SYSTEMATIC REVIEW

MSc in Economics

Dr Leandro Bolzan de Rezende

















Types of literature reviews





Research studies that **use (and describe) specific, explicit and therefore reproducible methodological strategies** to identify, assemble, critical appraise and synthesise all relevant issues on a specific topic



Why be systematic?



CLARITY

Clear methodology makes it easier to judge what the reviewers have and have not done.



VALIDITY

Systematic approaches require that items are selected for inclusion on the basis of how relevant they are and how rigorous they are, not on whether they have a favourable outcome or whether their results are intrinsically "interesting".



Assess whether the reviewers' conclusions are grounded in the data retrieved from the review process and not an argument fabricated to support a prior conclusion

What does systematic look like?



Method

A priori specification of methods / protocol / inclusion / exclusion criteria



Question

A clearly focused question

Documentation

Documentation of search process: sources and strategies

Explicit Use of tables and boxes to

make methods explicit



Summaries Use of tables to summarise study characteristics



Quality assessment

An explicit mechanism to handle quality assessment



Graphical f tables and gra

Use of tables and graphics to support interpretation of data



Additional evidence

Appendices including search strategies, sample data extraction and quality assessment tools

Literature Review Process







Frameworks

Defining the research question



CIMO Framework

Defining the research question

Context (C) Which individuals, relationships, institutional settings, or wider systems are being studied?

E.g: industry, group, circunstance, etc

Outcomes (O) What are the effects of the intervention? How will the outcomes be measered?

E.g.: performance, cost reduction, error rates, success, etc



What are the competencies (I) most valued by professionals on defence projects (C)?

CIMO Framework

Defining the research question









What search engines will be used?



* Chemical & Material Sciences Engineering & Computer Science Health & Medical Sciences Life Sciences & Earth Sciences Physics & Mathematics



What is appropriate literature to my research question?





Database

- Web of Science Core Collection
- BIOSIS Citation Index
- Derwent Innovations Index
- KCI Korean Journal Database
- MEDLINE
- Russian Science Citation Index
- SciELO Citation Index

Search What is your search query?



What is your search query?



grain\$ matches: grain grains organisational organization organizations organizational



What is your search query?



influenza OR flu AND avian

= finds records containing the word influenza. It also finds records containing both flu and avian.

(influenza OR flu) AND avian

= finds records containing both influenza and avian or both flu and avian.

copper OR lead AND algae

= finds all records in which both lead AND algae are present as well as all records in which the word copper is present.

(copper OR lead) AND algae

= finds all records in which the word algae is present together with either copper or lead.



What is your search query?



energy conservation

= retrieve records that contain all of the words you entered. The words may or may not appear close together.

"energy conservation"

= retrieve records that contain the exact phrase energy conservation.

waste-water

= find records containing the exact phrase *waste-water* or the phrase *waste water*. It will not match water waste, waste in drinking water, or water extracted from waste.

"m\$croeconomic theory"

= matches *macroeconomic theory* and *microeconomic theory*.



What is your search query?



Research Question:

What are the **competencies** (I) most valued by professionals on **defence projects** (C)?

Competence	Defence	Project
Competences	Defense	Projects
Competency	Military	Program
Competencies		Programs
Skill		Programme
Skills		Programmes
Ability		Portfolio
Abilities		Portfolios
Knowledge		Initiative
		Initiatives



What is your search query?



What is your search query?





Research Question:

Research Question:

What are the **competencies** (I) most valued by professionals on **defence projects** (C)?

What are the **project management competencies** (I) most valued by professionals on **defence projects** (C)?



87





Filtering and extracting data

Results: 3,250 (from Web of Science Core Collection) You searched for: TOPIC: (compete nc* OR skill\$ OR abilit* OR knowledg e) AND TOPIC: (defen?e OR military) A ND TOPIC: (project\$ OR program* O R portfolio* OR initiative\$)More	Sort by: Date IF Times Cited Usage Count Relevance More ▼ Select Page Export Add to Marked List I. Cosmopolitan arrogance, epistemic modesty and the motivational prerequisites for solidarity By: Beckstein, Martin ETHICS & GLOBAL POLITICS Volume: 13 Issue: 3 Special Issue: SI Article Number: 1816001 Published: DEC 4 2020 Find it @ MOR ③ Free Full Text from Publisher View Abstract ▼	▲ _1 of 325 Analyze Results Lui Create Citation Report (from Web of Science Core Collection) Usage Count ~
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Refine Results	4 2020 Find it @ MCR ∂ Free Full Text from Publisher View Abstract ▼	Usage Count 🛩
Search within results for Q	2. Providing an Integrated Multi-Objective Model for Closed-Loop Supply Chain under Fuzzy Conditions with Upgral Approach By: Avoughi, Hamidreza: Podeh, Hossein Dehghani: Raad, Abbas: et al.	Times Cited: 0 (from Web of Science Core Collection)
Filter results by:	INTERNATIONAL JOURNAL OF NONLINEAR ANALYSIS AND APPLICATIONS Volume: 11 Issue: 1 Pages: 107-136 Published: WIN-SPR 2020	Usage Count 🗸
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Main filters:

Web of Science Categories Document Types Research Areas Languages Titles (conference and books)

Filtering and extracting data

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R Publication Years	ine 3. A CASE STUDY ON THE RECOGNITION OF PRIOR LEARNING (RPL): PERCEPTIONS OF UNIVERSITY FACULTY By: Browning, Kimberly F. CANADIAN JOURNAL FOR THE STUDY OF ADULT EDUCATION Volume: 32 Issue: 1 Pages: 15-40 Published: WIN 2020	Times Cited: 0 (from Web of Science Core Collection)
 2020 (305) 2019 (359) 2018 (299) 2017 (251) 	Find it @ MCR View Abstract ▼	Usage Count 🗸
2016 (240) more options / values	4. Neotectonics and pastoralism: How they impact flood regimes in Madagascar's highlands By: Mietton, Michel; Gunnell, Yanni; Andriamitia, Jocelyn; et al. SCIENCE OF THE TOTAL ENVIRONMENT Volume: 742 Article Number: 140633 Published: NOV 10 2020	Times Cited: 0 (from Web of Science Core Collection)
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First analysis:

Create Citation Report Analyse Results

Search Filtering and extracting data



Citation Report



Filtering and extracting data

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Results analysis

Filtering and extracting data



Step by step:

Export

Excel

Filtering and extracting data







Appraisal Assessing quality



Are there any **flaws** in how the research has been carried out that may invalidate the findings? E.g.: Bias and confounding



