Making Sense of Framework and Best Fit Framework Synthesis

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Trusted evidence.
Informed decisions.
Better health.
Conflict of Interest Statement

I have no actual or potential conflicts of interest in relation to this presentation. I am a co-originator of Best Fit Framework Synthesis but do not stand to gain materially from this presentation.

Andrew Booth
Overview of whole program

1-2 pm 28th October, 2021
Introduction to qualitative research and qualitative evidence synthesis
Jane Noyes, Professor in Health and Social Services Research and Child Health, Bangor University, UK

15th November, 2021
Question formulation and searching
Dr Andrew Booth, Reader in Evidence Based Information Practice & Director of Information, University of Sheffield, UK

13th December, 2021, 14:00 UTC [Check Timezone]
Selecting studies and assessing method
Jane Noyes, Professor in Health and Social Services Research and Child Health, Bangor University, UK

February 2022 – Thematic synthesis
March 2022 – Meta-ethnography
April 2022 – GRADE CERQual
May 2022 – Integrating qualitative and quantitative synthesises

20th January, 2022
Making Sense of Framework and Best Fit Framework Synthesis
Dr Andrew Booth, Reader in Evidence Based Information Practice & Director of Information, University of Sheffield, UK.
Key sources of information

Best Fit Framework Synthesis


Forthcoming Cochrane Qualitative Evidence Synthesis and Methods Handbook (eds. Noyes & Harden)

Chapter 9 - Framework Synthesis
Ginny Brunton, Andrew Booth & Chris Carroll.
Today’s Programme

• What is Framework Synthesis?
• The Principles of Framework Synthesis
• Strengths and Limitations of Framework Synthesis
• Recent Applications of Framework Synthesis
  Questions
• Best Fit Framework Synthesis
• Identifying Candidate Frameworks
• Selecting Candidate Frameworks.
  Questions
What is Framework Synthesis?

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What is a **Theory**, **Model**, **Framework**? etc

“a **theory** may be defined as a set of analytical principles or statements designed to structure our observation, understanding and explanation of the world… A “**good theory**” provides a clear explanation of how and why specific relationships lead to specific events”

“a **model** typically involves a deliberate simplification of a phenomenon or a specific aspect of a phenomenon. **Models** need not be completely accurate representations of reality to have value… **Models** can be described as **theories** with a more narrowly defined scope of explanation; a **model** is descriptive, whereas a **theory** is explanatory as well as descriptive”

“A **framework** usually denotes a structure, overview, outline, system or plan consisting of various descriptive categories, e.g. concepts, constructs or variables, and the relations between them that are presumed to account for a phenomenon. **Frameworks** do not provide explanations; they only describe empirical phenomena by fitting them into a set of categories”


In my “simple brain” – a **framework can be “static”**, a **model shows relationships** and a **theory explains how those relationships ‘work’**
Framework:
• Brain
• Eye
• Mouth
• Stomach

Model:
Eye ➔ ➔ ➔ ➔ ➔ ➔ Brain ➔ ➔ ➔ ➔ ➔ Mouth ➔ ➔ Stomach

Theory:
• The Eye sees the Ice Cream. The Eye sends signals to the Brain. The Brain pictures the Ice Cream as desirable and actions obtaining the Ice Cream. The Mouth consumes the Ice Cream. The Ice Cream is digested to the Stomach. (Programme Theory)
• Past Experience shapes Future Preference and Expectations (Mid-Range Theory)
What is Framework Synthesis?

“Systematic review method employed to address health care practice and policy. Adapted from framework analysis… used increasingly, using both qualitative and mixed-method systematic review methods”. (Brunton et al, 2020)

“The research question and the background theoretical and empirical literature shape an understanding of the issue… into an a priori conceptual framework, which develops iteratively as new data are incorporated and themes are derived from the data. Framework analysis presents an opportunity to use a ‘scaffold against which findings from the different components of an assessment may be brought together and organised’ (Carroll et al, 2011). Its flexibility captures new understanding as data is incorporated into the framework.” (Brunton et al, 2020)
Examples of Framework/Model types

Conceptual frameworks – e.g. “Khan AA, Bhardwaj SM. Access to health care. A conceptual framework”

Policy frameworks – e.g. NHS Modernization Agency Protocol Based Care

Logic models – Representations of Programme Theory

- Structural Logic Models – Inputs-Processes-Outputs-Outcomes
- Process Logic Models – Temporal or Developmental

Disease Trajectories – Stages of a Disease

Care Pathways – Diagnosis – Treatment – Rehabilitation etc

Matrices – Descriptive variables, Thematic variables or combined

May come from Primary Studies, Reviews, Policy documents
## Framework Synthesis: where it all began…..

