

Software Engineering Research Community

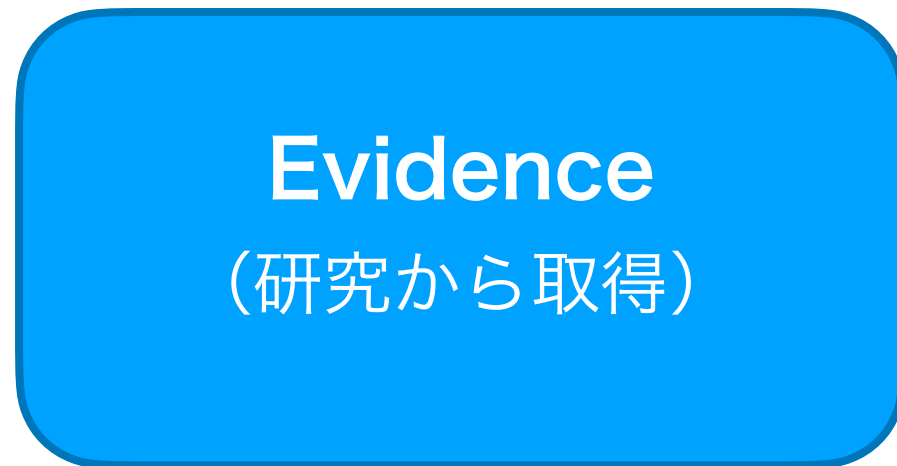
Viewpoints on Rapid Reviews

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※コードレビューとは関係ありません

Evidence Based Software Engineering ^[30]

(EBSE)



2つの結びつけを目的とした分野



Systematic Review をソフトウェア工学に適用

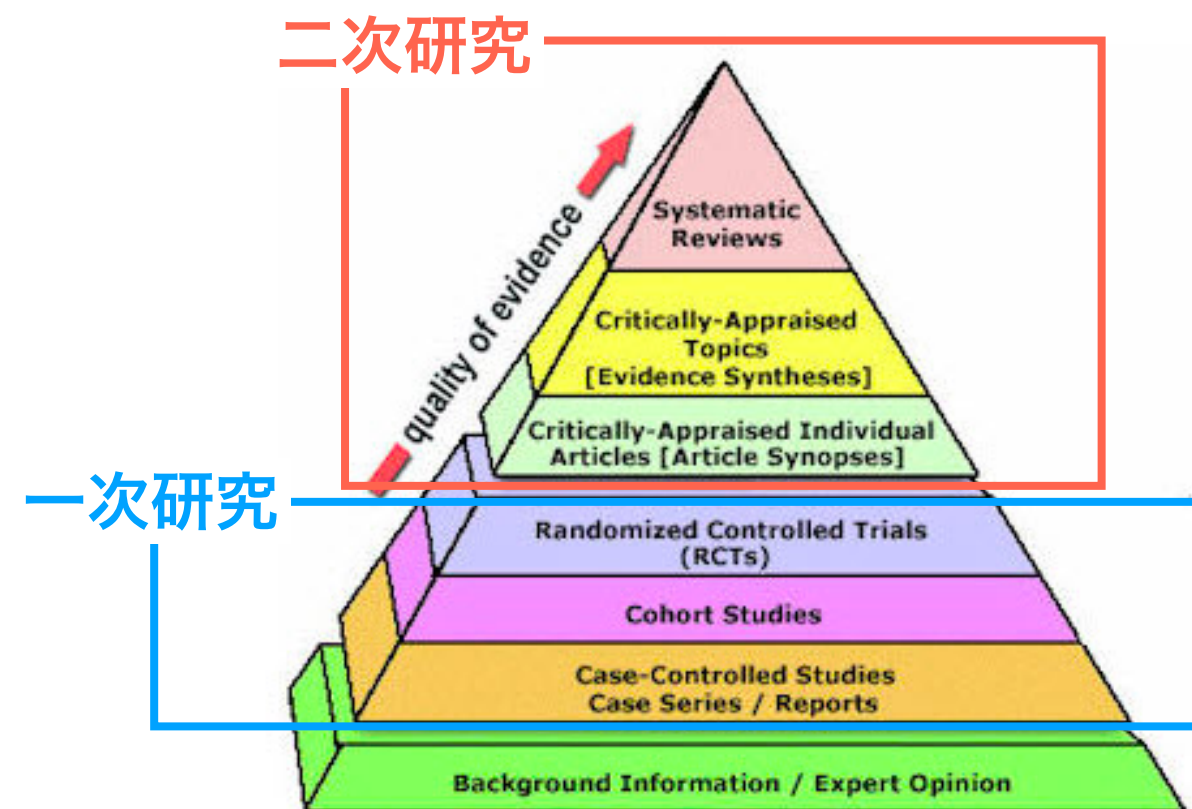
[30] B. A. Kitchenham, T. Dyba, and M. Jorgensen.
Evidence-based software engineering. In *Proceedings of the 26th International Conference on Software Engineering*, ICSE '04, pages 273–281, Washington, DC, USA, 2004. IEEE Computer Society.