Reliability

What is the likelihood that this study reportssomething that is **reproducible** as opposedto being a "fluke" or **chance result**?E.g.: statistical and practically significant

\rightarrow

Applicability

Are the results **useful**? Strength of recommendations for practice. E.g.: right context or population



Credibility

Whether or not the representation of data fits the views of the participants studied, whether the **findings hold true**



Transferability Whether research findings are **transferable to other settings**

♦←● ↓ ●→■

Dependability

Whether the process of research is **logical, traceable and clearly documented**, particularly on the methods chosen and the decisions made by the researchers



Confirmability

The extent to which findings are qualitatively confirmable through the analysis being grounded in the data and through examination of the **audit trail**





Elements of the STARLITE mnemonic

Element	Explanatory notes
S: Sampling strategy	 Comprehensive: attempts to identify all relevant studies on the topic Selective: attempts to identify all relevant studies but only within specified limits Purposive: samples from specific disciplines, years, journals
T: Type of studies	 Fully reported: describes actual study types (e.g., grounded theory) or designs to be included Partially reported: uses an "umbrella" category such as "qualitative studies" without defining what this means
A: Approaches	 Approaches other than electronic subject searches (see below) Example: hand-searching Citation snowballing
R: Range of years (start date-end date)	 Fully reported: includes start and end dates with justification for time period chosen Partially reported: includes start and end dates but only determined available coverage of databases
L: Limits	Functional limits that are applied for logistic reasons but do not alter the topic conceptually (e.g., human, English etc.)
I: Inclusion and exclusions	Conceptual limitations that mediate the scope of the topic area (e.g., geographical location, setting, or a specific focus of study)
T: Terms used	 Fully present: example of a sample search strategy from one or more of the main databases Partially present: reports terminology used but without evidence of search syntax and operators
E: Electronic sources	Reports databases used and, optimally, search platforms and vendors to assist in replication


Included studies with level of literature search reporting (n = 44)

Authors (Year)	Sampling strategy	Study type	Approaches	Range of years	Limits	Inclusions and exclusions	Terms used	Electronic sources
Attree (2004) [27]	Comprehensive	No	Yes	Yes	English	No	No	No
Barroso et al. (2003) [28]	Purposive	No	Yes	Yes	English	Yes	Yes	Yes
Beck (2001) [29]	Comprehensive	No	No	Yes	English	No	Yes	Yes
Beck (2002) [30]	Comprehensive	Yes	Yes	Yes	English	No	Yes	Yes
Beck (2002) [31]	Comprehensive	No	Yes	Yes	English	No	No	Yes
Beverley et al. (2004) [26]	Comprehensive	No	Yes	Yes	English	No	Yes	Yes
Brauer et al. (2001) [32]	Comprehensive	No	No	Yes	English	No	Yes	Yes
Burke et al. (1998) [33]	Comprehensive	No	No	Yes	English	No	Yes	Yes
Campbell et al. (2003) [21]	Purposive	No	Yes	Yes	English	Yes	Yes	Yes
Carroll (2004) [34]	Comprehensive	No	No	Yes	English	No	Yes	Yes
Chapple and Rogers (1999) [35]	Comprehensive	Yes	Yes	Yes	English	No	Yes	Yes
Clemmens (2003) [36]	Purposive	No	No	Yes	English	Yes	Yes	Yes
Cook et al. (2001) [37]	Opportunistic	No	Yes	Yes	English	No	No	Yes
Duggan and Banwell (2004) [38]	Comprehensive	No	Yes	Yes	English	No	No	Yes
Evans and FitzGerald (2002) [39]	Comprehensive	No	Yes	Yes	English	No	Yes	Yes
Fingfeld (1999) [40]	Comprehensive	No	No	Yes	English	No	No	Yes
Finfgeld (2000) [41]	Comprehensive	No	No	Yes	English	No	Yes	Yes
Fredriksson (1999) [42]	Purposive	No	Yes	Yes	English/Scand*	No	Yes	Yes
Frederiksson (2001) [43]	Purposive	No	Yes	Yes	English/Scand	No	Yes	Yes
Garcia et al. (2002) [44]	Comprehensive	No	Yes	No	English	No	No	Yes
Jones (2004) [45]	Comprehensive	No	Yes	Yes	All	No	Yes	Yes
Kearney (2001) [46]	Purposive	Yes	Yes	Yes	English	No	No	Yes
Lefler and Bondy (2004) [47]	Comprehensive	No	Yes	Yes	All	Yes	Yes	Yes
Lemmer et al. (1999) [48]	Comprehensive	No	No	No	English	No	Yes	Yes
McEwan et al. (2004) [49]	Comprehensive	No	Yes	Yes	English	No	Yes	Yes



Other qualitative systematic reviews excluded for not reporting search methods

Study	Reason for exclusion*
Arman (2003) [68] Barroso and Powell-Cope (2000) [69] Barroso and Sandelowski (2004) [70] Beck (2003) [30] Bleich et al. (2003) [72] Britten et al. (2002) [73] Clark et al. (1998) [74] Harden et al. (2003) [75] Jensen and Allen (1994) [76] Kearney (1998) [77] Kennedy et al. (2003) [78] McCormick et al. (2003) [79] Meadows-Oliver (2003) [80] Morse (1997) [81] Russell et al. (1997) [82] Sandelowski and Barroso (2002) [83] Sandelowski et al. (2004) [85] Sherwood (1997) [86] Stavri (2001) [87] Varcoe et al. (2003) [88]	No details No details, mentions "Extensive computer searches" No details (reported in [27]) No details (reported in [71]) No details No details, studies arbitrarily chosen from previous review No details No details No details Only included studies conducted by authors Only included studies conducted by authors No details No details No details Only included studies conducted by authors No details No details No details No details No details (reported in [27]) No details (reported in [27]) No details No details Only included studies conducted by the authors

* "No details" signifies no details of *either* databases or keywords or other methods.