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Construction of thematic categories into which data can be coded (Ritchie &amp; Spencer 1994)</td>
<td>Allows themes identified <em>apriori</em> to be specified as coding categories from the start</td>
<td>Formally separates deductive (coding) phase from inductive theme generation.</td>
</tr>
<tr>
<td>Five steps: 1. Familiarisation 2. Framework identification 3. Indexing 4. Charting 5. Mapping and Interpretation</td>
<td>Framework may come from: i. Background Literature ii. Researcher Experience iii. Stakeholder Consultation</td>
<td>Framework systematically identified from the literature “Good enough” framework that explains more than 50% of the data</td>
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</tbody>
</table>
Five stages of Framework Synthesis

1. **Familiarization stage:** Become familiar with current issues and ideas about the topic, by drawing iteratively on a variety of sources.

2. **Framework selection stage:** Choose an initial framework (e.g. conceptual or policy framework, logic model, causal chain or established theory) to explain the issue.

3. **Indexing stage:** Seek and screen studies and extract data using initial conceptual framework. Sort studies by their relevance to the review questions and by their main characteristics.

4. **Charting stage:** Analyze main characteristics of each study by grouping characteristics into categories and deriving themes directly from those data.

5. **Mapping and interpretation stage:** Consider derived themes against original research questions. Present findings from the review in various formats (e.g., forest plots, tables, figures, or narratives) for ease of reader interpretation.
Innovations in framework synthesis as a systematic review method

**Systematic review processes (Gough et al. 2012)**

1. Familiarisation
2. Framework selection
3. Indexing
4. Charting
5. Mapping & interpretation

**Temporal progression of review**

**Stages of Framework synthesis method (Ritchie et al. 2014)**
Key Points (Brunton et al, 2022)

- Framework synthesis offers synthesis approach **structured by a chosen theory**
- Allows organization and analysis of qualitative, quantitative or mixed method studies and data in **efficient and transparent** manner
- Selected theory may be **tentative, emergent, refined or established**
- Best-fit framework synthesis offers way to **refine an existing theoretical model** based on review data
- **Stakeholder engagement** can support theory development that is tentative or emergent
The Principles of Framework Synthesis

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Principles of Framework Synthesis

- **Transparent** – especially BFFS
- **Explicit** – both FS and BFFS
- **Theory-Led** – both FS and BFFS
- **Consultative?** – especially FS
- **Pragmatic?** – especially BFFS

**FS** = Framework Synthesis (Oliver et al, 2008)

**BFFS** = Best Fit Framework Synthesis (Carroll & Booth, 2011)
Time for a Poll!
Strengths and Limitations of Framework Synthesis

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Strengths

“Framework analysis [or synthesis]...is best adapted to research with specific questions, a limited time frame and issues that have been identified a priori”.

“FS approach allows a team to go beyond insights from isolated case studies by seeking to identify what is generalisable across multiple settings. By identifying patterns and themes from the synthesis, a [team] is able to formulate a well-conceived action plan to address system-wide considerations”.

Booth & Carroll (2015)
Framework operates as a window upon the data – assists team thinking when tackling the review.


Used 12-step guide to developing and implementing protocols from NHS Modernisation Agency (MA) and National Institute for Clinical Excellence (NICE) as an analytical framework.
Framework As Support

“We applied the best-fit framework synthesis method [70]. We chose the Consolidated Framework for Implementation Research (CFIR) [71] as the best-fit framework for this synthesis based on it being a germinal compilation of factors known to influence implementation and our aim being to systematically synthesize the factors known to influence the implementation of recovery-oriented services”. (Piat et al, 2021)
The logic model variant is indicated where theorising is relatively immature as it offers a ‘scaffolding’ framework while focusing on programme theory. Programme theories seek to explain how a particular improvement programme is conceived to work.....


A logic model framework synthesis is appropriate when a team has identified key elements of an intervention but not necessarily how these are interrelated. Elements of a logic model are ‘deconstituted’ to become fields in a data extraction form. Once extraction is completed, relationships identified from the data are depicted and a revised, expanded and tested logic model is ‘reconstituted’.

