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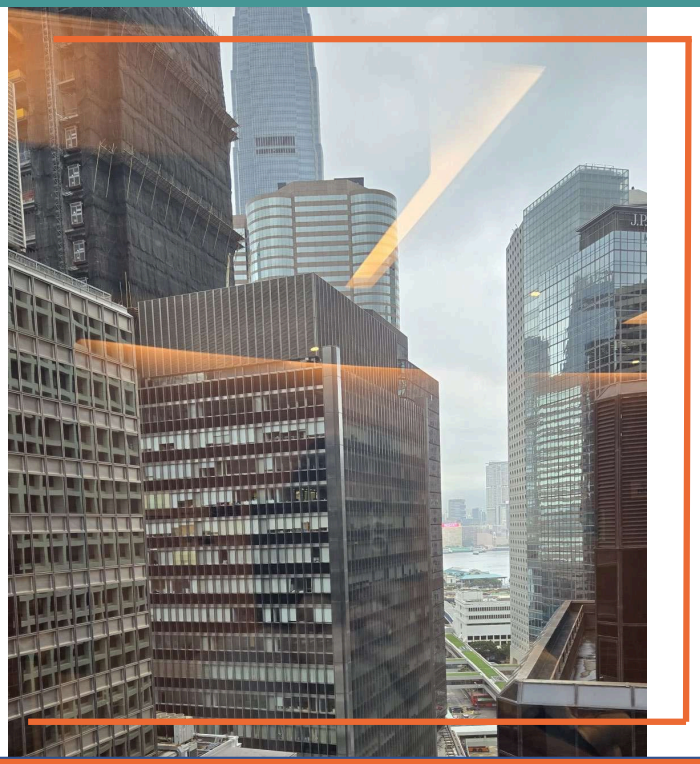


HKBM7019

Critical Literature Review

Day 3
Critical reading and self-critical writing

Dr. Tamara Savelyeva

Our goals

To learn:

- some quick ways to read source text critically
- developing conclusions
- from examples of published papers

Quick quide to reading critically

Reading critically is about

Deconstructing a source text

Examining the logic of the text

Critiquing fairly → criticizing QUAL study with QUAN lenses is unfair

Quick quide to reading critically

As readers
we are always positioned by
our backgrounds, beliefs
that affect our interpretation and judgments

Where do we start?

- **1 step :** formulate questions:

- a broad central question to underlie your entire piece of work or a substantial thematic section

- a review question, ore specific question that you ask of the literature (can be derived from a broader central question or be theoretical or justify methodology)

- **2 step:** evaluate usefulness of what you read

Evaluating the usefulness of what you read

Conclusion

Comprising one or more claims that something is, or should be, the case

Warranting

The justification for why the claim or claims in the conclusion should be accepted

Argument

Opinion = Unwarranted Conclusion

Argument = Conclusion + Warranting

EXERCISE

Argument: What makes it convincing?

What is the author's claim?
What is the warranting?

Analytical Memo: Post Interview Reflection on C1M

Participant possessed a deep understanding of all aspects of climate change, sustainability and offered a comprehensive array of opinions. C1M strongly believes that the bank objective of net zero carbon emissions is impossible to meet, *they* emphasised the need to focus on adaptation. The three pillars mantra of the bank's CEO resonates with C1M. *They* disclosed four areas which may impede adoption of GB practices by some staff 1) demographics namely age of employee's: older employees nearer retirement are comfortable with status quo "lethargy", 30-40-year-old employees do the minimum demanded by the ESG policy "satisficing" (bounded rationality). 2) Cultural differences between European and Hong Kong employees. HK local employees are less compliant with policy and argue "extra work with no financial benefits." 3) C1M believes resources are wasted by banks through offering loans to carbon neutral projects that are not viable (legitimacy). 4) EE is offered online and is a voluntary programme. However, most employees attend due to peer pressure and the impact that non-attendance may have on their careers.

Throughout the interview C1M was open and comfortable to present *their* views and interpretation of the bank's policy. At no time did the researcher observe a change in character or nonverbal communication which contradicted the verbal data.

Box 7. Memo: Reflection of C1M Interview **Scott Burdett, p. 123**

Burdett, S. (2024). *Green Banking in Hong Kong: Exploring the Attitudes and Knowledge of Middle Tier Management in Foreign Banks*. DBA dissertation, UWTSD.

Evaluating the argument

Our EXAMPLE claim is based on one quote from one respondent → is warranted by participant's quoted data

Is the warranting provided for a claim is adequate & makes it convincing?

Two scenarios- a Reader is convinced or not convinced ;)

→ might feel that a single voice does not carry much weight and so look for other, supporting evidence, such as a statistic: "38% of the respondents felt that the bank objective of net zero carbon emissions is impossible to meet and emphasized the need to focus on adaptation"

→might equally feel that the point of the claim is not in a majority view, but that it exists at all. Decides that even if this view is restricted to one person, it is sufficient for warranting the claim.

Such decisions cannot be taken in the abstract!
Need taking into account the nature and purpose of the study, reader's other knowledge and experience, and interests in reading the text

Evaluating the argument

- The claim is as convincing as the adequacy of the warranting that justifies it
- Whether you are writing about your own research or commenting on someone else's, you need to warrant your claims
- When you are commenting on what others have claimed about their work, you must be careful that your own counter-claims are warranted

It is easy to criticize the shortcomings of others' conclusions, and then to draw similarly flawed conclusions oneself ;)

EXERCISE

Argument: What makes it convincing?

What is the Reviewer's claim?
What is the Reviewer's warranting?

.