Appraisal Classification sheet

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Reference	Author	- Country -	Industry 🔻	Journal 🔻 Kind of research	Method	Notes 🔻
01 - A Multidimensional Analysis of Project Manager Competences	Chipulu, Maxwell; N	lec Multiple	Multiple	IEEE Transactior Mixed	Job Analysis	Unassigned
02 - Agility of Project Manager in Global is Project	Hahn, Inae; Bredille	tt, France and South Korea	п	Journal of Com Mixed	Interview and Survey	Unassigned
03 - Ambiguity acceptance and translation skills in the project management literature	Gray, Karmin; Ulbrid	h, Unassigned	Unassigned	International Jc Qualitative	Review	Unassigned
4 - An analysis of BIM jobs and competencies based on the use of terms in the industry	Uhm, Miyoung; Lee,	GI USA, UK, China	Construction	Automation in Qualitative	Job Analysis	Unassigned
5 - Attitudes and leadership competences for project success	Müller, Ralf; Rodney	(Ti Multiple	Multiple	Baltic Journal of Quantitative	Survey	LDQ
6 - Benchmarking of Project Management Office Establishment" Extracting Best Practices	Andersen, Bjørn; He	nr Multiple	Multiple	Journal of Mana Qualitative	Interview	Unassigned
7 - Challenges and competencies for project management in the Australian public service	Blixt, Carley; Kirytop	ocAustralia	Public Administration	International Jc Mixed	Interview and Survey	IPMA ICB
8 - Characteristics of Portuguese public-sector project managers [∞] Toward closing the effectiv	(Yasin, Mahmoud M;	Gc Portugal	Public Administration	Project Manage Quantitative	Survey	Unassigned
9 - Competencies of project managers in international NGOs~ Perceptions of practitioners	Brière, Sophie; Prou	lx, Canada	NGO	International Jc Qualitative	Interview	Unassigned
0 - Competencies required of project managers at the design phase of mass house building p	Ahadzie, D.K.; Prove	rb Ghana	Construction	International Jc Quantitative	Survey	Unassigned
1 - Competency-Based Model for Predicting Construction Project Managers' Performance	Dainty, Andrew R J;	Ch UK	Construction	Journal of Mana Qualitative	Focus group	McBer Competency Models
2 - Competency-based selection and assignment of human resources to construction project	s Shahhosseini, V; Sel	ot, Iran	Construction	Scientia Iranica Mixed	Interview and Survey	IPMA ICB
3 - Contemporary knowledge and skill requirements in project management	Ingason, Helgi Thor;	Jó Multiple	Education - Academy	Project Manage Quantitative	Survey	IPMA ECO and previous researc
4 - Contemporary project portfolio management" Reflections on the development of an Aus	t Young, Michael; Con	lbc Australia	Unassigned	International Jc Qualitative	Interview	Unassigned
.5 - Design engineering competencies [~] future requirements and predicted changes in the for	t Robinson, Mark A; S	pa Unassigned	Aerospacial	Design Studies Mixed	Interview and Survey	Leadership Architect (specific in
16 - Do project managers' leadership competencies contribute to project success~	Geoghegan, Linda; D	oul UK	Financial services	Project Manage Quantitative	Survey	LDQ
.7 - Emotional intelligence and its relationship to transformational leadership and key projec	t Clarke, Nicholas	UK	Multiple	Project Manage Quantitative	Survey	EI (MSCEIT V2.0), Empathy, cogr
.8 - Empirical Study of Project Managers Leadership Competence and Project Performance	Ahmed, Riaz; Ananta	atr Pakistan	Multiple	Engineering Ma Quantitative	Survey	Previous research (leadership)
9 - Evolutionary optimization of model specification searches between project management	Chou, Jui-Sheng; Yar	ng, Taiwan	Construction	Expert Systems Quantitative	Survey	Unassigned
20 - Exploring program management competences for various program types	Miterev, Maxim; Eng	gw Multiple	Pharmaceutical	International Jc Qualitative	Interview	Unassigned
1 - From Every Direction-How Personality Traits and Dimensions of Project Managers Can Col	n Creasy, Todd; Anant	atiUnassigned	Unassigned	Project Manage Qualitative	Review	MBTI
2 - Identification and evaluation of the key social competencies for Chinese construction pro- tion of the social competencies for Chinese construction pro- cession of the social competencies for Chinese construction pro- cession of the social competencies for Chinese construction pro- tion of the social competencies for Chinese competencies for Chinese competencies	j Zhang, Feng; Zuo, Jia	an; China	Construction	International Jc Quantitative	Survey	Unassigned
3 - Identification of the critical project management competencies of architects in the Ghana	i Kwofie, Titus Ebene	ze Ghana	Construction	International Jc Quantitative	Survey	Unassigned
44 - Identifying critical leadership styles of project managers for green building projects	Isik Zoupopi Anditi	g, i singapore Da Turkov	Construction	International Jc Quantitative	Survey	Previous research
5 - Information systems project manager soft competencies [®] A project phase investigation	Skulmoski Gregory	Da Turkey I: I Canada	IT	Project Manage Qualitative	Interview	Upassigned
7 - Investigating the impact of project managers' emotional intelligence on their interpersor	Davis Steven A		Unassigned	Project Manage Quantitative	Survey	PMICI (Davis 2009) EI (MSCEIT)
8 - IT project managers' construction of successful project management practice" a repertor.	Nanier Nannette P	· K Unassigned	IT	Information Sys Qualitative	Interview	Unassigned
9 - Leadership competency profiles of successful project management practice a repertory	Müller Ralf Turner	RiMultinle	 Multiple	International Ic Quantitative	Survey	LDO project type
0 - Leadership styles, goal clarity, and project success	Razig, Muhammad M	/u Pakistan	Multiple	Leadership & O Quantitative	Survey	Leadership
1 - Modeling Project Manager Competency [~] An Integrated Mathematical Approach	Hanna, Awad S: Ibra	hirUSA	Construction	Journal of Cons Quantitative	Survey	CII-RT-306
2 - PM critical competency index" IT execs prefer soft skills	Stevenson, Deborah	H USA	IT	International Jc Mixed	Interview and Survey	Job analysis
33 - PMP® certification as a core competency [~] Necessary but not sufficient	Starkweather, Jo An	n; USA	IT	Project Manage Mixed	Interview and Survey	Job analysis - PMP
4 - Project Management Knowledge and Effects on Construction Project Outcomes? An Empi	Chou, Jui Chong Var	Teluce	Construction	Designed Manager Opportunitations	Suprov	DMD-K

Classify and organise your articles







Synthesis is the stage of a review in which evidence extracted from different sources is *juxtaposed* to **identify patterns and direction** in the findings, or *integrated* to produce an **overarching, new explanation or theory** which attempts to account for the range of findings.



