Literature Reviews

Article *in* The Volta Review · September 2011

DOI: 10.17955/tvr.111.1.677

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Commentary

Literature Reviews

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Introduction

The primary purpose of a literature review is to assist readers in understanding the whole body of available research on a topic, informing readers on the strengths and weaknesses of studies within that body (De Los Reyes & Kazdin, 2008). It is defined by its guiding concept or topical focus: an account of what was previously published on a specific topic. This prevents reliance on one research study that may not be in accordance with findings from other studies (Dunst, Trivette, & Cutspec, 2002).

All practitioners who work with children with hearing loss have a professional obligation to be current in their knowledge base and, as such, to maintain a basic library of information. However, given the multitudinous cross-cultural journals, books, conferences, and electronic sources of information, keeping up with recent developments and research findings can be an impossible, if not daunting, process. Therefore, the value of good literature reviews can never be underestimated.

Comprehensively reviewing and publishing aggregate research findings that pertain to a topic are important because such findings can:

- Represent an important scientific contribution.
- Guide the decision-making process of practitioners, administrators, and parents.
- Facilitate the development of practice guidelines.
- Strengthen advocacy capacity.
- Enhance professional development.
- Provide opportunities for practitioners who might like to publish yet do not have necessary resources.
- Establish the author as an "expert" on the research question.
- Guide practitioners into new lines of inquiry, improving methodological insights.

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- Facilitate the direction of research by determining what needs to be done.
- Review and expand the topical lexicon.
- Place the body of research in a historical context.
- Enable researchers to secure substantial grant funding for research.
- Uncover many reasons why a larger body of evidence provides unequivocal or equivocal support for a particular strategy in multiple circumstances or with different environmental variables.

(Baum & McMurray-Schwarz, 2007; Dunst et al., 2002; Grady & Hearst, 2007; Hemingway & Brereton, 2009; Randolph, 2009.)

Types of Literature Reviews

Literature reviews can be published as a book, a book chapter, a dissertation, a stand-alone manuscript, or as a prelude that provides justification for a clinical study submitted for publication in peer-review journals, e.g. *The Volta Review*. Regardless of how a review is presented for publication, there are different levels or types of literature reviews, some more acceptable than others for special purposes. In general, three basic types of literature review reflect a continuum of detail: narrative, systematic, and meta-anlaytic reviews.

Narrative Review of the Literature

Narrative reviews, sometimes referred to as overviews or standard/traditional reviews of the literature, critically appraise and summarize the literature relevant to an identified topic (Hemingway & Brereton, 2009). This type of literature review is often integral to a position paper or presented as background reading immediately preceding the research study in a manuscript submitted for publication. These papers tend to begin with an explanation of the rationale for the selected topic, providing a historical framework for the research study and the reason for examining studies relevant to the topic (Baum & McMurray-Schwarz, 2007). Narrative reviews often draw together major arguments in a field of discourse or provide a significant historical review of an important aspect of intervention practices for families and their children with hearing loss.

A good narrative review is an objective-focused literary review of relevant studies with selection of those studies based on some criteria, such as studies published within a certain time period (Shank & Villella, 2004). Although the aggregate studies are not necessarily international in scope and may not include a search for unpublished data on a topic, the reviewer states the criteria for selection of studies reviewed. The validity of the studies are discussed as part of the reviewer's broad, qualitative, well-stated (but critical), and accurate evaluation of selected studies (Archbold, Gregory, Lutman, Nikolopoulos, & Sach, 2005; Collins & Fauser, 2005; Shank & Villella, 2004). Based upon the

reviewer's reflective and personal expertise, reasonable judgments are then made (Jones, 2004; Shank & Villella, 2004; Vetter, 2003).

Although narrative reviews do not necessarily adhere to rigorous standards, results of the search, selection, and assessment procedures must meet the referees' and editors' criteria. It is important to keep in mind that when readers are not privy to a reviewer's search methods, it is impossible to make judgments about the reviewer's choices of studies. Readers value transparency and reproducibility (Collins & Fauser, 2005).

Systematic Review of the Literature

Systematic reviews are sometimes referred to as "best-evidence syntheses" or "practice-based research syntheses" (Dunst, 2009), particularly when applied to specific practice characteristics (Dunst & Trivette, 2009). This is a thorough, comprehensive, transparent, and unbiased review of the literature undertaken according to a clearly defined and systematic approach (Aveyard, 2010; Neely et al., 2010). With the onset of the 21st century, systematic reviews have become increasingly more common (Altman, 2002), replacing narrative reviews and expert opinions or commentaries (Hemingway & Brereton, 2009). It is not unusual for a well conceptualized and relevant, in-depth, and interpretive research synthesis to contribute one-fifth of a research paper's overall word count. However, systematic reviews can be stand-alone research papers published in peer-review journals and their importance cannot be over-emphasized (Dunne, 2011; Lucas & Cutspec, 2005).

