Systematic quantitative literature reviews
What are they and why use them?

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Resources


Lots resources on our method at - http://www.griffith.edu.au/environment-planning-architecture/griffith-school-environment/research/systematic-quantitative-literature-review
Literature review

- **Process** – gain understanding of the existing literature and how your research will contribute to it.
- **Product** – demonstrate this in the document

Different audiences for literature reviews include – industry/company, academic, consultancy, government.

Relationship between thinking, knowledge production and writing...

Literature reviews.....

We all produce them...
1. But what is my topic?
2. How do I do them?
3. What method are available?
4. How do the methods differ?
5. Why should I consider doing a......

   Systematic Quantitative Literature Review?
Common things in reviews

- Define terms
- Justify selection of literature – it cannot be everything...
- So also...justify omissions
- Have a clear structure and let the reader know about it early in the text (could be historical, conceptual or methodological)
- Link your work with the literature
- Critique the literature
- Define the gap

Criteria for evaluating literature reviews

(Boote and Beile 2005)
Coverage
- Is there well justified criteria for inclusion and exclusion of literature?
Synthesis
- Does it distinguish what done from what needs to be done?
- Does it place topic in broader scholarly literature?
- Does it place topic in historical context of field?
- Has the writer acquired and enhanced subject vocabulary?
- Articulated the important variables and phenomena?
- Synthesized and gained a new perspective on literature?
Criteria for evaluating literature reviews
(Boote and Beile 2005)

Methodology
• Identified main methods and techniques (advantages/disadvantages)
• Related ideas and theories to these

Significance
- Practical significance of the topic
- Scholarly significance of the research

Rhetoric
• Writing coherent, with a clear structure and style?

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Lets start by working out what you are going to review

• Focus on your topic
• What broad discipline areas?
• How do they fit together?
• What literature do I need to read?
• What is it an important topic?
• How do I structure/justify the topic?
Evaluate/synthesis/analysis topics related to your research question

1. What's my question and what disciplines are involved?
2. What's the literature I need to review?

3. How do I structuring my literature review?
   Turning circles into a triangle

The literature to review

Your research

The text of the literature review

Aims
What methods are available?

1. Traditional narrative
2. Meta-analysis
3. Systematic quantitative literature review

What about the traditional non-systematic narrative review?

It involves...
- Reading as much literature as possible
- Assessing its importance
- Constructing carefully argued narrative of your analysis of the current status of research
A method for qualitative/narrative reviews

- Create an audit trail
- Define the focus of review
- Search for relevant literature
- Classify documents
- Create summary database
- Identify constructs and linkages
- Search for differing opinions
- Corroborate by checking with others...

Evaluating papers

Think about and make notes/database on...

- What were the aims/objectives of the research?
- What were the outcomes?
- What approaches/methods/strategies were used?
- What was the context of the research?
- How does it contribute to the field?
- Is it connected to my research question, and how?
What about systematic approaches?

• Reproducible
• Rigorous
• Comprehensive
• Clear rules for inclusion/exclusion of literature

Maybe try a Meta-analysis?

- Statistical method for combining results from separate studies to assess effect size often using weighted average.
- Often need studies with similar methodology, similar subjects and similar response variables.
- Common in health sciences and many other areas when enough suitable datasets.
- Can need team of experts and lots of time!

Examples of systematic reviews using meta-analysis

Cochrane Databases of systematic reviews (mostly health care but also social)

Campbell Collaboration – public policy interventions (crime, education, social welfare etc)

Cochrane and Campbell reviews

• Clear rules regarding methods
• Need to have proposed methods registered and evaluated before commencing
• Often costly/time consuming (>\$50,000)
• Require team of specialists, including discipline area, but also information specialists, statisticians, and researchers with expertise in these reviews

So what about using a systematic quantitative literature review?

Mapping the discipline...