Approaches to synthesis Different types of data



QUALITATIVE

Qualitative first, quantitative second



QUANTITATIVE

Quantitative first, qualitative second



INTEGRATIVE

Bringing together both quantitative and qualitative data

Approaches to synthesis Different types of data

NARRATIVE **SYNTHESIS**

Primarily uses words and text to **summarise** the findings of multiple studies. It is therefore a process of synthesising primary studies to explore heterogeneity descriptively rather than statically.

Appropriate for use with results from **different types** of empirical research, including experimental evaluative research and survey research.

THEMATIC **SYNTHESIS**

Bring together and integrate the findings of multiple qualitative studies.

It includes three main stages: 1 – free line-by-line coding; 2 – the organisation of these free-codes into related areas; 3 – develop analytical themes.

FRAMEWORK SYNTHESIS

A highly structured approach to organising and analysing data by utilising an *a priori* framework – informed by background material and team discussions – to extract and synthesise findings.

Results can be expressed in the form of charts.

META-ANALYSIS

It uses a set of **statistical** procedures to **integrate**, summarise or organise a set of reported statistical findings of studies that investigate the same research question using same methods of measurement.





Three components of synthesis





A word or short phrase that symbolically assigns a **summative, salient, essence-capturing**,

and/or evocative attribute for a portion of language-based or visual data





COLUMN 1 Raw Data

¹ The closer I get to retirement age, the faster I want it to happen. I'm not even 55 yet and I would give anything to retire now. But there's a mortgage to pay off and still a lot more to sock away in savings before I can even think of it. I keep playing the lottery, though, in hopes of winning those millions. No luck yet. COLUMN 2 COLUMN 3 Preliminary Codes Final Code ¹ RETIREMENT ANXIETY "retirement age" financial obligations dreams of early retirement

#RetirementAge

#FinancialObrigation

#EarlyRetirement

#RetirementAnxiety

Coding cycles Cyclical analysis

First cycle coding

Those processes that happen during the **initial coding of data** and are divided into seven subcategories. Most First Cycle methods are fairly simple and direct:

Grammatical

Elemental

Affective

Literary and Language

Exploratory

Procedural

Themeing the data



Second cycle coding

Require analytic skills as classifying, prioritizing, integrating, synthesising, abstracting, conceptualizing, and theory building

Pattern Coding Focused Coding Axial Coding Theoretical Coding Elaborative Coding Longitudinal Coding

First cycle coding Grammatical methods

GRAMMATICAL METHODS

ATTRIBUTE CODING MAGNITUDE CODING SIMULTANEOUS CODING

DEFINITION

Applies alphanumeric or symbolic code to data

EXAMPLE

3 = HIGH 2 = MEDIUM 1 = LOW 0 = NONE OR N/A 47 INSTANCES 16 EXCHANGES 87%

POS = POSITIVE NEG = NEGATIVE NEU = NEUTRAL MIX = MIXED

First cycle coding Grammatical methods

GRAMMATICAL METHODS

ATTRIBUTE CODING MAGNITUDE CODING SIMULTANEOUS CODING

DEFINITION

When **two or more codes** are applied to or overlapping

EXAMPLE

NANCY: ^{1a & 1b} Not one bit. But I fought. I wrote a couple of letters to the district human resources director explaining that I have an MFA which is 60 credit hours, and they stipulated an *MA* degree for a pay raise. And my degree was like getting 30 more credit hours of schooling which would be the "Master's plus 24," which is the next payline. And we went over it and over it and she wouldn't give me the extra pay raise. And then I explained that I have 96 graduate credit hours now, so I have far above the 30 credit hours for a master's, and they still wouldn't give it to me. And so it's kind of a moot issue, they just won't do it. ^{1a} INEQUITY ^{1b} SCHOOL DISTRICT BUREAUCRACY

ELEMENTAL METHODS

STRUCTURAL CODING

DESCRIPTIVE CODING IN VIVO CODING PROCESS CODING INITIAL CODING

DEFINITION

applies a content-based or conceptual phrase representing a topic of inquiry to a **segment of data** to both code and categorize the data corpus

EXAMPLE

Research Question: What factors lead to participants' unsuccessful smoking cessation attempts? Structural Code: ² REASONS FOR UNSUCCESSFUL SMOKING CESSATION

² I: You said that "stress got to" you as a reason to start smoking again. PARTICIPANT: Yeah, and not, it wasn't the stress of not smoking that got to me, it was life stress – the car break-in, work – it just got to be too much for me and I broke down and needed a cigarette, *really* needed one.

I: What was it about work that made you want to smoke again? PARTICIPANT: There was a lot of responsibility and expectations riding on me. I was worried that, well, at that time I was worried that things weren't going to turn out the way they needed to, whether I would have enough personnel, deadlines to meet, just too much stress. And I knew this was coming so maybe I just picked the wrong time to quit.

I: And what is "life stuff"? (PARTICIPANT chuckles) What does that -

PARTICIPANT: Life stuff – laundry, ironing, grocery shopping, uh, feeding the cats, cleaning their litter boxes, running around to do this and that with barely any time to do it.

I: I can relate to that. Now, when you went "cold turkey," how did you cope?

ELEMENTAL METHODS

STRUCTURAL CODING
DESCRIPTIVE CODING

IN VIVO CODING PROCESS CODING INITIAL CODING

DEFINITION

Descriptive Coding summarizes in a word or short phrase – most often as a noun – the basic **topic** of a passage of qualitative data

EXAMPLE

¹ Some houses, because of their disrepair, look abandoned. But the things seen through the window and in the yard clue you that someone still lives there. ² One house has a picture portrait of Jesus and a cross on its front wall. I notice TV antennas	¹ HOUSES-DISREPAIR ² HOUSES-DÉCOR
on several roots.	
OC: ³ No cable TV – a luxury; can't afford it; not a priority.	³ ECONOMICS-HOMES
⁴ Laundry hangs in the back yards of several homes on a clothesline. ⁵ There's a house with a small statue of the Virgin Mary	⁴ HOUSES-YARDS ⁵ HOUSES-DÉCOR
in front, ⁶ "Beware of the Dog/ <i>Pero</i> " signs.	6 SECURITY-SIGNS
⁷ Desk chairs, worn upholstered furniture are in the front yards of some homes.	7 HOUSES-YARDS
OC: ⁸ It's all we've got.	⁸ ECONOMICS-HOMES
⁹ "Pussy" is a spray painted word I decipher on an abandoned car.	⁹ GRAFFITI-OBSCENE

ELEMENTAL METHODS

STRUCTURAL CODING DESCRIPTIVE CODING IN VIVO CODING **PROCESS CODING** INITIAL CODING

DEFINITION

Exclusively to **connote action** in the data. Simple observable activity (e.g., reading, playing, watching TV, drinking coffee) and more general conceptual action (e.g., struggling, negotiating, surviving, adapting) can be coded as such through a Process Code.

