Challenges facing a BEME systematic review of *The contribution of theory to the effective development & delivery of interprofessional curricula*
Aim and rationale of presentation

- Brief introduction to remit of review
- Sharing some challenges to a review on contribution of theory to medical education
- Practical take home messages
- Target audience: fellow and new BEME reviewers
- Need to share methodological challenges with international, national, regional hubs
Utility of review for Medical Educators

• IPE theory less but not any more.

• The review will guide:
  
  • The design and evaluation of IPE curricula with strong theoretical underpinnings.

  • Selection and application of theories fit for purpose.
Protocol and key challenges

A. Literature search (2730) → B. Paper selection (662) → C. Preliminary data extraction

Challenge 1: common consensus on meaning and identification of theory

Challenge 2: Measuring theoretical quality

D. Quality of theory use → E. Quality of methodology if empirical

F. Data extraction → G. Synthesis → H. Implementation
**Challenge 1: defining and identifying theory**

### Definition of theory
- Set of propositions that link concepts together though a rational argument.
- Predict, describe, explain, prescribe or organise a particular phenomenon. (Walker & Avant, 2005; Jary and Jary, 1995; Fawcett & Downs, 1992). The phenomenon in question is IPE.

### Definition of Interprofessional education
- When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes (WHO, 2010, p.10).

### Paper selection

**THEORY**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES/NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you identify a concept from the title or abstract? (A concept is a word or phrase that describes an abstract idea or mental image of some phenomenon)?</td>
<td></td>
</tr>
<tr>
<td>Can you identify a clear proposition being presented in the abstract or title of paper (a proposition is a declarative statement about a concept or the relationship between concepts. These may be relational and non relational), i.e. is a theory/proposition being tested deductively</td>
<td></td>
</tr>
<tr>
<td>Is reference made explicitly to an established theory in this paper?</td>
<td></td>
</tr>
<tr>
<td>Is the theory/concept or proposition applied to an IPE curriculum (either description evaluation, research, theoretical piece/reflection)?</td>
<td>YES/NO</td>
</tr>
</tbody>
</table>

**CURRICULUM**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES/NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there evidence that the curriculum is written down in some form (curricula on paper) Papers may describe how the and by whom the curriculum is delivered (curricula in action)?</td>
<td></td>
</tr>
<tr>
<td>Does this paper describe the design of an interprofessional curriculum, the evaluation of an interprofessional curriculum, or describe research to understand the outcomes/processes of an interprofessional curriculum?</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Is the curricula (presented, evaluated or researched) a planned event?</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Are there intended outcomes to the event?</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Are interprofessional learning outcomes evident?</td>
<td>YES/NO</td>
</tr>
<tr>
<td>It is designed for the many not the individual?</td>
<td>YES/NO</td>
</tr>
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### Pilot 1

Inclusion and exclusion criteria

20 papers whole team

Poor agreement on what theory is
Try, try, try again

Second pilot with SH, RP, CJ
More simplistic framework
Inter rater reliability

<table>
<thead>
<tr>
<th>Reviewer Check</th>
<th>Accepted (yes theory, Yes IPE)</th>
<th>Rejected (no theory, Yes IPE)</th>
<th>Rejected (no theory, No IPE)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah/Carol</td>
<td>5/25 (20%)</td>
<td>2/10 (20%)</td>
<td>0/15 (0%)</td>
<td>50</td>
</tr>
<tr>
<td>measure of Disagreement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sarah/Richard</td>
<td>9/25 (36%)</td>
<td>9/15 (60%)</td>
<td>0/10 (0%)</td>
<td>50</td>
</tr>
<tr>
<td>measure of Disagreement</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Unacceptable inter rater reliability
• Each person extracts into MS Word abstract and titles of allocated papers stored on Mendeley.

• Each paper abstract reviewed for presence of IPE and presence of theory.

• Potential theory highlighted.

• Comments annotated by both reviewer 1 and 2.
Introduced preliminary data extraction phase

- highlighted theory
- empirical/non empirical
- Coles and Grant model
<table>
<thead>
<tr>
<th>SARAH</th>
<th>WHAT THEORY IS</th>
<th>WHAT THEORY IS NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It is when authors have given an explanation of why they have done something, chosen to measure something.</td>
<td>What theory is not.</td>
</tr>
<tr>
<td></td>
<td>Individual concepts, builds to proposition link to theory; so identify concepts for benefit of doubt.</td>
<td>It is not an education model, because this is when they have said what they have done and not why they have done.</td>
</tr>
<tr>
<td></td>
<td>It is when they make a prediction and test it. (e.g. when they have applied a predesigned model/framework to structure their thinking (e.g. Kirkpatrick))</td>
<td>It is not what students learn at the university, that they then put into practice, i.e. when they say I learn about what communication was and then tried to communicate in practice.</td>
</tr>
<tr>
<td></td>
<td>About using a predetermined framework to help describe, explain, predict or measure a phenomenon.</td>
<td>It is not simply describing the outcomes expected of IPE (e.g. we taught them communication skills). It has to articulate why communication skills are necessary (predict what they do).</td>
</tr>
</tbody>
</table>
Inter rater reliability not so bad

- Clarified individual decision making processes.
- Main problem: poor team communication and use of Mendeley and other logistics.
- Closer examination shows 100% agreement on IPE definition fine; and 90 to 95% agreement on theory.
- Some of theory disagreement related to more/less conservatism.
- Clearer articulation of theory required
Protocol and key challenges

A. Literature search (2730) → B. Paper selection (662) → C. Preliminary data extraction

Challenge 2: Measuring theoretical quality

D. Quality of theory use → E. Quality of methodology if empirical →

F. Data extraction →

G. Synthesis

H. Implementation
Challenge 2: Establishing Theoretical quality

Framework assessing use of theory in research (Fawcett 2005):

- Pragmatic Adequacy
- Parsimony (Einstein)
- Internal consistency
- Testability
- Operational adequacy
- Empirical adequacy

- Papers selected on a minimum level of pragmatic adequacy
Running in parallel to BEME review
Theoretical framework to knowledge exchange (creating terrains of knowledge -Hammick, 1998-, Narrative, PBL)
Workshops apply dimensions of theoretical quality and findings of BEME review (paper guides not enough for some).
Key challenges and take home messages for a BEME review on theory

- Theory specific challenges
  - Defining and identifying theory
  - Development of theoretical quality assessment tool
  - Implementation of theory into practice
- Take home message
  - Importance of sharing methodological challenges with fellow reviewers
  - Developing logistical solutions to improving communication between team members
  - Importance of piloting each phase of the protocol (incl. frameworks, communication strategies, database sharing and implementation)
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THANK YOU

QUESTIONS
References
