A Methodologically Inclusive Model for Research Synthesis

Harsh Suri DSME,
University of Melbourne

Email: H.Suri@edfac.unimelb.edu.au


Abstract

This paper is an attempt to raise the debate about rigour in research synthesis from the level of methods to the level of paradigms. It is an attempt to provide recognition to the issues of rigour in research syntheses; identify common assumptions underlying research syntheses; bring together different methods of synthesising research under the umbrella of research synthesis; and explore some features that may improve quality in research syntheses. There are several questions that need to be addressed further. Perhaps this paper will contribute to improving quality in research synthesis by leaving the readers with more questions than answers.

This paper builds on a paper presented at AARE 1998 in which I critiqued the contemporary methods of research synthesis. Last year after my AARE presentation Dr Trevor Gale (1998) asked me where would I position myself in the context of different methods of research synthesis. Later in an informal discussion he explained his point further by giving me an analogy in which he likened many beginning Ph D students to shoppers moving with trolleys in a supermarket. They get attracted to several items placed on the shelves and try to have a little bit of everything. Trevor cautioned me against the temptation of wanting a little bit of every research method. One year later, I feel I am in a better position to answer this question.

I am a pragmatist wanting to concentrate my efforts on the enterprise of synthesising research reports stemming from a spectrum of diverse methodologies and paradigms. Now I better understand the complexities of combining different methods, their incompatibilities as well as complementarities.

The drive to support a methodologically inclusive model for research synthesis comes from a desire to overcome some of the ostensible divisions between quantitative and qualitative, scientific and humanistic, aggregative synthesis and interpretive synthesis. This model attempts to create a conceptual space that interconnects quantitative and qualitative methods of research synthesis. It is also an attempt to create a common space for the methodological tools and techniques employed in research synthesis and primary research. The model makes suggestions to facilitate a fuller understanding of the phenomenon under investigation by analysing reports that are examining different aspects of the phenomenon in
varied contexts. It explores effective ways of communicating this understanding succinctly to practitioners, policy makers and researchers. It is an attempt to see beyond the dichotomies, an attempt to look for harmonies and shared grounds. This interconnection, I believe, could inform all the domains of research, policy and practice.

Operationalising the terms:

\textit{Research synthesis and research synthesist:}

Two decades ago, most reports based on the evidence provided in reports of primary research studies were referred to as "research reviews" and the individuals reporting them were called "research reviewers". No formal distinction was made between the "literature reviews" reported by researchers to contextualise their primary research studies and those "reviews of literature" aiming to communicate insights and understanding gained by analysing the findings from reports of various primary research studies. As researchers sought more systematic methods of synthesising research, they referred to their approaches by different names such as meta-analysis, best-evidence synthesis, meta-ethnography, or research synthesis. In this paper the term "research synthesis" is inclusive of every method of systematically examining the literature in an area as an end in itself rather than a means to an end. It is used to distinguish such efforts from literature reviews that are means to the end of contextualising a primary research study. The term "research synthesist" is used to refer to the person involved in conducting a research synthesis.

A paradigm for research synthesis

When several people start applying a new set of assumptions that can be transferred across studies to such an extent that they almost become standard assumptions, a new paradigm is developed (Kuhn, 1970).

A paradigm determines the criteria according to which one selects and defines problems for inquiry and how one approaches them theoretically and methodologically. (Husen, 1999, p. 31)

I believe that the field of research synthesis has reached that stage. Substantial literature is available under various headings such as meta-analysis, best-evidence synthesis, meta-ethnography, research synthesis in an interpretive framework, meta-synthesis, or common biases and errors in research reviews. I wish to explore some assumptions common to all these approaches.

- Findings from reports of several primary studies can be used as evidence to facilitate a better understanding of a complex phenomenon in education.
- Research syntheses play an important role in dissemination of knowledge and in shaping further research, practice, and policy making.
- Therefore, the issues of rigour and quality are crucial in every research synthesis.
- Several decision points and judgement calls are an inherent part of every quality research synthesis.
- Communicating the product of the synthesis is not enough. To improve the transferability of the product of a research synthesis, the synthesist must explicitly delineate the process of making decisions at various stages of the synthesis process.
- The metaphor of primary research is a useful metaphor to describe the process of a systematic research synthesis for several reasons. Research syntheses make comparable demands in terms of efforts and resources. Their primary purpose is to facilitate a fuller understanding of educational phenomena. Research synthesists generally have prior background of conducting primary research. Hence their thinking
is informed by methodologies employed in primary research. There is a growing awareness among research synthesists about the need to share their strategies to improve the craft of research synthesis.