EXAMPLE

¹ Mrs. Jackson rises from her desk and announces, "OK, you guys, let's get lined up for lunch. Row One." Five children seated in the first row of desks rise and walk to the classroom door. Some of the seated children talk to each other. ² Mrs. Jackson looks at them and says, "No talking, save it for the cafeteria. ³ Row Two." Five children seated in the second row of desks rise and walk to the children already standing in line. ⁴ A girl asks Mrs. Jackson, "Does it smell like pizza?" Mrs. Jackson smiles and replies, "Yeah, smells good, doesn't it?" ¹ LINING UP FOR LUNCH

² MANAGING BEHAVIOR ³ LINING UP FOR LUNCH

⁴ BANTERING

ELEMENTAL METHODS

STRUCTURAL CODING DESCRIPTIVE CODING IN VIVO CODING PROCESS CODING INITIAL CODING

DEFINITION

Breaking down qualitative data into discrete parts, closely examining them, and comparing them for similarities and differences

EXAMPLE

[I: Last week you were talking about the snobby girls at lunchroom. And then you just were talking about that you didn't like some people because they were cliquish. So what kind of, who are your friends? Like, what kind of people do you hang out with?]

TIFFANY: 1 I hang out with everyone. Really, ² I choose. Because I've been [living] here for so long, you get. ³ I can look back to kindergarten, and at some point I was 4 best friends with everybody who's been here, ⁵ practically. [I: You mean in choir?] TIFFANY: 6 Almost everybody in my grade. No, in school. And so there are ⁷ certain people that I've just been ⁸ friends with since forever. And then it's 9 not fair of me to stereotype either, like, say, "Oh well, like, the 10 really super popular pretty girls are all mean and 11 they're all snobby and they all talk about each other," 12 'cause they don't Some of them some of them

- ¹ "HANGING OUT WITH EVERYONE"
- ² "CHOOSING" WHO YOU HANG OUT WITH
- ³ RECALLING FRIENDSHIPS
- ⁴ "BEST FRIENDS WITH EVERY-BODY"
- ⁵ QUALIFYING: "PRACTICALLY"
- 6 QUALIFYING: "ALMOST"
- ⁷ FRIENDS WITH "CERTAIN PEOPLE"
 ⁸ FRIENDS WITH "SINCE FOREVER"
 ⁹ "NOT FAIR TO STEREOTYPE"
 ¹⁰ LABELING: "REALLY SUPER POPULAR PRETTY GIRLS"
 ¹¹ IDENTIFYING STEREOTYPES
 ¹² DISPELLING STEREOTYPES

First cycle coding Exploratory methods

EXPLORATORY METHODS HOLISTIC CODING PROVISIONAL CODING HYPOTHESIS CODING

DEFINITION

Holistic Coding is an attempt "to **grasp basic themes or issues** in the data by absorbing them as a whole [the coder as 'lumper'] rather than by analysing them line by line [the coder as 'splitter']"

EXAMPLE

I'm not telling you this to depress you or scare you but it was a reality for me. I thought I was so ready for this population because I had taught other groups of kids. But this is such a unique situation, the inner city school. No, I should take that back: It's not as much of a unique situation *anymore*. There are more and more schools that are turning into inner city schools. ... I really had to learn about the kids. I had to learn about the culture, I had to learn the language, I had to learn the gang signals, I had to learn what music was allowed, what t-shirts they could wear on certain days and not on other days. There was just a lot to learn that I had never even thought about.

A single Holistic Code applied to represent this entire data excerpt might be an In Vivo Code: "A LOT TO LEARN". Another possible Holistic Code might be more descriptive in nature: CAUTIONARY ADVICE. If "middle-order" codes or categories are necessary for more detailed analysis, a few that might emerge from the data above for CAUTIONARY ADVICE would read:

PRE-PROFESSIONAL PREPARATION LEARNING ON-THE-JOB



EXPLORATORY METHODS

HOLISTIC CODING PROVISIONAL CODING HYPOTHESIS CODING

EXAMPLE

VOCABULARY DEVELOPMENT ORAL LANGUAGE FLUENCY STORY COMPREHENSION DISCUSSION SKILLS

DEFINITION

Provisional Coding establishes a **predetermined** "'start list' set of codes prior to fieldwork"

First cycle coding Procedural methods

PROCEDURAL METHODS

OCM CODING PROTOCOL CODING DOMAIN AND TAXONOMIC CODING

DEFINITION

Protocol Coding is the collection and, in particular, the coding of qualitative data according to a **preestablished, recommended, standardized, or prescribed system**

EXAMPLE

Category Causes of family violence	
alcohol drugs money education conditioning	
personality	
machismo control	

Code
CAUSES

Subcode .ALCOH .DRUG .MONEY .EDUC .COND .PERS .MACHO .CONTR

Definition

Reasons that the respondent perceives as the causes of family violence **Family violence due to:** alcoholism or drinking drug use lack of money or financial problems lack of education social conditioning or learned behavior personality of the abuser or the abused intrinsic traits of men or "machismo" controlling behavior of the abuser

THEMEING THE DATA

DEFINITION

A theme is a **phrase** or **sentence** that identifies what a unit of data is **about** and/or what it **means**

"A theme is an abstract entity that brings **meaning and identity** to a recurrent [patterned] experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a **meaningful whole**"

EXAMPLE

[I: What does it mean to you to "belong"?]

Whoa, that's tough. To me, ¹ it means to belong somewhere, a specific place and no place else.

[I: What kind of place?]

New Orleans. ² I feel so grounded in that city. This was before [Hurricane] Katrina, years before. ³ There's something about that place – the gentle decadence, the style, the robustness you can't find in any other city, even New York. There's a kind of sensuality about the city, a mix of food, music, stuff that's unique, things you'll find no other place in that combination. . . .