Systematic Review

- 様々な研究を公正に，かつ，厳正に審査しデータの質を高める分析
- 医学分野で適用

(問題点)

時間がかかる
実務との関連性が低い
(タイムリーでない)



引用 : <https://guides.temple.edu/c.php?g=78618&p=3879604>

一次研究：実証的研究

二次研究：実証的研究をもとに要因を突き詰める研究

Rapid Review

- Systematic Review のプロセスをいくつか省略し
意思決定までの時間を削減
 - 文献検索の制限、個人でスクリーニング、審査期間の短縮
- 医学分野では広く知られつつあるが、ソフトウェア工学では全く知られていない

目的

- 情報に基づいた意思決定の支援を行うための Rapid Review (RR) の利用可能性を調査
- Q-Methodology (Q-方法論) と因子分析を用いて、SE 研究者の Rapid Review に対する認識の要因 (視点) を分析

Q-Methodology

- Q-SETの定義
 - 対象となるものに関する文章のセット
 - 本論文では， 50件の文で構成 [27]
- P-SETの定義
 - 37人の研究者を対象（ICSE， ESEMなどで採択経験あり）
 - 18～35歳： 54%
 - 36～50歳： 43%
 - 51歳～ ： 3%

[27] S. E. Kelly, D. Moher, and T. J. Clifford.

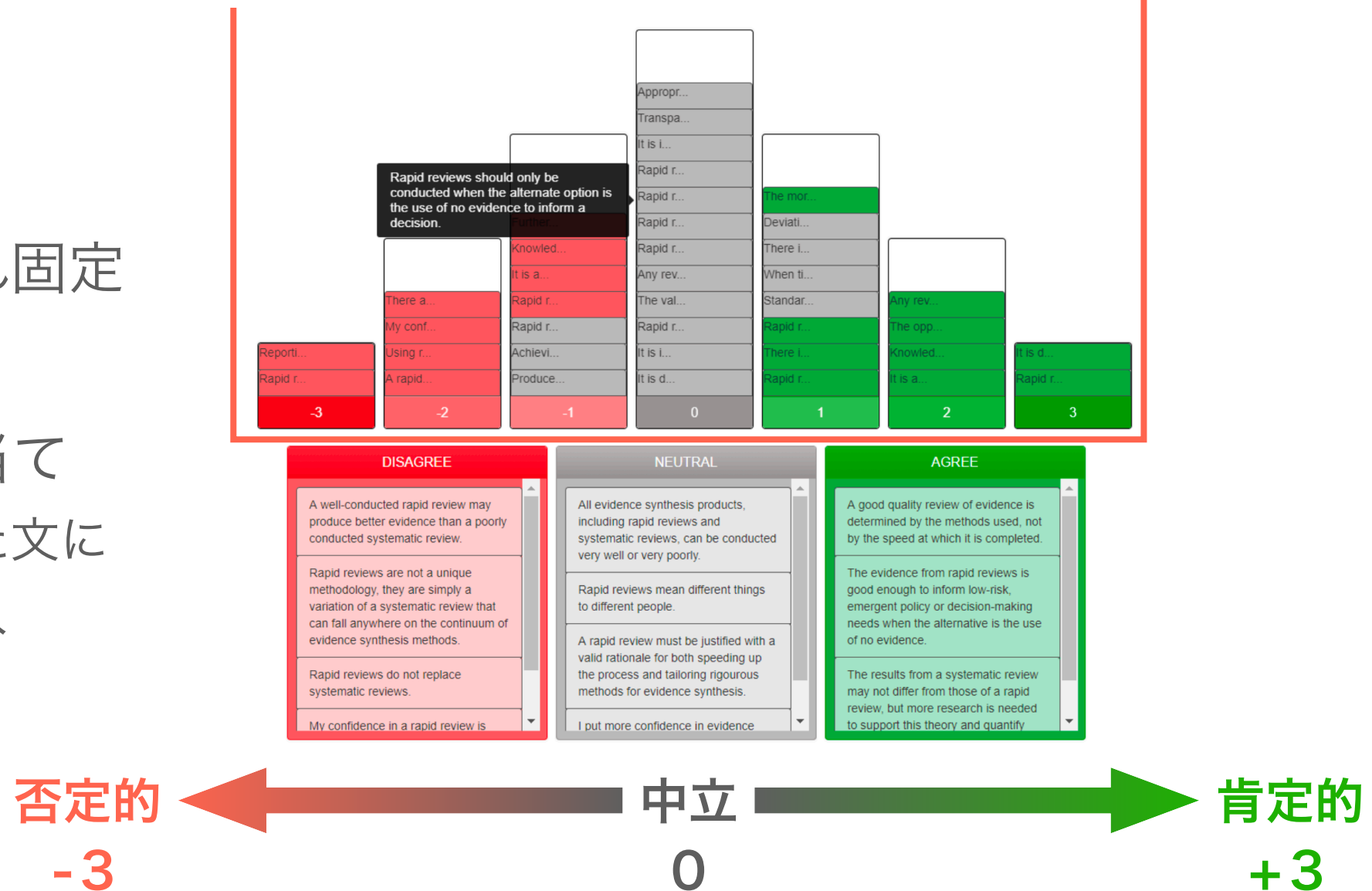
Expediting evidence synthesis for healthcare decision-making: exploring attitudes and perceptions towards rapid reviews using q methodology. *PeerJ*, 4:e2522, 2016.