Booth & Carroll (2015)
Framework As Presentation (and Evaluation) Frame

...the proposed framework provides a visual representation of such components that can be adapted to local needs and the specifics of the evaluation study being implemented. Researchers and public health practitioners... can use the conceptual framework... to guide the development of evaluation studies and methods for assessing communication outcomes related to public health emergencies.

Limitations

• Can be time consuming (as all thorough qualitative data analysis methods) but may be quicker than others.

• Needs to be consider all data and ensure a rigorous process.

• Lacks theoretical underpinning of other qualitative approaches (e.g. grounded theory and meta-ethnography).

• Flexibility may encourage reviewers to take shortcuts

• “False starts” with inappropriate frameworks (especially when temporally inappropriate)

• May encourage reviewers to “squeeze” data into existing concepts rather than create new labels

• May require a “codebook” for agreement between coders and/or agreement with original model.
Frameowrk As Gallows!

WARNING: Frameworks are not value neutral.
• They may meet resistance from the target audience
• They may be discredited
• They may be out-of-date or obsolete
• There may be “framework fatigue”

Therefore the audience may throw away the synthesis “baby” out with the framework “bathwater”

TIP: Test the receptivity and credibility of proposed frameworks early
Recent Applications of Framework Synthesis

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“Comparison of findings from this QES with the multi-context review funded by the WHO, and with a single country QES for Kenya, co-produced by one of the authors, reveals some interesting insights. At a mid-range level, the same constraints pertain across geographical and cultural contexts; for example, how the availability of genuine choice is limited by the rapid onset of labour or by the occurrence of obstetric emergencies”.

“Specifically, however, transport options may differ across countries and arrangements for access to facilities may be organised differently. Prevailing religious beliefs may differ but the influence of religion, traditional beliefs and family attitudes typically combine to impact upon decision-making”.

Framework Used:

Reference:
“”We each extracted study data (qualitative themes/supporting quotations, and discussion) using …the framework, with supplementary sections for additional study data both within each of the three headings (organisational, environmental and individual factors) as well as data that did not fall within any of these”.

“Identified a framework… adapted from previous work by Greene 1991 and DeJoy 1996. This framework had been previously used to guide primary research on healthcare workers' perceptions of adhering to IPC guidelines (Moore 2005), therefore we believed it to be a reasonable fit for this review. This framework has three overarching domains to help us to explore the factors that impact on IPC adherence”.

Framework Used:
Theoretical Model to Explain Self-Protection Behaviour at Work (Moore, 2005)
Reference:
Adapting the Framework

**Organisational factors** (Safety climate, Specific health and safety programmes, Availability of training programmes)

**Environmental factors** (Physical environment, Availability of PPE)

**Individual factors** (Individual knowledge, Individual attitudes, Individual beliefs)

“All of our findings fitted beneath the three broad domains of the framework. However, we added one additional subdomain called 'Discomfort of PPE', which was captured under the domain of individual factors. In the final review stage, we relabelled one of the subdomains in the organisational factors domain from 'Specific health & safety programme' to 'Communication on IPC guidelines'. We made this change to enhance clarity and readability for all, but particularly for clinicians”.

Framework Used:
Theoretical Model to Explain Self-Protection Behaviour at Work (Moore, 2005)

Reference:
"We identified 544 unique third-order concepts from the included systematic reviews, which were reclassified into 45 fourth-order themes within the individual, interpersonal, community, institutional and structural levels of the model.”

“Using this approach, we found interdependence between factors influencing ART linkage, retention and adherence and identified the need for qualitative evidence that explores, in greater depth, the complex relationships between structural factors and adherence, sociodemographic factors …and the experiences of growing up with HIV in low- and middle-income countries—specifically in children, youth, women and key populations.”

Framework Used:
Kaufman HIV Behaviour Change model

Reference:
Pause for questions
Best Fit Framework Synthesis

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Best Fit Framework Synthesis

“Requires identification of a relevant framework, theory or conceptual model for particular health behaviours. This is then reduced to its key elements or variables, which form the themes of the a priori framework. Primary research studies for inclusion in the review are identified and selected by applying conventional systematic review methods. Evidence…is then coded against the themes of the a priori framework and new themes are generated from evidence not captured by this a priori framework. New themes are based on the reviewers’ interpretation of the evidence and constant comparison of new themes across studies”.