Combining evidence from different paradigms and methodologies

In a recent conversation, a post-positivist colleague expressed his discomfort to me over the notion of combining evidence across positivist and post-positivist paradigms since the two paradigms are epistemologically and ontologically diametrically opposite. I was given the common debate on how the two paradigms differed.

<table>
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<tr>
<th>Positivist Perspective</th>
<th>Post-positivist Perspective</th>
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<tr>
<td>Seeks &quot;the truth&quot;. The truth is out there that can be objectively measured; realist perspective.</td>
<td>Multiplicity of reality; recognises the researcher as an instrument; reality is contextual and the complexities are embedded in contexts.</td>
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<tr>
<td>Causal-theories; predictive and inferential power</td>
<td>Pattern-theories; facilitates understanding</td>
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I was reminded about the Kuhnian argument that the Earth can't be flat and round at the same time. One cannot live in two paradigms.

Before expressing my interpretive effort to find shared spaces between the two paradigms, I wish to acknowledge that the argument was very useful to me because it helped me to contextualise myself better in the contemporary debate of paradigms. In defence of my position, I feel that the argument itself is positivist and is more applicable to physical science rather than social science. In a post-positivist paradigm, two counter-arguments come straight to mind. First, Kuhn's perspective on paradigm shift is only one instance of multiple reality. Also, in a post-modernist perspective, it does not have to be a case of "either/or". It can be "both/and". At this stage I wish to make it clear that I do not position myself in the post-modernist paradigm. The concept of methodological rigour in research syntheses, and attempts to rationalise and systematise the process are not compatible with a post-modernistic worldview. Yet I am not averse to making use of some ideas originating from the post-modernist paradigm.

The second point is illustrated with the help of the example mentioned by my colleague. In the worldview of several people, especially young children, the Earth is flat. This is their reality. This view of reality helps them to understand what they see around themselves. However, the fact that the Earth is flat cannot explain several phenomena to other people. And they had to reject the fact that the Earth is flat in favour of the fact that the Earth is spherical. The fact that the Earth is spherical with a very large circumference can explain why some people perceive the Earth as flat. For most of us, we can work as if the Earth is flat in dealing with everyday problems such as levelling surface, while believing that the Earth is spherical for air travel. We hold both views simultaneously and use them in different contexts. Each of these views is legitimate and valid for those who hold them because their perspective helps them to understand their surroundings better.
A research synthesis positioned in a positivist paradigm cannot accommodate evidence from a post-positivist perspective. However, a methodologically inclusive research synthesis situated in a post-positivist paradigm can include findings from reports stemming from the positivist paradigm. Each such report can be taken as an instance of multiple reality reflecting the perspective of that researcher.

Also, the initial argument implied the two paradigms as being mutually exclusive, which perhaps was more prevalent two decades ago. These days, the perspectives as outlined by my colleague represent the two ends of a continuum. Most research studies are placed somewhere in between these two extreme positions. Many researchers using experimental and quasi-experimental designs acknowledge the influence of contextual properties on their findings. The notion of "local theories" is one outcome of such thinking. In educational research, reports of many recent studies that use statistics and quantitative methods of data-analysis include phrases like "in this context, we found …", "conclusions from this sample reveal …".

Not excluding studies because of their methodological or paradigmatic positioning is one of the features that I hope will be agreed upon by those committed to the cause of research synthesis. Some other desirable features of a quality research synthesis may include the recognition that research syntheses can have a variety of purposes, different methods of research synthesis are suitable for different types of synthesis questions, and the purposes of primary research studies and research syntheses can be complementary with no implicit hierarchy.