⁴ I've got friends there, good friends, ⁵ good memories, places to drink, places to eat. Every time I go there, ⁶ I'm always in search of the perfect jumbalaya. I still haven't found it yet, but I'm still searching. I've found the perfect red beans, rice and sausage, but no jumbalaya yet. ¹ BELONGING MEANS A "SPECIFIC PLACE"

 ² BELONGING MEANS FEELING "GROUNDED"
 ³ BELONGING OCCURS IN A "UNIQUE" PLACE



 ⁴ BELONGING IS WHERE THERE ARE "GOOD FRIENDS"
 ⁵ BELONGING IS WHERE THERE ARE "GOOD MEMORIES"
 ⁶ BELONGING MEANS THE SEARCH FOR PERFECTION – UTOPIA

First cycle coding Themeing the data

THEMEING THE DATA

DEFINITION

A theme is a **phrase** or **sentence** that identifies what a unit of data is **about** and/or what it **means**

"A theme is an abstract entity that brings **meaning and identity** to a recurrent [patterned] experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a **meaningful whole**"

EXAMPLE

I. Belonging means feeling "grounded"

- A. Belonging means having a sense of ancestry
- B. Belonging means having a sense of identity
- C. Belonging is knowing the details of the culture

II. Belonging is a drive to be someplace permanent

- A. Belonging means a "specific place"
- B. Belonging occurs in a "unique" place
- C. You can belong somewhere without actually being there

III. Belonging means the search for perfection - Utopia

- A. Belonging is where there are "good friends"
- B. Belonging is where there are "good memories"





THEMEING THE DATA

DEFINITION

A theme is a **phrase** or **sentence** that identifies what a unit of data is **about** and/or what it **means**

"A theme is an abstract entity that brings **meaning and identity** to a recurrent [patterned] experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a **meaningful whole**"

EXAMPLE

Theoretical Construct 1: Belonging is Social

Supporting Themes: Belonging means a "specific place" Belonging occurs in a "unique" place Belonging is knowing the details of the culture Belonging is where there are "good friends" Belonging means having a sense of identity

Theoretical Construct 2: Belonging is Memory

Supporting Themes: Belonging is where there are "good memories" Belonging means having a sense of ancestry You can belong somewhere without actually being there

Theoretical Construct 3: Belonging is a Quest

Supporting Themes:

Belonging is a drive to be someplace permanent Belonging means feeling "grounded" Belonging means the search for perfection – Utopia

PATTERN CODING

FOCUSED CODING AXIAL CODING THEORETICAL CODING ELABORATIVE CODING LONGITUDINAL CODING

DEFINITION

Identify an emergent theme, configuration, or explanation.

They pull together a lot of material into a more meaningful and parsimonious unit of analysis. They are a sort of meta-code. ... Pattern Coding is a way of grouping those summaries into a smaller number of sets, themes, or constructs

EXAMPLE

SECRETARY: ¹ I often have to go back to her and get more information about what she wants done because her first set of instructions weren't clear.

RECEPTIONIST: ² It's kind of hard working for her, because she rushes in, tells you what needs to be done, then goes into her office. ³ After she's gone you start doing the job, and then you find out there's all these other things she didn't think of to tell you. ¹ UNCLEAR INSTRUCTIONS

 ² RUSHED DIRECTIONS
 ³ INCOMPLETE DIRECTIONS



PATTERN CODING FOCUSED CODING AXIAL CODING THEORETICAL CODING

ELABORATIVE CODING LONGITUDINAL CODING

DEFINITION

Grouping similarly coded data reduces the number of Initial Codes you developed while **sorting and relabelling them into conceptual categories**. During this cycle, "the code is sharpened to achieve its best fit" (Glaser, 1978, p. 62), and there can be more than one Axial Code developed during this process. Axial Coding is the transitional cycle between the Initial and Theoretical Coding processes

EXAMPLE

The *Properties* [characteristics or attributes] of BEING SOCIALLY ACCEPT-ABLE:

- · Adolescents accept peers with whom they find perceived similarities.
- · Adolescents accept those with whom they feel are compatible.
- · Adolescents accept those with whom they feel safe, or at least secure.
- · Adolescents accept those with whom they have shared interests.
- Adolescents accept those who are doing something they want to get into (e.g., drugs, sports).
- · Adolescents accept those with whom they have fun.

ACCEPTABLE
Acknowledging Exceptions to the Stereotypes Accepting the Stereotypes
Those with Common Interests Those with Uncommon Interests
"Popular" and Liked by Some "Popular" Yet Not Liked By Others
Belonging and Accepted Belonging but Not Accepted Not Belonging or Accepted
Accepted and Belonging Accepted but Not Belonging Not Accepted or Belonging

PATTERN CODING FOCUSED CODING AXIAL CODING **THEORETICAL CODING** ELABORATIVE CODING LONGITUDINAL CODING

EXAMPLE



DEFINITION

In Theoretical Coding, **all categories and subcategories** now become systematically linked with the **central/core category**, the one "that appears to have the greatest explanatory relevance" for the phenomenon

PATTERN CODING FOCUSED CODING AXIAL CODING THEORETICAL CODING ELABORATIVE CODING LONGITUDINAL CODING

DEFINITION

Longitudinal Coding is the attribution of selected **change** processes to qualitative data collected and compared **across time**