1. Systematic = methods to survey literature and select papers to include are explicit and reproducible
2. Quantitative = measure of the amount (number of papers) of research within different sections of topic
3. Comprehensive = assesses different combinations of locations, subjects, variables and responses
4. Structured = working out what is important about the literature (categories/subcategories) - collecting, analysing literature, and writing follows clear steps
Easier step by step process for collecting, analysing the data and the writing the review

Step 1: Define topic
Step 2: Formulate research questions
Step 3: Identify keywords
Step 4: Identify & search databases
Step 5: Read & assess publications
Step 6: Structure database
Step 7: Enter first 10% papers
Step 8: Test & revise categories
Step 9: Enter bulk of papers
Step 10: Produce & review summary tables
Step 11: Evaluate key results & draft results section
Step 12: Draft methods
Step 13: Draft introduction
Step 14: Draft discussion & abstract
Step 15: Revise document till ready for submission

Summary of the different methods

<table>
<thead>
<tr>
<th></th>
<th>Traditional narrative</th>
<th>Systematic quantitative</th>
<th>Meta-Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Who commonly does the reviews?</strong></td>
<td>Experts &amp; new PhD students</td>
<td>PhD students &amp; others</td>
<td>Teams of experts</td>
</tr>
<tr>
<td><strong>How can usually publish them</strong></td>
<td>Experts</td>
<td>PhD students &amp; others</td>
<td>Teams of experts</td>
</tr>
<tr>
<td><strong>How papers selected</strong></td>
<td>Rarely systematic</td>
<td>Systematic</td>
<td>Systematic</td>
</tr>
<tr>
<td><strong>Compiling data on papers</strong></td>
<td>Rarely systematic</td>
<td>Systematic</td>
<td>Systematic</td>
</tr>
<tr>
<td><strong>Comparing papers</strong></td>
<td>Expert evaluation</td>
<td>Quantitative or expert evaluation</td>
<td>Expert evaluation</td>
</tr>
<tr>
<td><strong>Statistical analysis</strong></td>
<td>No</td>
<td>If want to</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Gap analysis</strong></td>
<td>Descriptive</td>
<td>Quantitative</td>
<td>Descriptive</td>
</tr>
<tr>
<td><strong>Structure of the document</strong></td>
<td>Narrative</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Easy for updating</strong></td>
<td>Limited</td>
<td>Easy</td>
<td>Re do statistics</td>
</tr>
</tbody>
</table>
Method with benefits...

1. Straight forward structure/process for undertaking and writing review
2. Maps the literature by – finding geographic, scalar, theoretical and methodological gaps
3. Identifies unknown unknowns
4. Can be rapidly turned into academic paper
5. Database can be easily updated
6. Database useful for intro/discussion of other papers/later research
7. Easier latter as do not have to re-read the whole literature again!

Systematic quantitative literature views works for students

Averaging 33 citations per year for each paper
So how do you do it...


Includes –
1. Youtube videos on each stage,
2. Papers outlining the approach,
3. Papers published using the method,
4. Youtube videos of students talking about the method
5. Example excel databases
6. Youtube video on why publish during your PhD

Also article in The Conversation -
But I will summarise it for you now!

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Being systematic

- **Step 1**: Define topic
- **Step 2**: Formulate research questions
- **Step 3**: Identify keywords
- **Step 4**: Identify & search databases
- **Step 5**: Read & assess publications
- **Step 6**: Structure database
- **Step 7**: Enter first 10% papers
- **Step 8**: Test & revise categories
- **Step 9**: Enter bulk of papers
- **Step 10**: Produce & review summary tables
- **Step 11**: Evaluate key results & draft results section
- **Step 12**: Draft methods
- **Step 13**: Draft introduction
- **Step 14**: Draft discussion & abstract
- **Step 15**: Revise paper till ready for submission
Being systematic when fishing

Aim: need to catch all the specified fish, but not spend forever, and minimise bycatch.

Questions

Why fish?: Aims and research questions
What fish?: Papers vs books, thesis, reports and other grey literature, other languages etc
What nets to use?: Are there keywords that work?
Title+Keywords+Abstract vs whole paper?
Where to fish?: Which Databases and how do they differ?, How long to fish?: When have you found all the specified fish?