Q-Methodology

- Q-SORT

- 点数は -3 ~ +3
- 点数の枠はそれぞれ固定
- 参加者は50の文をそれぞれの枠に割当て
 - 3 や+3 に割当てた文については理由を記入

Q-SORT構造（準標準正規分布）



実際に用いたツールのイメージ図

因子分析

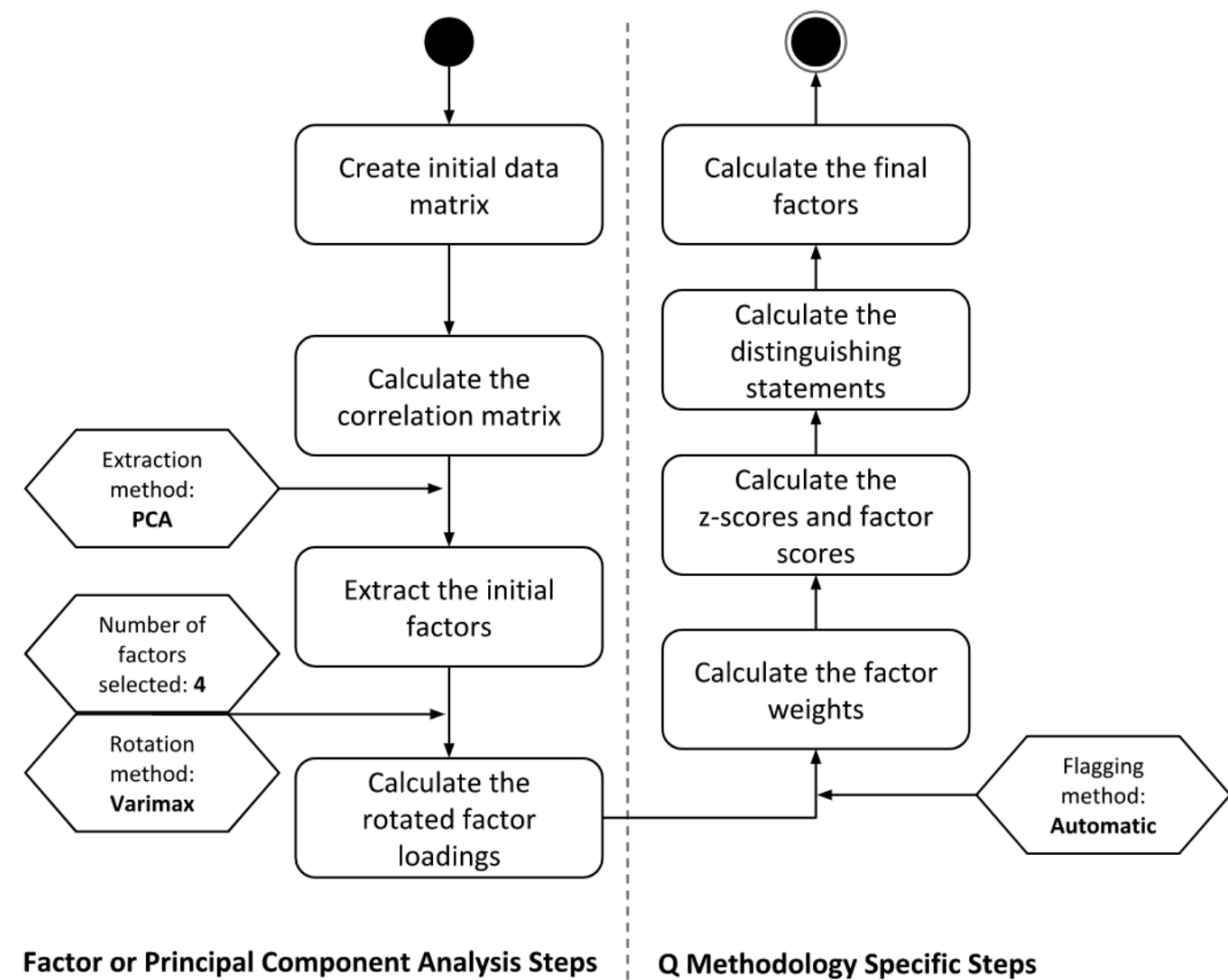
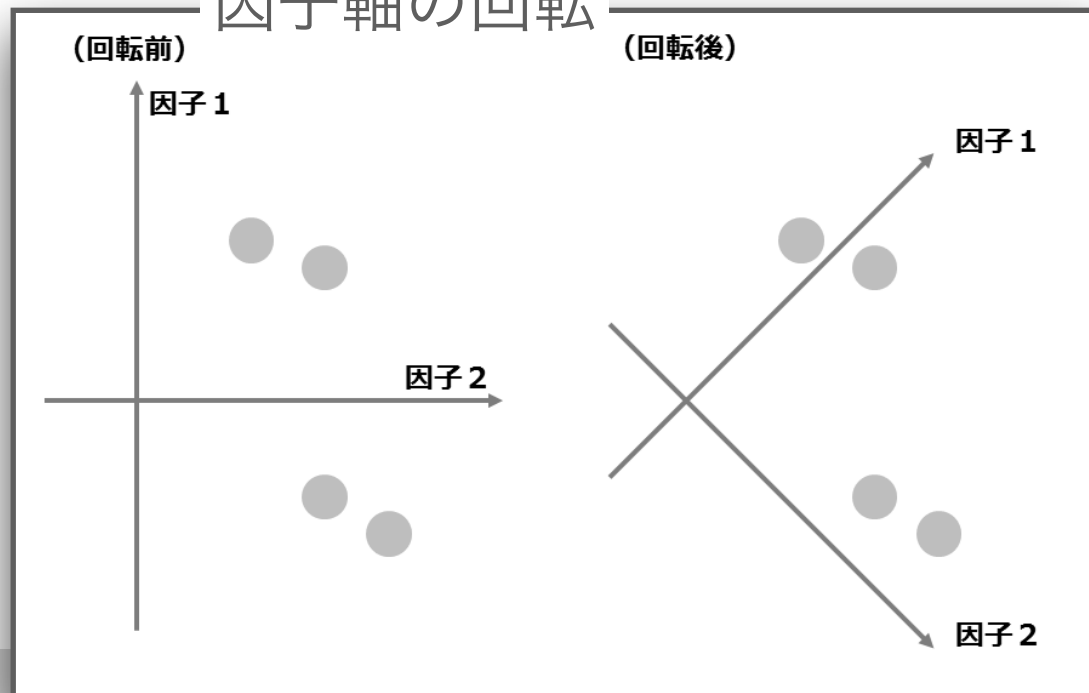
初期行列の生成