EXAMPLE

	LO	NGITUDINAL QUA	LITATIVE DATA	SUMMARY MATRIX		
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	STUDY:		RESEARCH	HER(S):		
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01 - A Multidimensional Analysis of Project Manager Competences	Chipulu, Maxwell; Ne	ec Multiple	Multiple	IEEE Transactior Mixed		Job Analysis	Unassigned
.02 - Agility of Project Manager in Global is Project	Hahn, Inae; Bredillet	t, France and South Korea	IT	Journal of Com Mixed		Interview and Survey	Unassigned
03 - Ambiguity acceptance and translation skills in the project management literature	Gray, Karmin; Ulbrich	n, Unassigned	Unassigned	International Jc Qualit	ative	Review	Unassigned
04 - An analysis of BIM jobs and competencies based on the use of terms in the industry	Uhm, Miyoung; Lee, G	Gł USA, UK, China	Construction	Automation in (Qualit	ative	Job Analysis	Unassigned
05 - Attitudes and leadership competences for project success	Müller, Ralf; Rodney	TMultiple	Multiple	Baltic Journal of Quant	itative	Survey	LDQ
06 - Benchmarking of Project Management Office Establishment [~] Extracting Best Practices	Andersen, Bjørn; Her	nr Multiple	Multiple	Journal of Mana Qualit	ative	Interview	Unassigned
07 - Challenges and competencies for project management in the Australian public service	Blixt, Carley; Kirytopo	ol Australia	Public Administration	International Jc Mixed		Interview and Survey	IPMA ICB
08 - Characteristics of Portuguese public-sector project managers [®] Toward closing the effectiv	Yasin, Mahmoud M; G	GcPortugal	Public Administration	Project Manage Quant	itative	Survey	Unassigned
09 - Competencies of project managers in international NGOs [~] Perceptions of practitioners	Brière, Sophie; Proul	x, Canada	NGO	International Jc Qualit	ative	Interview	Unassigned
10 - Competencies required of project managers at the design phase of mass house building p	Anadzie, D.K.; Prover	rb Gnana	Construction	International Jc Quant	itative	Survey	Unassigned
11 - Competency-Based Model for Predicting Construction Project Managers' Performance	Dainty, Andrew R J; C	un UK	Construction	Journal of Mana Qualit	ative	Focus group	McBer Competency Models
 Competency-based selection and assignment of numan resources to construction project Contemporary knowledge and skill requirements in preject management 	Ingacon, Holgi Thory	it, iran Iá Multiplo	Education Acadomy	Sciencia franica Mixed	itativo	Interview and Survey	IPMA ICB
15 - Contemporary knowledge and skill requirements in project management.	Young Michael: Cont	br Australia	Linessigned	International Ic Qualit	ative	Interview	Inssigned
15 - Design engineering competencies [®] future requirements and predicted changes in the for	Robinson Mark A: Sn		Aerospacial	Design Studies Mixed	ative	Interview and Survey	Leadership Architect (specific i
16 - Do project managers' leadership competencies contribute to project success"	Geoghegan, Linda: Di	uluk	Financial services	Project Manage Quant	itative	Survey	LDO
17 - Emotional intelligence and its relationship to transformational leadership and key project	Clarke, Nicholas	UK	Multiple	Project Manage Quant	itative	Survey	EL (MSCEIT V2.0), Empathy, cog
18 - Empirical Study of Project Managers Leadership Competence and Project Performance	Ahmed, Riaz: Ananta	tr Pakistan	Multiple	Engineering Ma Quant	itative	Survey	Previous research (leadership)
19 - Evolutionary optimization of model specification searches between project management	Chou, Jui-Sheng: Yan	e. Taiwan	Construction	Expert Systems Quant	itative	Survey	Unassigned
20 - Exploring program management competences for various program types	Miterev, Maxim; Eng	w Multiple	Pharmaceutical	International Jc Qualit	ative	Interview	Unassigned
21 - From Every Direction-How Personality Traits and Dimensions of Project Managers Can Co	Creasy, Todd; Ananta	ati Unassigned	Unassigned	Project Manage Qualit	ative	Review	MBTI
2 - Identification and evaluation of the key social competencies for Chinese construction pro	j Zhang, Feng; Zuo, Jia	n; China	Construction	International Jc Quant	itative	Survey	Unassigned
23 - Identification of the critical project management competencies of architects in the Ghana	i Kwofie, Titus Ebenez	e Ghana	Construction	International Jc Quant	itative	Survey	Unassigned
24 - Identifying critical leadership styles of project managers for green building projects	Zhao, Xianbo; Hwang	g, I Singapore	Construction	International Jc Quant	itative	Survey	Previous research
25 - Impact of corporate strengths [~] weaknesses on project management competencies	Isik, Zeynep; Arditi, D	Da Turkey	Construction	International Jc Quant	itative	Survey	Previous research
6 - Information systems project manager soft competencies [∞] A project-phase investigation	Skulmoski, Gregory J	; F Canada	IT	Project Manage Qualit	ative	Interview	Unassigned
7 - Investigating the impact of project managers' emotional intelligence on their interperson	Davis, Steven A	USA	Unassigned	Project Manage Quant	itative	Survey	PMICI (Davis 2009), EI (MSCEIT)
8 - IT project managers' construction of successful project management practice" a repertory	Napier, Nannette P.;	K Unassigned	IT	Information Sys Qualit	ative	Interview	Unassigned
9 - Leadership competency profiles of successful project managers	Müller, Ralf; Turner,	R(Multiple	Multiple	International Jc Quant	itative	Survey	LDQ, project type
0 - Leadership styles, goal clarity, and project success	Raziq, Muhammad M	lu Pakistan	Multiple	Leadership & O Quant	itative	Survey	Leadership
81 - Modeling Project Manager Competency~ An Integrated Mathematical Approach	Hanna, Awad S; Ibrah	hir USA	Construction	Journal of Cons Quant	itative	Survey	CII-RT-306
32 - PM critical competency index" IT execs prefer soft skills	Stevenson, Deborah	H USA	11 17	International Jc Mixed		Interview and Survey	Job analysis
33 - PMP* certification as a core competency* Necessary but not sufficient	Starkweather, Jo Ann	1; USA	11	Project Manage Mixed		Interview and Survey	JOD analysis - PMP

Organise codes Link codes and articles











Opportunity to assess the strength of evidence for **drawing conclusions** about the results of

synthesis and their generalizability in your intended context.

Synthesis = what the literature says

Analysis = what the literature means



Testing or confirming review findings

Main tactics

REPRESENTATIVENESS

Are any group underrepresented, overrepresented, misrepresented or misinterpreted?

RESEARCHER EFFECTS

Researchers favour a particular programme or intervention

TRIANGULATION

Use different method to research the same issue

MEANING OF OUTLIERS

Any study that show particularly extreme results

USING EXTREME CASES

Extreme cases are stimulated by atypical contexts

FOLLOWING UP SUPRISES

Identify where one or more studies does not fit its anticipated place

LOOKING FOR NEGATIVE EVIDENCE

Involves actively seeking disconfirmation of what you believe to be true.

SENSITIVITY ANALYSIS

Formal exploration of what ifs

RULE OUT SPURIOUS RELATIONS

Whether a third factor or variable may explain away the apparent relationship

REPLICATE A FINDING

Exploration of the data may also involve reference to external data sources

CHECK OUT RIVAL EXPLANATION

Keep mind open to alternative explanations

WEIGHTING THE EVIDENCE

Conclusions are not simply base on votecounting. Order from highest quality to lowest quality

Identifying gaps

THEORETICAL SATURATION

- 1. Follow systematic process
- 2. Read all articles
- 3. Define theoretical saturation (diminishing returns)



Finding meaning

So what?



PROBLEM SOLVING

Make clear what the practical concerns are, why they are important, and how this investigation can address those concerns



FACT FINDINGS

Make clear what information is lacking, why it is important, and how this investigation will address the need for information



THEORY GENERATION

theoretical perspective

Make clear what new theory is, how it relates to existing theories and evidence, why the new theory is needed, and the intended scope of its application

THEORY TESTING OR VALIDATION

and how the study contributes to

Make clear what the contributions are

testing, elaborating or enriching that

Limitations of the evidence

The role of bias



CITATION BIAS

When chance of study being cited by others is associated with its result.