Step 1. Define topic

Works well for

- Emerging areas, and
- Topics where methods so diverse cannot do meta-analysis
- Trans-disciplinary fields

Some examples

- Assessing Spoken Language Outcomes in Children with ASD: a Systematic Review
- Past results and future directions in urban community gardens research
- Blue carbon: Knowledge gaps, critical issues and novel approaches
- Climate Change, Energy Policy and Justice: A Systematic Review
- A review of global diversity in avian haemosporidians (Plasmodium and Haemoproteus: Haemosporida): new insights from molecular data
- Are Weeds Hitchhiking a Ride on Your Car? A Systematic Review of Seed Dispersal on Cars
Step 2. Formulate research questions

...e.g...
1. When and who has done research
2. Geographical spread of research
3. Types of methods used
4. Types of subjects examined
5. Types of variables measured
6. Different disciplines assessing the topic,
7. Patterns found in results
8. Key research gaps

Step 3. Key words

• Need to identify relevant literature, but not lots and lots of irrelevant literature
• Trial and error
• May need synonyms
• Talk to university librarians

Example... (also use wildcards)
Step 4. Search databases relevant to your field

1. Web of Science
2. Google Scholar
3. Science Direct
4. Scopus,
5. ProQuest
6. Web of Knowledge
7. Sage
8. Bio Med
9. Hein Online
10. Westlaw
11. OVID
12. EBSCOHost

Record info for PRISMA statement

Step 5. Read and assess papers

For each publication:
• Is it relevant?
• Abstract for some, whole paper for others
Need criteria for inclusion – reproducibility
• Original research papers only? (may want to limit to certain types of research)
Use reference lists and citations of the paper to cross-check you have all (most!) papers – that its systematic.

How many relevant papers did you find?
• If <15 papers – narrative might be better, or broaden topic
• If ~>300 may need to narrow topic

Creating your own database
Step 6: Structure database

Work out categories and subcategories...
This provides structure for the review
Include data on..
Who does research, where, using what methods, what response variables, what subjects, what types of analysis was used, what found?

Excel works well but can use other programs
• Each paper is a row
• Categories/subcategories are columns

Categories about the paper

Full reference details: Authors names
Year, Journal title, Journal discipline, Article research discipline

Categories about geographic location of research
City, State, Country, Continent, Climatic zone, General habitat types, others
**Categories for subjects of research**

For Birds
- Number and name of bird species assessed.
- Conservation status of the birds?
- Type of foraging guild?

**Categories for response variables**

For birds
- Individual response? (physiological or behavioural),
- Population level response? (density/abundance),
- Reproductive response? (number of nests, number eggs laid, number of chicks that hatched or fledged)?

**Categories about the methods used**

What you include depends on the discipline...... Some examples...
- Observational vs experimental?
- Was it a BACI design or what.. What statistics were used....?
- Natural science, social science or mixed?
- Which qualitative approach(es)? (interviews, content and text analysis, case studies, observations, focus groups, archival research),
- Which quantitative approach(es)? (questionnaire surveys, field-surveys and samples, field experiments, GIS, remote sensing and satellite imagery)
- Which mixed approach? (including existing data base and records searches, or other literature analysis).
Weighting methods/studies.....

Weight studies by types of evidence?
1. Randomized control trials (number replicates, effect size etc)
2. Before, After, Control, Impact (BACI) experiments
3. Experiments with controls
4. Observational studies with ‘controls’, Quasi-experimental designs,
5. Observational studies without ‘controls’,
6. Cohort studies
7. Case studies

Can also use checklists to compare studies using similar methods – high, moderate and low quality....

Problem if interdisciplinary study in how to assess different types of evidence....

Categories for results

• Studied and discussed, or actually demonstrated?
• Outcomes positive, negative, neutral, mixed or other?
• More detailed results – Statistically significant, size effect/number of replicates, power of analysis?
• Others?
Step 7. Enter around 10% of papers

Step 8. How well do the categories work?

- Are they to narrow or broad?
- Do you need additional values, new subcategories?
- Do the criteria apply to categories work in reality?
- Reflection now saves lots of time later!

Step 9: Enter rest of papers

- Again cross check your categories and criteria
- Check your database is comprehensive (reference lists)
Step 10: Produce and review summary tables so you can...

1. Check your database is accurate (entry errors)
2. Start to work out the most important results

A few examples of tables from papers...

<table>
<thead>
<tr>
<th>Country</th>
<th>Community Gardens</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>51</td>
<td>119</td>
</tr>
<tr>
<td>Australia</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>Canada</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>UK</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>South Africa</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Singapore</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Cuba</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mexico</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Israel</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Brazil</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Other Africa</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>195</td>
</tr>
</tbody>
</table>

Where studies?