The process of integrating findings across many studies pertinent to a particular research question is an ideal first step toward according legitimacy and scholarliness to a research study (LeCompte, Klinger, Campbell, & Menke, 2003). A persistent threat to the validity of any systematic review is publication bias, since some journal editors or reviewers tend to avoid publishing those studies with null or negative findings. This can render some reviews skewed toward positive findings (Berkeljon & Baldwin, 2009). To avoid this bias, reviewers search for and include "grey literature" (Berkeljon & Baldwin, 2009). Grey literature includes unpublished papers, census data, institutional or technical reports, working papers, surveys, government documents, conference proceedings, theses, and dissertations (Lucas & Cutspec, 2005). Research or subject librarians can be excellent sources of such non-published information (Sulouff, Bell, Briden, Frontz, & Marshall, 2005). It is important to keep in mind that grey literature may not be subjected to peer review or editorial control, hence the need for careful scrutiny (Hemingway & Brereton, 2009).

Systematic reviews are lengthy processes that involve a focused cross-disciplinary search strategy with clearly stated criteria for inclusion and exclusion of the literature (Berkeljon & Baldwin, 2009). The process of collecting, reviewing, and presenting all available evidence pertaining to the topic or research question is not limited to randomized clinical trials (Neely et al., 2010).

A resource for reading high-quality systematic reviews, both in format and content, can be found in "Evidence-Based Communication Assessment and Intervention," a peer-review journal that includes studies involving children with communication difficulties as well as speech and language disorders (Psychology Press).

Meta-Analytic Review of the Literature

Meta-analytic reviews, sometimes known as *quantitative* systematic reviews, provide a statistical approach to measure the effect size and impact of the aggregate studies relevant to the research question (Sun, Pan, & Wang, 2010; Vetter, 2003). A meta-analysis, then, combines the data with similar properties – particularly if the multiple studies yield sufficient data (Aveyard, 2010; Neely et al., 2010). Every meta-analysis is based on an underlying systematic review, but not every systematic review leads to a meta-analysis (Neely et al., 2010). As noted in Figure 1, each meta-analytic review has a systematic review as its first stage.

This second stage of a systematic review involves determining its appropriateness to calculate a pooled average across studies and, if so, then calculating and presenting the result. As a collection and integration of research studies to which a statistical formula was used to summarize the findings, meta-analyses calculates an average of the results from a body of literature (Aveyard, 2010; Neely et al., 2010). The two-stage process gives greater weight to those results that provide more information, hence weighted averages are an end outcome of meta-analytic reviews (Clarke, 2007). Given that meta-analytic reviews necessitate well-developed studies reflecting minimally sufficient experimental or quasi-experimental research with comparable samples of subjects, these are much more time-consuming and require considerable expertise, hence they are costlier to develop than systematic reviews (Larson et al., 1992).

Not all studies yield the same type of evidence. When two or more types of evidence are examined within one systematic review, it is referred to as a mixed-method review. Meta-analytic reviews objectively inform us of the totality of evidence as well as provide sufficient justification for new research (Berkeljon & Baldwin, 2009). Assessing consistency of results and possibly settling controversies from conflicting studies are also reasons to perform a meta-analytic review. Moreover, meta-analytic reviews can yield good information about potential strengths and weaknesses of intervention approaches (Odom, 2009). However, meta-analyses do not typically provide detailed procedural information about specific practices (Odom, 2009).

A meta-analytic review includes a final discussion section, whereby conclusions and recommendations are presented as based on the findings. There are several independent, not-for-profit, international interdisciplinary organizations that focus on the provision of rigorous systematic reviews that include