DATABASE BIAS

When there is biased indexing of published studies in literature database



FUNDING BIAS

When design, outcome, and reporting of industry-sponsored research may results in favourable outcome

GREY LITERATURE BIAS

When results reported in journal articles are systematically different from those in reports, working papers, dissertations, or conference abstracts



LANGUAGE BIAS

When reviews are more likely to include studies published in the language of that review

MULTIPLE PUBLICATION BIAS

When multiple / duplicate publications are produced from single studies

OUTCOME REPORT BIAS

When study in which multiple outcomes were measured reports only those that are significant



PUBLICATION BIAS

Selective submission of papers (by authors) or selective acceptance of papers (by editors)

Analysing the findings What else?



IDENTIFYING RECOMMENDATION TO PRACTICE

One possible outcome of your review will be to identify methods or interventions that can be utilised in practice.

How it can be implemented?



RECOMMENTATIONS FOR FUTURE RESEARCH

Given that one of the objectives of the review is to consolidate a body of evidence, the reviewer should seek to be as specific as possible about what is lacking in research conducted to date.






Defining your audience Primary and secondary audiences



Research funders

Wise investment. Incremental knowledge gains made as a result of the review.

Policy makers

Extent to which the results can be reasonably applied or generalized to a population / context.

Practitioner

Help to solve specific problems. Attention to length and recommendations to practice.

Research community

Interested in well-conducted reviews. Identification of research gaps.

Media

Findings from a review carry more accumulated weight than a single study.

Public

Requires simplification of concepts, definition of unfamiliar terms, and use of accessible terminology

What is required?













EXPLANATION

Include meaningful title indicating the subject and the method (systematic review, meta-analysis, etc)

EXAMPLE

SUBJECT KEYWORDS : SYSTEMATIC REVIEW METHOD KEYWORDS

Research Focuses, Trends, and Major Findings on Project Complexity: A Bibliometric Network Analysis of 50 Years of Project Complexity Research

Leandro Bolzan de Rezende, The University of Manchester, United Kingdom Paul Blackwell, The University of Manchester, United Kingdom Marcio Denys Pessanha Gonçalves, The Brazilian Ministry of Defense, Brazil





EXPLANATION

Last part to write. Summarises how well you searched, how many studies you reviewed and what your main conclusions are.

EXAMPLE

Summary including (as applicable):

- Background;
- Objectives;
- Data sources;
- Study eligibility criteria;
- Participants;
- Interventions;
- Study appraisal and synthesis methods;
- Results;
- Limitations;
- Conclusions;
- Implications.





EXPLANATION

Provide essential details concerning the starting point for the review.

EXAMPLE

- Hook (reader's pain); (RECENTLY)
- Establish the territory (what is known CLASSIFICATION SHEET)
- Rationale for review (establish a niche): (HOWEVER)
 - Counter-claiming; or
 - Indicating gap; or
 - Question-raising; or
 - Continuing a tradition;
- Outline purpose (THEREFORE)
- Research question
 - PICO (participants, interventions, comparators, outcomes)
 - CIMO (context, intervention, mechanism, outcomes)
- Indicate report structure

IMRAD



EXPLANATION

The extent of the description of methods depends on the type of review you are undertaking and the degree of rigour it requires.

EXAMPLE

- Eligibility criteria (inclusion and exclusion);
- Information sources;
- Search strategy (STARLITE);
- Search records:
 - Data management;
 - Selection process;
 - Data collection process;
- Data items (variables which data will be sought PICOS, CIMO);
- Risk of bias (assessing risk of bias);
- Data synthesis
 - Criteria;
 - Summary measures;
 - Methods for combining data;
 - Consistency;
- Analysis methods;
- Confidence in cumulative evidence.

IMRAD



EXPLANATION

Starts with a quantitative summary of the number of items identified and then moves on to the detail of the individual studies.

EXAMPLE

- Study selection (method section);
- Study characteristics (method section);
- Results of individual studies;
- Synthesis of results;
 - Tables;
 - Figures;
 - Graphs;
- Risk of bias across studies;
- Additional analysis (sensitivity, subgroup analysis).

IMRAD



EXPLANATION

Bring meaning to the data.

EXAMPLE

- Summary of evidences (consider relevance to key groups readers' pains);
- Explain the meaning (YOUR ARGUMENT, YOUR VOICE, ADDITING TO TERRITORY);
- Connect with the research question.

IMRAD



EXPLANATION

Remember and conclude.

EXAMPLE

- Remember readers about the objectives / research question;
- Summarise methods;
- Summarise findings (results);
- Provide a general interpretation of the results (SO WHAT?)
- Implications and recommendation to readers (practitioners, policy makers, etc)
- Limitations:
 - Study level;
 - Outcome level;
 - Review level;
- Future research agenda

IMRAD



EXPLANATION

Adding supplementary material

EXAMPLE

- Excluded articles;
- Protocols;
- Forms;
- Codes;
- Databases;
- Etc...

Academic paraphrasing

Examples for writing in an organised way

Go to:

phrasebank.manchester.ac.uk/



PDF 📄

Academic paraphrasing

Examples for writing in an organised way

Introducing differences - close

X is different from Y in a number of respects. X differs from Y in a number of important ways. There are a number of important differences between X and Y. Areas where significant differences have been found include X and Y. In contrast to earlier findings, however, no evidence of X was detected. A descriptive case study differs from an exploratory study in that it uses ... Jones (2013) found dramatic differences in the rate of decline of X between Y and Z. Women and men differ not only in physical attributes but also in the way in which they ... The nervous systems of Xs are significantly different from those of Ys in several key respects.

Smith (2003) found di observed of si	najor otable istinct nly slight ignificant onsiderable	differences between X and Y.
--	---	------------------------------

Highlighting a trend in a table or chart - close

What is striking What stands out What is interesting What can be clearly seen	in this	table chart figure	is the growth of is the high rate of is the variability of is the dominance of is the rapid decrease in is the rapid decrease in is the steady decline of is the steady decline of is the general pattern of is the dramatic decline in is the continual growth of is the difference between is the phenomenal growth of





Conclusion

Common reviewers' errors



Reference

Booth, A., 2006. "Brimful of STARLITE": toward standards for reporting literature searches. J. Med. Libr. Assoc. 94, 421–9, e205.

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