# papers on community gardens by countries and # countries authors from (based on author affiliations).

Figure 1. Location in USA of gardens in the literature.
### Definitions used in papers

<table>
<thead>
<tr>
<th>Category</th>
<th>Total USA</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of gardens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>31</td>
</tr>
<tr>
<td>Typology</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Food produced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>75</td>
<td>46</td>
</tr>
<tr>
<td>Food only</td>
<td>47</td>
<td>22</td>
</tr>
<tr>
<td>Food and flowers</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>Food &amp; revegetation</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Not specified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Methods used in papers

<table>
<thead>
<tr>
<th>Category</th>
<th>Total USA</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social science</td>
<td>76</td>
<td>43</td>
</tr>
<tr>
<td>Natural science</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mixed</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview</td>
<td>53</td>
<td>28</td>
</tr>
<tr>
<td>Case study</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td>Observation</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>Survey</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>Text analysis</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Focus groups</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Natural science</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Type of data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative</td>
<td>51</td>
<td>28</td>
</tr>
<tr>
<td>Quantitative</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Both</td>
<td>31</td>
<td>19</td>
</tr>
</tbody>
</table>

### Number of papers by discipline and results

<table>
<thead>
<tr>
<th>Journal discipline</th>
<th>Negative</th>
<th>Positive</th>
<th>Neutral</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>US</td>
<td>Other</td>
<td>Total</td>
</tr>
<tr>
<td>Social</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Enviro. &amp; planning</td>
<td>16</td>
<td>5</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Economy</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>17</td>
<td>7</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Biology</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>35</td>
<td>32</td>
<td>5</td>
</tr>
</tbody>
</table>
3. Writing the review

Although it's a literature review, it could have a standard paper structure:

<table>
<thead>
<tr>
<th>Sections</th>
<th>Order written</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>7</td>
</tr>
<tr>
<td>Introduction</td>
<td>3 (aims) 5/6 rest</td>
</tr>
<tr>
<td>Methods</td>
<td>1</td>
</tr>
<tr>
<td>Results</td>
<td>2</td>
</tr>
<tr>
<td>Discussion</td>
<td>5/6</td>
</tr>
<tr>
<td>Conclusion</td>
<td>4</td>
</tr>
<tr>
<td>Reference</td>
<td>8</td>
</tr>
</tbody>
</table>

More time thinking about what to say = less time writing.
Step 11: Methods

Need details about
• Key words
• Databases searched
• PRISMA statement
• Criteria for using a paper
• Categories/subcategories – what, why and how values assigned
• Data analysis/issues examined

Step 12: Key results are....

So what was the
• Breadth?
• Depth?
• Methods?
• Main results?
• Key gaps?
Of research on this topic currently....
Results need to match research questions – so update as required
Revising your Aims so match the results

Update your aims. They are the last paragraph of the introduction – often a list of aims

This paper assesses....

1.
2.
3.
4.

Mind map what you need to say in the rest of the paper before writing

12: Writing the Results

Results should document – quantitative!
1. How many papers?
2. Who publishes?
3. Where has research been done?
4. What disciplines do research on this topic?
5. What methods are used?
6. What's been found/demonstrated?
7. What's missing – gaps?
Text to highlight key results from tables...

The golden thread
13. Introduction

• Carefully stepped out argument from the most general to the most detailed – e.g. your aims
• ~4-5 paragraphs for a paper, longer for a thesis/report?
• Remember its a stepped argument, so everything needs to lead to the aims...
• Which need to be good and match what you actually did and found....

14a. Discussion

• Discuss the results in relation to the literature...
• For this literature review discuss the implications of what you found.

  e.g. From Guitart et al. it was...
  1. Community gardens literature is geographically limited
  2. Community gardens literature is diverse
  3. Current research reflects USA social-political context
  4. Future directions
14b. Abstract

Word limit
Make every word count
Remember it's not your aims it's everything so need methods, results, discussion and conclusion in there...

Step 15: Revise the paper till ready for submission

More practice = fewer drafts – but few people get it right first go as different drafts have different functions.

• Early-drafts are about getting the information on paper
• Mid-drafts are about working out a better way to convey the information
• Later-drafts are about checking it’s all there and polishing.
So as you can see...

1. Straight forward structure/process for undertaking and writing review
2. Maps the literature by – finding geographic, scalar, theoretical and methodological gaps
3. Useful to demonstrate what you will do in your PhD
4. Can be rapidly turned into paper
5. Database can be easily updated
6. Database useful for intro/discussion of other PhD papers
7. Easier to use for final thesis without having to re-read the whole literature again!