**Variety of purposes for research syntheses**

The main question of the synthesis can be decided a-priori or can be developed along the way. The purpose can be to verify a theory or a post-positivist question such as to facilitate an understanding. It is also possible to start with one type of broad purpose and to develop subsidiary questions of different types as one proceeds in the journey of synthesis. Some considerations that may guide the process of deciding a research question include the following. These considerations are applicable not only in phrasing of the main question, but also while phrasing the ancillary questions.

*Current state of research-syntheses in the field*

A field may require a particular type of synthesis because other types of synthesis have already been conducted. At times one may need to build on or update prior syntheses conducted in the field.

*Current state of research in the field*

- An aggregative synthesis may be applied to a homogenous set of evidence. Heterogenous findings from disparate methodologies and examining different concepts may be more amenable to an interpretive synthesis.

  - Predominant paradigms employed in primary research may influence the paradigmatic positioning of a research synthesis.
  - An exploratory synthesis is required in a field to identify strands of research worth pursuing if the field has not been researched much. In an area that has been researched well, a confirmatory synthesis or a synthesis to systematically examine the commonalities and variations obtained from the evidence of different primary research reports may be required.
In a field where there is consensus on the desired outcome of educational process a meta-analysis or an aggregative synthesis may be useful. But in an area like online-courses, where the students and the instructors tend to have diverse conceptions of teaching and learning, an interpretive synthesis may be more suitable that can create common spaces of understanding and identify existing tensions.

Available Resources: Time and funding

As with primary research, research syntheses are also often bound by the constraints of time and funding.

Utility and Target Audience:

The synthesist must ask the question, "What contribution will this synthesis make?" This will be guided by what is needed and also the synthesist's research disposition and worldview and target audience. The target audience could be broadly classified into four categories.

- Practitioners
- Undergraduate students, laypersons and those with peripheral interest in the field who are interested in getting an overall picture without getting into all the intricate details
- Researchers interested in the field
- Policy makers

Diverse approaches to the process of research synthesis

While raising the issue of rigour in research syntheses to a paradigmatic level, this paper also recognises the scope for methodological variations across different research synthesis methods. Several methods of primary research with diverse research purposes and using various procedures of sampling and data-analysis coexist under the wide umbrella of the post-positivist paradigm. In a similar way, several methods of research synthesis can be brought together under the paradigm of research synthesis. Methods of research synthesis that have been formally proposed in the literature include: meta-analysis, best-evidence synthesis, meta-ethnography, interpretivist-oriented review, and meta-synthesis of qualitative findings. Each of these methods is more suitable in particular contexts for specific purposes. No one method is superior to the rest for addressing all types of synthesis questions. A multi-method approach to research synthesis may be used to address different types of questions within the same synthesis [see Suri (1998) for a critique of the contemporary methods of research synthesis]. Possibilities for improving the craft of research synthesis might also include a systematic examination of the implications of adapting various techniques of primary research, such as historiography, grounded theory, content analysis, and case study method, to the process of research synthesis.

Complementarity of research synthesis and primary research

Research syntheses have often been questioned for the validity and legitimacy of their conclusions. A criticism often raised is that research syntheses fall short in comparison with primary research studies on the issues of validity. One response is that primary research and research syntheses have different purposes and ask different questions. Contributions of neither domain should be marginalised. While primary researchers collect their evidence from the field, research synthesists build their interpretations from the evidence found in the reports of primary researchers. Research synthesis products are the interpretations of the interpretations of primary researchers as reported by them. In this sense, research synthesists apply a hermeneutic-like approach to create an understanding of the
understandings of the phenomenon under investigation held by different primary researchers. As in a hermeneutic approach, a research synthesis process should be non-sequential and may follow a hermeneutic-circle like approach. The purposes of primary research studies and research syntheses can be complementary, where each domain informs the other, with no implicit hierarchy.

Summary:

This paper is an attempt to raise the debate about rigour in research synthesis from the level of *methods* to a level of *paradigms*. This is a humble attempt to provide recognition to the issues of rigour in research syntheses; identify common assumptions underlying research syntheses; bring together different methods of synthesising research under the umbrella of research synthesis; and explore some features that may improve quality in research syntheses. There are several questions that need to be addressed further. Perhaps this paper will contribute to improving quality in research synthesis by leaving the readers with more questions than answers.

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