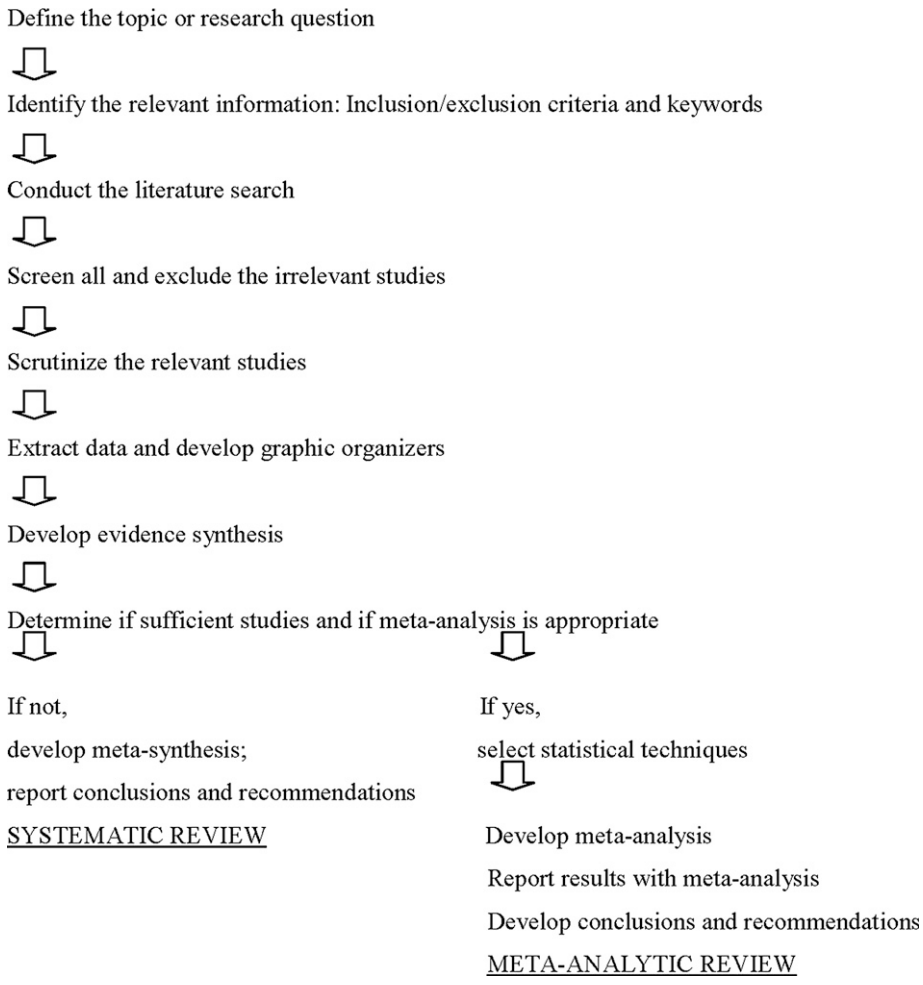

Figure 1. Basic components of a systematic review with or without meta-analysis

meta-analyses; these organized groups include the Cochrane Collaborative, the Campbell Consortium, and the Joanna Briggs Institute (Johnson, 2006). Their reviews, pertaining to behavioral, social, health, and educational interventions, are indexed in MEDLINE (Clark, 2007). However, these organizational resources may be of limited value for issues pertaining to speech and language interventions primarily due to their focus on randomized controlled trials that are not typically employed with children (Brackenbury, Burroughs, & Hewitt, 2008), and they require a paid subscription. The Centre for Reviews and Dissemination (CRD) provides an international database of systematic reviews on health care interventions; this rapidly growing collection of

systematic reviews is freely accessible to the public. While it does not yet include systematic reviews on educational interventions for children with hearing loss, CRD makes available reviews on related issues, such as hearing devices, Universal Newborn Hearing Screening, and incidence data.

Process of Developing a Good Literature Review

A literature review is a process that involves a series of carefully executed and time-consuming steps (Neely et al., 2010). These are based on a peer-reviewed protocol so that the process can be replicated when necessary (Hemingway & Brereton, 2009). While authors developing narrative reviews do not necessarily adhere to all the steps critical for a systematic review, readers will better appreciate any review that involves clearly articulated steps undertaken by authors. Transparency and studious avoidance of bias are critical for any review of the literature.

Define the Topic or Research Question

The initial step of any literature review involves defining the specific and unambiguous statement of review objectives or a research question (Neely et al., 2010). A good research question acts as a guide, clearly providing focused structure for the literature review process (Aveyard, 2010). Formulation of an appropriate research topic enables the reviewer to develop a plan of action for the literature search.

Identify the Relevant Information: Inclusion/Exclusion Criteria and Keywords

The second step of the review process involves establishing inclusion and exclusion criteria based on the variables of interest within the research question. This means knowing the characteristics of the subject population as well as variables relevant to the objective or research question. These variables are rigorously used to select studies for the review process (Hemingway & Brereton, 2009). The specifics of each study needs to fit the research question.

The reviewer also needs to identify all relevant information to be used in the literature search. Keywords are central to the search for studies considered relevant to the topic or research question studies; keywords are used to search different databases (Aveyard, 2010). The lexicon employed by the reviewer plays a crucial role in the literature search. The use of controlled vocabularies and natural language can be enhanced with a thesaurus in the search process (Lucas & Cutspec, 2005). Moreover, the operationalization of definitions can facilitate reader comprehension of the constructs that bear on the study. Interestingly, identifying the variables, keywords, and definitions can result in revisions prior to actual analysis of the aggregate studies.