Remember the supporting material


Includes –
1. Youtube videos on each stage,
2. Papers outlining the approach,
3. Lots papers published using the method,
4. Youtube videos of students talking about the method
5. Youtube video on why publish during your PhD
6. Example databases

Pass on link to others who may find useful!
How to find the knowns and unknowns in any research

AUTHORS

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DISCLOSURE STATEMENT

Jason Byrne has received consulting funding from the Queensland Government and US National Park Service. He is a member of The Greens and the Gold Coast and hinterland Environment Council (GECVC) as well as the Planning Institute of Australia, Institute of Australian Geographers, Association of American Geographers, International Urban Fellows Association and Society for Human Ecology.

Hopefully soon this is you.....
The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers

Catherine Pickering* and Jason Byrne

Environmental Futures Research Centre, Griffith University, Queensland, Australia

Universities increasingly expect students to publish during a PhD candidature because it benefits the candidate, supervisor, institution, and wider community. Here, we describe a method successfully used by early-career researchers including PhD candidates to undertake and publish literature reviews— a challenge for researchers new to a field. Our method allows researchers new to a field to systematically analyze existing academic literature to produce a structured quantitative summary of the field. This method is a more straightforward and systematic approach than the traditional ‘narrative method’ common to many student theses. When published, this type of review can also complement existing narrative reviews produced by experts in a field by quantitatively assessing the literature, including identifying research gaps. The method can also be used as the initial step for further analysis, including identifying suitable datasets for meta-analysis. Students report that the method is enabling and rewarding.

Keywords: doctoral education; PhD students; publication output; research student; thesis

Introduction

‘Publish or perish’ has become the dogma in many Australian universities (Bretag, 2012). New imperatives from university management to publish research papers are linked to measures of personal and institutional performance. These ‘performance-based’ imperatives have followed Australia’s adoption of a research quality framework and mirror the metrics underpinning international institutional rankings (Academic Ranking of World Universities, 2011). These recent developments in the academy have, arguably, ushered in a new ‘corporatised managerialist era’ of academic publishing (Norrie, 2012). And the imperative to ‘publish or perish’ now extends to PhD student publications, which are increasingly expected during a candidature (Lee & Kamler, 2008; Robins & Kanowski, 2008; Wilson, 2002).

To boost publication output, many universities now provide practical support for early-career researchers, including PhD students. This support includes greater involvement of supervisors in the publication process; publication workshops; writing groups; and other types of practical training (Lee & Kamler, 2008). Recent research suggests that many benefits accrue from such programmes, especially increasing publication rates (McGrail, Rickard, & Jones, 2006). We are actively involved in this process with our own students, but also provide advice and run publication workshops for other early-career researchers. We have found that publishing during candidature has direct and tangible benefits for PhD students, including increasing research

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Publishing not perishing: how research students transition from novice to knowledgeable using systematic quantitative literature reviews

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Current understandings suggest that three aspects of writing practice underpin the research student publication process: knowledge creation, text production and identity formation. Publishing a literature review is the first opportunity most students have to publish. This article compares the pedagogical benefits of different literature review methods. It discusses why narrative reviews are challenging for novices both in terms of process and outcomes (publications) whereas other types of reviews, such as meta-analyses, are the province of multi-skilled teams working intensively for extended periods. Case studies are used to highlight how a new systematic quantitative literature review method, developed for the social and natural sciences, is beneficial as students can more readily create knowledge, produce text, and so transition from novice to knowledgeable and publish rather than perish.

Keywords: narrative literature review; meta-analysis; PhD students; postdoctoral study

Introduction

Academies and academic institutions are increasingly evaluated on their publication outputs using a range of indices (Lawrence 2003; Linton, Tierney, and Walsh 2011; Shilton, Poland, and Goretsky 2009). Various measures of performance and impact now allow the ranking of intellectual capital, and of individuals competing for limited funding and employment (Fanelli 2010; Nicolini and Nozzo 2008; Young, Ioannidis, and Al-Ubaydi 2008). For this reason, there is now considerable pressure in academia not only to publish, but to publish in high-ranking journals (Bretag 2012; King 2004). This focus on publication is not limited to established researchers; institutions are increasingly encouraging, supporting, and in some cases, requiring research higher-degree students to publish during their candidature (Aitchison et al. 2012), because it increases the standing of the student, their supervisors, and the institution. A publication track record is also mandatory for early-career researchers in many disciplines, and affects their ability to secure their first academic position (Robins and Kanowski 2008; Wilson 2002). Because literature reviews are often the first output of researchers new to a field (Green 2009), methods that facilitate research