“…Relationships between the themes of the framework are then either recreated or generated based on the evidence from the primary research studies included in the review”.

Figure 1. Systematic review using best-fit framework synthesis
### Summary of “Best Fit” FS Approach

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Define review question</td>
</tr>
</tbody>
</table>
| 2    | a) Systematically identify relevant primary research studies  
b) Identify relevant (“best fit”) publications of frameworks and conceptual models/theories |
| 3    | Extract data on study characteristics from included studies and conduct study quality appraisal |
| 4    | Code evidence from included studies into the a priori framework identified in step 2 |
| 5    | Create new themes by performing secondary thematic analysis on any evidence that cannot be coded into the a priori framework |
| 6    | Produce a new framework composed of a priori and new themes supported by the evidence |
| 7    | Revisit evidence to explore relationships between themes or concepts, in order to create a model |

Adapted from Booth and Carroll [8]
“Advantages…when time is short and the demand for policy-relevant evidence is urgent. It enables focusing of the research on the priorities of those commissioning the work, while still leaving some room for finding the 'best fit' in the light of what the evidence actually reports.

Of course, like framework analysis… there are downsides of the approach too. Reviewers who have made a hefty investment in an initial conceptual model may be unconsciously motivated to recover the sunk costs of that model, and as a consequence tend to neglect evidence that presents a fundamental challenge. Putting more time into specifying the model, using a wider range of literature, and gaining the views of a wider range of stakeholders may all be important in improving the legitimacy and validity of any ensuring synthesis. There are also the usual risks… that it can tend to suppress interpretive creativity, and thus reduce some of the vividness of insight seen in the best qualitative research. Nonetheless, as Carroll and colleagues argue, framework-based synthesis using the 'best fit' strategy is, in the right hands, likely to be a highly pragmatic and useful approach for a range of policy urgent questions.

Identifying Candidate Frameworks

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Identifying Candidate Frameworks

("logic model" OR "theory of change" OR "theory of action" OR "outcomes chain" OR "program* theory" OR "program* logic" OR "logical framework") AND "postnatal depression"
Using Google Images to Find Frameworks and Theories

Two candidate conceptual models found within less than 30 seconds:

1. From a Qualitative study of Men’s Sheds in Scotland
2. From a Systematic Review of Men’s Sheds

Both from published studies!

(Model* OR Theor* OR Framework * OR Concept*) AND [Topic of Interest e.g. “Men’s Sheds”]
Starting Points


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Table 4: Most widely used or 'dominant' theories and models in health education and health promotion (expanded from Glanz et al. 31)

<table>
<thead>
<tr>
<th>Cognitive Behavioral Theory</th>
<th>Motivational Interviewing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Organization Theory</td>
<td>Organizational Change Theory</td>
</tr>
<tr>
<td>Diffusion of Innovation Theory</td>
<td>PRECEDE PROCEED Model</td>
</tr>
<tr>
<td>Health Belief Model</td>
<td>Protection Motivation Theory</td>
</tr>
<tr>
<td>Precaution Adoption Process Model</td>
<td>Social Cognitive Theory</td>
</tr>
<tr>
<td>Social Learning Theory</td>
<td>Social Ecological Model</td>
</tr>
<tr>
<td>Social Marketing</td>
<td>Stages of Change or Transtheoretical Model</td>
</tr>
<tr>
<td>Theory of Planned Behavior</td>
<td>Theory of Reasoned Action</td>
</tr>
</tbody>
</table>


### Evidence to Decision Framework

<table>
<thead>
<tr>
<th>Guideline Considerations</th>
<th>Evidence Source for Addressing These Considerations</th>
<th>Where to Place This Evidence in the Evidence-to-Decision Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>What outcomes are important to stakeholders?</td>
<td>Qualitative evidence synthesis or studies of utility value or choices at scoping stage of a guideline</td>
<td>How stakeholders value different outcomes*</td>
</tr>
<tr>
<td>What are the effects of an intervention?</td>
<td>Systematic review of intervention effectiveness</td>
<td>Desirable and undesirable effects of the intervention</td>
</tr>
<tr>
<td>What are the acceptability, feasibility, and equity implications of an intervention?</td>
<td>Qualitative evidence synthesis tailored to the guideline questions</td>
<td>Acceptability, feasibility and equity impacts of the intervention</td>
</tr>
<tr>
<td>What resources will an intervention use and is it cost-effective?</td>
<td>Systematic review of intervention resource use and cost-effectiveness</td>
<td>Resources required and cost-effectiveness of the intervention</td>
</tr>
</tbody>
</table>

Text in red indicates where qualitative evidence can be used.