文	
参加者	点数

固有値の算出

$$|A - E\lambda| = 0$$

因子軸の回転



#	STATEMENT	FACTOR SCORES			
		A	B	C	D
1	The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence	0	+1	0	+3
2	When time allows, a comprehensive systematic review of all available evidence should always be conducted	-1	-1	+1	-3
3	Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some knowledge users (practitioners)	-1*	0	0	0
4	<i>Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews</i>	1	-1	0	-2
5	Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users (practitioners)	0	-1	-2	0
6	<i>Rapid reviews mean different things to different people</i>	0	-1	+1	+2
7	Rapid reviews should only precede a more comprehensive and rigorous systematic review	-3	-2	-1*	-2
8	The opportunity cost of a comprehensive systematic review is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor	0	+2	-1	0
9	<i>Rapid reviews do not replace systematic reviews</i>	+3	+1	+2	0
10	All evidence synthesis products, including rapid reviews and systematic reviews, can be conducted very well or very poorly	+3	+2	+2	+2
11	Rapid reviews are comparable to systematic reviews except they are done in a more timely fashion	-2	+1	-1	0
12	Rapid reviews are 'quick and dirty' systematic reviews	-2	-3	-3	0
13	Rapid reviews need to be tailored to the specific needs of the knowledge user (practitioners)	+1	0	0	+2
14	Rapid reviews meet the needs of knowledge users (practitioners)	+1	+2	0	0
15	There are few evidence on rapid reviews, so I cannot support or oppose their use in decision-making	-1	-2	0	-1
16	There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand	0	0*	+1	+1
17	There is a risk involved in tailoring accepted systematic review methods to produce rapid reviews that we do not yet understand	0	0	0	+1*
18	Using rapid reviews to inform decisions is better than using no evidence at all	+2	+2	-1*	+2
19	It is always appropriate to conduct a rapid review	-3	0	-2	-2
20	Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence	0	+1	0	-1
21	Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision	0	+1	+1	+3
22	My confidence in a rapid review is impacted by which methods are tailored to speed up the review process	+1	0	+2	+1
23	My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence	0	0	+3*	+1
24	It is important to have minimum standards for the methodological conduct of rapid reviews	+2	+3	+2	0*
25	<i>It is important to have minimum standards for the reporting of rapid reviews</i>	0	+3	+2	-1
26	Standardization of rapid review methods may conflict with the needs of knowledge users (practitioners)	-1	-1	0	+1
27	The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially 'imperfect' evidence	-1	+1	-1	+1
28	Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user (practitioner)	+1	-1	-1	-2
29	Knowledge users (practitioners) do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product	0	-1	+1*	-1
30	Reporting of the results of rapid reviews must be tailored to the knowledge user(s) (practitioners) who commissioned the review	+1	0	+1	+1
31	Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users (practitioners)	-2	-1	+3	0
32	Rapid reviews can be timely and valid, even when methodological concessions are made	+2	+1	-2*	+1
33	Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the knowledge user (practitioners) to make their own assessment on validity and appropriateness	-1	0	0	+2
34	It is appropriate to endeavor to define a single, unique methodology for rapid reviews	0	+1	-3	-3
35	Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods	+1	0	0	0
36	The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different	+1	+1	+1	-1*
37	<i>I put more confidence in evidence produced in a systematic review than of a rapid review</i>	2	-2	0	-1
38	The more time spent conducting the review of the evidence, the more valid the results of the review will be	-2	-3	-2	-2
39	Achieving a precise estimate of effect (from a systematic review) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review)	-2	0	-2	0
40	Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision	-2	-2	0*	-2
41	A well-conducted rapid review may produce better evidence than a poorly conducted systematic review	+1	+2	+1	+1
42	Any review of evidence that takes longer than one month to produce is not a rapid review	-1	-2	-1	+2*
43	Any review of evidence that takes longer than two weeks to produce is not a rapid review	-1	0	-2	+1
44	A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigorous methods for evidence synthesis	+2	+1	+1	-1*
45	A good quality review of evidence is determined by the methods used, not by the speed at which it is completed	0	+2	+2	0
46	It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods	-1	0	-1	-1
47	A rapid review cannot be a systematic review	0	-1	-1	-1
48	Rapid review' is too broad a phrasedoing a review in a more timely way can only be relative to how long it takes the same team to produce a systematic literature review	-1	-1	+1*	-1
49	Producers (researchers) are more concerned with the methodology and validity of rapid reviews than knowledge users (practitioners)	+2	0	-1	0
50	It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published	+1	-2	0	0

各因子において、
因子得点が高かった
代表的な参加者の点数

赤：-3

緑：+3

＊：一つだけ意見が
異なっていた因子

Factor A

確信が持てない（12人）

有用でないとは言わないが、
RR が有用である根拠をさらに必要とする

平均年齢：42歳

12人中10人が博士号

12人中10人が Systematic Review の研究者

RRについて知っていたのは1人

Factor B

意欲的（8人）

RR を実施することに意欲的であるが、
最低限の基準を満たしている場合に限る

平均年齢：37歳

8人中6人が博士号

8人中6人が Systematic Review の研究者

RRについて知っていたのは3人

Factor C

否定的（6人）

RRが質の高いエビデンスを提供できるとは
考えられない

平均年齢：33歳

6人中5人が博士号

6人中2人が Systematic Review の研究者

RRについて知っていたのは2人

Factor D

現実的（4人）

RR に適した状況では、実施する可能性がある

平均年齢：36歳

4人中4人が博士号

4人中2人が Systematic Review の研究者

RRについて知っていたのは2人

まとめ

- Rapid Review の利用可能性を調査
 - 研究者の Rapid Review に対する考え方
- 4つの考え方
 - 否定（確信がない，否定的），肯定（意欲的，現実的）
- Rapid Review について知っている人は肯定的に受け入れる傾向がわずかに見られた