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Workshop on Systematic Quantitative Literature reviews

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Useful references for this workshop


Summarise the different but related topics for your research
Rubric for Assessing Literature Reviews

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coverage</td>
<td>Justified criteria for inclusion and exclusion from review.</td>
<td>Did not discuss the criteria inclusion</td>
<td>Discussed the literature included and</td>
<td>Justified inclusion and exclusion of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and exclusion</td>
<td>excluded</td>
<td>literature</td>
<td></td>
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<tr>
<td>2. Synthesis</td>
<td>Distinguished what has been done in the field from what needs to be done.</td>
<td>Did not distinguish what has and has</td>
<td>Discussed what has and has not been</td>
<td>Critically examined the state of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>not done</td>
<td>done</td>
<td>field</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Placed the topic or problem in the broader scholarly literature</td>
<td>Topic not placed in broader scholarly</td>
<td>Some discussion of broader scholarly</td>
<td>Topic clearly situated in broader</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>literature</td>
<td>literature</td>
<td>scholarly literature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Placed the research in the historical context of the field.</td>
<td>History of topic not discussed</td>
<td>Some mention of history of topic</td>
<td>Critically examined history of topic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acquired and enhanced the subject vocabulary.</td>
<td>Key vocabulary not discussed</td>
<td>Key vocabulary defined</td>
<td>Discussed and resolved ambiguities in</td>
<td></td>
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<tr>
<td></td>
<td>Articulated important variables and phenomena relevant to the topic.</td>
<td>Key variables and phenomena not</td>
<td>Reviewed relationships among key variables and phenomena</td>
<td>definitions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesized and gained a new perspective on the literature.</td>
<td>Accepted literature at face value</td>
<td>Some critique of literature</td>
<td>Noted ambiguities in literature and</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>proposed new relationships</td>
<td></td>
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<tr>
<td>3. Methodology</td>
<td>Identified the main methodologies and research techniques that have been</td>
<td>Research methods not discussed</td>
<td>Some discussion of research methods</td>
<td>Critiqued research methods</td>
<td>Introduce new methods to address</td>
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<tr>
<td></td>
<td>used in the field, and their advantages and disadvantages.</td>
<td></td>
<td>used to produce claims</td>
<td></td>
<td>problems with predominant methods</td>
</tr>
<tr>
<td></td>
<td>Related ideas and theories in the field for research methodologies.</td>
<td>Research methods not discussed</td>
<td>Some discussion of appropriateness of</td>
<td>Critiqued appropriateness of research</td>
<td></td>
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<td></td>
<td>research methods to warrant claims</td>
<td>methods to warrant claims</td>
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<tr>
<td>4. Significance</td>
<td>Rationalized the practical significance of the research problem.</td>
<td>Practical significance of research not</td>
<td>Practical significance of research</td>
<td>Critiqued practical significance of</td>
<td></td>
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<td></td>
<td></td>
<td>discussed</td>
<td>discussed</td>
<td>research</td>
<td></td>
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<tr>
<td></td>
<td>Rationalized the scholarly significance of the research problem.</td>
<td>Scholarly significance of research not</td>
<td>Scholarly significance of research</td>
<td>Critiqued scholarly significance of</td>
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<td></td>
<td></td>
<td>discussed</td>
<td>discussed</td>
<td>research</td>
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<tr>
<td>5. Rhetoric</td>
<td>Was written with a coherent, clear structure that supported the review.</td>
<td>Poorly conceptualized, haphazard</td>
<td>Some coherent structure</td>
<td>Well developed, coherent</td>
<td></td>
</tr>
</tbody>
</table>

Note: The column header numbers represent scores for rating dissertation literature reviews on 3-point and 4-point scales (endnote 4 explains our choice of these two types of scales). Adapted from Doing a Literature Review: Releasing the Social Sciences Research Imagination (p. 27) by Christopher Hart, 1999. London, SAGE Publications. Copyright 1999 by SAGE Publications. Adapted with permission.