Conduct the Literature Search

Logically, the next step of the review process is to conduct the search with the identified keywords. The search process involves a combination of many search tactics that include hand searching key journals and books, accessing the many electronic literature databases, investigating reference lists, and scanning the World Wide Web via multiple search engines, the latter likely to also include grey literature (Hemingway & Brereton, 2010; Lucas & Cutspec, 2005). This search is cross-disciplinary in that studies from various specializations are included. For example, there are many journals within the broad disciplines of special education, allied health, and medicine as well as family-based and child-based psychology that may be relevant to some topics involving children with hearing loss.

Reviewers engage in careful record keeping of this labor-intensive and complex search process, partly to ensure readers of its breadth and depth. Graphic organizers, such as flowcharts, may facilitate reader understanding of how the published and unpublished studies were found, and then included or excluded as part of the literature search (Berkeljon & Baldwin, 2009).

A careful literature search necessitates the use of many search engines, electronic databases, and websites; these include non-English ones to minimize selection, language, and publication biases (Hemingway & Brereton, 2009). Although most databases necessitate paid subscriptions but do provide article abstracts, others offer access to full text published articles at no charge to the public. For studies relevant to families and their children with hearing loss, some frequently used and highly relevant electronic databases are listed in Figure 2.

Screen All and Exclude the Irrelevant Studies

When all papers are compiled and abstracts are read, the next step is to identify those studies potentially relevant to the research question (Hemingway & Brereton, 2009; Neely et al., 2010). After the studies are screened and the irrelevant ones excluded, then relevant papers are screened again to ensure consistent relevance to the research question and all identified variables.

Scrutinize the Relevant Studies

The next step occurs when remaining studies, the full-text relevant papers, are carefully read for their details and eligibility. At this point, two independent reviewers can ensure that those studies selected for inclusion are consistent with the research question and protocol. This is when assessment of each study begins and the data extracted from the selected studies are collected in some organized fashion. Using a critical appraisal framework, the methodological quality, relevance, and credibility of each paper is determined. Based on

CIRRIE (Center for International Rehabilitation Research Information and Exchange)

CINAHL (Cumulative Index to Nursing and Allied Health Literature)

ERIC (Educational Resources Information Center)

MEDLINE (includes PubMed)

National Technical Information Service Library

PsyINFO (under the auspices of the American Psychological Association)

REHABDATA (under the auspices of the National Rehabilitation Information Center)

Family and Society Studies Worldwide

PLoS (Public Library of Science)

GOOGLE Scholar

Science Direct

Web of Science

Figure 2. Selected list of electronic databases

this qualitative level of assessment, all biases are noted and poor quality studies are excluded.

Extract Data and Develop Graphic Organizers

Remaining studies are determined to be relevant, credible, and essentially of sound methodological design. Reported findings from these studies are extracted onto a data extraction form. For this tabulated data, visual clarifiers can be developed to facilitate knowledge of the similarities and differences between the relevant studies. Graphic organizers summarize the important variables extracted across studies. When data are extracted for analysis and synthesis, the different studies may vary considerably. It is at this point that the determination is made as to whether a meta-analysis is appropriate or not. If the aggregate subjects or studies are few in number or if the studies vary considerably across variables, then a meta-analysis is not warranted. If the reviewer determines that the aggregate studies do not provide sufficient evidence, then it is important to present that finding however difficult it may be publish (Alderson & Roberts, 2000).

Synthesize the Findings

Again, with two independent reviewers, findings from each study are aggregated to produce a "bottom line" on the clinical effectiveness, feasibility, appropriateness, and meaningfulness of the intervention (Hemingway & Brereton, 2009). The pooled findings are referred to as *evidence synthesis*. If the

studies involved qualitative data or did not include a large enough body of quantitative data, then a meta-synthesis is provided in the literature review. However, if the studies involved sufficient and homogenous quantitative data, then a meta-analysis is conducted (Hemingway & Brereton, 2009).

Develop Conclusions and Recommendations

The last part of a good literature review, regardless of whether it is qualitative or quantitative, provides an impartial summary description of the evidence generated by each relevant and credible study. Findings discuss issues such as the quality and heterogeneity of the included studies, the likely impact of bias, and the chance and applicability of the findings. The interpretive reporting of these multiple studies, both analysis and synthesis, minimizes biases and provides insightful, explicit judgments that may facilitate new directions in thought, both for practice and research (Hemingway & Brereton, 2009).

Most literature reviews typically warrant improvement and updating at least every few years, if not more frequently, depending on the number of studies generated since the last exhaustive summary of the literature. It is important that authors adhere to the standards and guidelines for reviewing the literature. Although all studies have limitations or flaws, these studies can provide important information (Hemingway & Brereton, 2009). However, some systematic reviews have been found to be more wanting than others are, hence not as reliable or as effective as other literature reviews. Thus, it is important that prospective authors develop awareness of the problematic issues noted in the reviews.

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