulation; (2) data collection; (3) data evaluation; (4) analysis; and, (5) public presentation. At each step in this process, there are decisions to be made about whether the research project can continue (3).

In Stage One, Problem Formulation, you will identify a topic that has been frequently reported in the literature, usually with conflicting results. It goes without saying that this topic should interest you and should be within your
discipline. Your literature review will assist you in identifying gaps in existing knowledge or apparently conflicting results. Before beginning, you will have developed a theoretical framework which will serve as your conceptual foundation for the development of the methodology and content of the research synthesis. You will also have to decide the inter- vs. intra-disciplinary question. Generally, a research question deals with those elements that describe the profile of studies to be examined, the effectiveness of a particular course of action, and the study variables which may contribute to the overall outcome. For example, the question, “What interventions are the most effective in increasing treatment compliance in closed head injury patients?” describes the studies to be examined as those with a patient population of patients with a closed head injury and which, if any, treatments increased patient compliance in adhering to those treatments.

The choice of which research synthesis/statistical approach to use is up to you. You may choose (1) Cooper; (2) Hunter, Schmidt & Jackson; (3) Hedges & Olkin; (4) Rosenthal; and (5) Goldschmidt. The differences are all statistical and have to do with effect size, variability and prediction. The “big 3” seem to be Hunter, Schmidt & Jackson, Hedges & Olkin, and Rosenthal. These methods are also the same approaches that one would use in a meta-analysis. This paper is not the place for a heavy statistical discussion of the differences in the methods, so please see the references at the end of this paper.

You will also need to determine what expertise is needed to help you with your review. This is a realistic assessment of what expertise you have versus what expertise you lack. You will need expertise in four areas: (1) content – do you have the required subject expertise so that you can completely rely on your own knowledge base and experience; (2) methodological – do you have the required knowledge about the various methodologies available, their appropriateness for what you are doing, what they measure, and their strengths and weaknesses; (3) statistical – how comfortable are you working with and using statistics, with the various statistical methods, software packages, and statistical results; also, if you have a statistician helping you, can you double-check what has been done to insure that the correct analysis has been performed; and (4) library – do you have the required knowledge about information sources, applicable
databases, search engines, search syntax, thesauruses or controlled vocabulary specific to a database, document retrieval, grey literature, etc.

Once you have done that assessment and have decided on the methodology and study variables, you will need to develop a coding form and a code book with a glossary. The coding form has all the information about the study (usually an article reporting on the study) you are coding and all of the variables that you have identified. Every term on the coding form is in the glossary which gives a definition of how that term is defined in your study with alternative terms that will help you and/or your coding team in deciding whether the study in your hand should or should not be included in your review. Be absolutely sure that they way you code your studies can be easily translated to the statistical package/process you are going to use in the analysis stage (2).

Maintaining scientific integrity while conducting an integrative research review involves paying great attention to threats to validity. Several of these threats must be considered during this phase of the review. Cooper says that you must not define the operational definitions too narrowly because the quality of the findings can be impaired when other definitions are not considered. On the other hand, Cooper warns against defining the operational definitions too broadly because this can lead to overlooking important study details and incorrectly interpreting the results. To overcome these threats, he suggests that you use the broadest conceptual definition possible and pay impeccable attention to the differences in study methodologies. You must balance the conceptual definition and methods review constantly during the entire review process (4).

**Stage Two** is the data collection process. Based on your initial is-this-worth-my-time-and-will-it-make-a-positive-contribution-to-knowledge-in-the-field review that you did before stage one, you can decide on the inclusion/exclusion criteria. Criterion includes such items as language, time-span, human only, and criteria specific to the field of study. Once these have been determined, then you are ready to consult with a librarian on which databases to use, what search terms to choose and how to combine those terms. Identify if there are citation sources, bibliographies, government documents, grey literature and non-indexed sources that should be checked. Also, what journal titles should be included in a manual search.
Once a study is identified, then it is coded using the coding form and code book. This is a team effort. At least three people are needed for this process. Each team member will code the same study. Then they will meet to compare coding entries. If there is any disagreement among them, it must be resolved. You will need to determine an acceptable level of agreement (75%, 80%, 90%) before you begin. If that agreement level is met, then the study is included in the review. Naturally, you will be performing reliability checks during this process to insure the integrity of your review. If, after all of this, you have identified a sufficient number of studies, then you can go to stage three (2).