*Findings from a qualitative evidence synthesis conducted at the scoping stage of a guideline can inform all aspects of the scope of a guideline, as described in paper 1 in this series.
Cochrane QES – Labour Companionship
Bohren et al, 2019
NB. Pink shows qualitative questions
Selecting Candidate Frameworks

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How Do I Evaluate a Theory or Framework?

Fit for Purpose – does it help explain ≥ 50% of my data?

The ultimate judgment of the CFIR’s utility and validity can be discerned by coalescing answers to three questions over time [12]:

1. Is terminology and language coherent?

2. Does the CFIR promote comparison of results across contexts and studies over time?

3. Does the CFIR stimulate new theoretical developments?

If answers to all three questions are yes, then we are on the right path.


Choosing Theories


**Table 3: Choosing theories**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Determine the origins of the theory. The &quot;origins of a theory&quot; refers to the original development of the theory. Who developed it? Where are they from (institution, discipline)? What prompted the originator to develop it? Is there evidence to support or refute the development of the theory?</td>
</tr>
<tr>
<td>2.</td>
<td>Examine the meaning of the theory. The meaning of a theory has to do with the theory's concepts and how they relate to each other. What are the concepts comprising the theory? How are the concepts defined? What is the relationship between concepts?</td>
</tr>
<tr>
<td>3.</td>
<td>Analyze the logical consistency of the theory. The logical adequacy of a theory is the logical structure of the concepts and statements. Are there any logical fallacies in the structure of the theory? Consider the degree of generalisability and parsimony of the theory. Generalisability refers to the extent to which generalizations can be made from the theory. Parsimony refers to how simply and briefly a theory can be stated and still be complete in its explanation of the phenomenon in question.</td>
</tr>
<tr>
<td>4.</td>
<td>Determine the testability of the theory. Can the theory be supported with empirical data? A theory that cannot generate hypotheses that can be subjected to empirical testing through research is not testable.</td>
</tr>
<tr>
<td>5.</td>
<td>Determine the usefulness of the theory. Usefulness of the theory is about how practical and helpful the theory is in providing a sense of understanding and/or predictable outcomes.</td>
</tr>
</tbody>
</table>
Summary

• Framework synthesis offers considerable flexibility and offers a readily-accessible role for the refinement and testing of theory within QES methods.

• Identification of a framework or development of a framework with stakeholders may add a not-inconsiderable overhead to the synthesis process. Additionally, an inappropriately chosen framework may lead to a “false start.”

• Once an appropriate framework has been identified, a review team may experience substantive time-savings, while taking precautions against inappropriately squeezing data into framework categories.

• Framework synthesis offers considerable potential in connection with rapid QES and overviews of multiple QESs.
To the person with a hammer (framework)…….

<table>
<thead>
<tr>
<th>Types of Synthesis</th>
<th>Analysis</th>
<th>Role of Theory</th>
<th>Examples</th>
</tr>
</thead>
</table>

Thematic Synthesis vs. Framework Synthesis vs. Meta-Ethnography


Beyond the Three “core” methods?


Booth et al, 2016. Guidance on choosing qualitative evidence synthesis methods. INTEGRATE-HTA
Questions?
Remainder of Programme

24th February, 2022 - Thematic Synthesis
Angela Harden, Professor of Health Sciences, City, University of London & James Thomas, Professor of Social Research & Policy, UCL Institute of Education, London.

17th March, 2022 - Meta-ethnography
Kate Flemming, Professor of Hospice Practice and Evidence Synthesis, University of York, UK

25th April, 2022 - GRADE CERQual
Megan Wainwright, consultant in qualitative research, Portugal & member of the GRADE-CERQual coordinating team.

16th May, 2022 - Integrating qualitative evidence syntheses with intervention effect findings
Angela Harden, Professor of Health Sciences, City, University of London. & James Thomas, Professor of Social Research & Policy, UCL Institute of Education, London.