Data Evaluation is **Stage Three**. In this stage you actually code the studies you have identified as being likely candidates for inclusion in your study using those items identified in Stage Two. This stage comes with some challenges. First is how are you going to assess the quality of the studies you have identified. See the articles by Smith and Stullenbarger and Mullen and Rosenthal for in-depth discussion on this topic (5) (6).

The next challenge is missing data. If, on your coding form, you have number of subjects, age range of subjects, or randomization was used but the study in hand does not have some or all of that information, what do you do? If this was a meta-analysis project, that study would be out. However, you can still use it in your review. Based on discussions with your team, you may revise the coding form so that consistency across all identified studies is reached. Then you proceed to the coding process and the team meeting to resolve disagreements (2).

**Stage Four** is analysis and interpretation. You have coded the studies, reached agreement with your team and now it is time to analyze. This is also the heavy statistical section so bear with me. If you have sufficient statistical data so that you can transform that data into effect-size indices, then you have to decide if you want to use single or multiple outcomes for calculating measure of effect. For example, if your studies have outcomes that include blood pressure, temperature, heart rate or pulse rate, then you have multiple outcomes. Depending on your research question or interest, different single or multiple outcomes can used for analysis. However, if statistical independence is addressed, then a single outcome must be chosen. The one you choose is the one that best answers your research question. The other outcomes are coded for descriptive results. Throughout
this entire process, assessments must be made and disagreements resolved to the satisfaction of your team (2).

The descriptive analysis is a demographic profile of all of the studies used in your review. Items included are years of publication, sample sizes across the studies, theoretical approaches used, outcomes measures, and a host of other items. If this were only a meta-analysis study all of this demographic data would be lost. If you have studies suited for meta-analysis and you include a meta-analysis of those studies within your review, then you transform those statistics into effect size indices. Effect size refers to the distance between a control and an experimental group regarding treatment. The effect size shows how much better the experimental group did than the control group on the desired effect. For the overall effect of a particular treatment of intervention, the results of the individual effect sizes can be combined into a single effect size measure which makes a statement about the overall collection of studies (2). (I told you this was statistically intense!!)

The next question is to determine if outliers are present. Outliers are studies whose results are on the extreme end of the result curve. If included, they can misrepresent the bulk of the studies and can contribute to the wide variability of effects. The normal practice is to calculate and report the overall effect with and without the outliers. Then it is up to the reader to make the appropriate use of the information (2).

An additional statistical treatment which may be performed if the information is available is the construction of the regression equations through which the contribution of selected substantive and methodological variables can be assessed. If assessments of computational accuracy have been satisfactory, then an interpretation is made in terms of the meaningfulness of the results in relation to the study questions and conventions as followed in the conduct of the review. If the results are not meaningful, then you have to look back at the individual studies to see if a particular variable(s) contributed to an ambiguous result. For example, outcomes in a quality of life study may be so disparate that a truly meaningful conclusion is not possible.

**Stage Five** is the last (thankfully) stage. This is the whole point of doing your study – to contribute to the knowledge base so that others can benefit from your work. The report format follows that of a primary research
report: abstract, introduction, methods, results, discussion, conclusion, summary, references. What to include and the order may vary a bit depending on the Instructions to Authors in the particular journal you have chosen for article submission.

The answer(s) to the research question must be presented in sufficient detail to demonstrate that the results obtained were substantiated by the methods used. Further detail depends on the intended audience. Once you have identified the intended audience, then the particular form of the report is the one that will best reach that audience. Again, the Instructions to Authors will dictate the rules, format, the what, how much and in what detail you may present your information. Your overriding concern is that sufficient information be presented so that an individual reader can readily assess the validity of the review insofar as the report meets the criteria for scientific inquiry. It is useful to look at the QUORUM and PRIAMS standards in this LibGuide for help in preparing your document.

Below is a list of material that was used in the creation of this document. It is also a handy reading list for further and more detailed information of the IRR.

REFERENCES