Statement from Lecture 2:

In the DBA module, the five students who were taught CRL methods using phonics method performed better overall than the five students taught using the whole text method. This shows that the phonics is a better choice for DBA programs (Dimsaming, 2024)

Reviewer's Comments:

Dimsaming (2024) found that students taught CLR using phonics did better in a final test than students taught using the whole text method. However, the study was small, the test rather limited, and the subjects were not tightly matched either for age or gender.

An examination of Dimsaming's test scores reveals that, although the mean score of the phonics group was higher, two of the highest scorers in the test were whole text learners. Since this indicates that the whole text method is effective for some learners at least, Dimsaming is perhaps too quick to propose that 'the phonics method is a better choice for DBA programs' (p. 89)

Reviewer's evaluation:

- Noted the limitations of the empirical investigation :

"*…the study was small, the test rather limited…*"

- Highlighted a notable degree of overlap between the range of the reported findings for the 2 groups of subjects, that was ignored by in warranting the conclusion:

"*…An examination of Dimsaming's test scores reveals that …*"

- The comments comprise the commentator's own warranting, which backs the commentator's own conclusion:

"…Browning is perhaps too quick to propose…"

Reviewer's evaluation:

Reviewer's Claim:

Dimsaming's warranting is inadequate to make his sweeping conclusion convincing

As the **Reader** of this Review, you must **decide**:

1. you find the Reviewer's warranting is adequate

or

2. you think Dimsaming's did enough

Reviewer's evaluation:

- people may differ in their views about what counts as adequate evidence
- the strength of the warranting depends only indirectly on the evidence itself
- the relationship is mediated by our interpretation

Identifying the conclusion and warranting of arguments

- Key indicators are words or phrases like:

therefore, because, since, so, it follows that, it can be concluded that

EXAMPLES:

- ***Since*** research shows that girls mature faster than boys, studies should take age and gender into account when exploring child development.
- Child development studies should take age and gender into account ***because*** research shows that girls mature faster than boys.
- Research shows that girls mature faster than boys. ***Therefore,*** studies of child develop- ment should take age and gender into account

Identifying the conclusion and warranting of arguments

May weight the warranting, implying that it is reliable in its own terms but it may not be universally the case

EXAMPLES:

- **In so far** as girls are believed to mature faster than boys, studies of child development should take age and gender into account.
- **In conditions** where girls mature faster than boys, studies of child development should take age and gender into account.
- **Where it is relevant to the investigation** that girls mature faster than boys, studies should take age and gender into account.

Incomplete or flawed arguments

HANDOUT

Table 4.1 Identifying flaws in arguments

Type of flaw in an argument	Example (at the level of a few sentences)	Critical questions as a reader, suggesting there may be a flaw	Example resolution
Conclusion without warranting	The best musicians make the worst teachers	Why do you think that? How do you know?	The eye for fine detail possessed by the best musicians tends to make them over-critical and discouraging with pupils (Good 2009)
Potential warranting without a conclusion	Johnson's research shows that people often sign legal agreements without reading them. Legal documents can be difficult to read	So what? What do these different pieces of evidence, together, imply?	People may fail to read legal documents because they ar difficult
Warranting leading to an illogical conclusion	People in English-speaking countries tend not to know another language. This indicates that they are poor language learners	Does this reasoning add up? Aren't there other more plausible conclusions?	This may suggest that Englis speakers do not see the nee know other languages
Conclusion not explicitly linked to warranting	Statistics show that teenagers are drinking far too much to be good for their health. Alcoholic drinks should be increased in price	What causal relationship between the factors are you meaning to suggest?	Since teenagers have only limited money, raising the price of alcohol might result in their drinking less
Conclusion with inadequate warranting	Trainee managers learn more effectively when they are praised than when their efforts are criticized. In a survey of female trainee managers in a retail company, 77% said they liked to be praised	Is the evidence adequate to justify the extent of the claim? Is the evidence appropriately interpreted? What is the link between 'liking to be praised' and learning more effectively?	However, males and females may respond differently to praise

PART II
Five Critical Synopsis Questions

Source: Wray & Wallace, 2021

Five Critical Synopsis Questions

1. Why am I reading this?
2. What are the authors trying to achieve in writing this?
3. What are the authors claiming that is relevant to my work?
4. How convincing are these claims, and why?
5. In conclusion, what use can I make of this?

Five Critical Synopsis Questions

2. What are the authors trying to achieve in writing this?

- What the text is actually about – what it reports, how any empirical work was carried out, what was discovered and what the authors conclude about it
- Where any overlap lies between the authors' concerns and your own interests – the authors are unlikely to have been asking exactly the same questions as you are

Five Critical Synopsis Questions

3. What are the authors claiming that is relevant to my work?

need to have a clear understanding of what the authors were trying to do

- *it should be clear what their purpose is- from the abstract or introduction-- failing that, in the conclusion*
- *consider who their target readers are*

1. Report the findings of their own research
2. Review others' work
3. Develop theory
4. Express particular values or opinions
5. Criticize what is currently done.
6. Advise on what should be done in the future

Five Critical Synopsis Questions

4. How convincing are these claims, and why?

- evaluate the quality of the authors' data and arguments (strength and relevance of the warranting for claims)
- underlying assumptions made by the authors that you do not share
- are the claims consistent with other things that you have read or that you know about from your own research or professional experience

Five Critical Synopsis Questions

5. What use can I make of this?

- does this text count amongst the many that you will refer to quite briefly, or the few that you will want to discuss in depth
- do you expect to write about this work positively or negatively
- would you want to imply that, overall, you agree or disagree with the claims the authors make?
- If your reading is guided by a review question, how (if at all) does the text contribute to answering it?

PART II
Applying Five Critical Synopsis Questions to an Abstract

Source: Wray & Wallace, 2021

Reading Abstract: 5Q- from synopsys to analysis

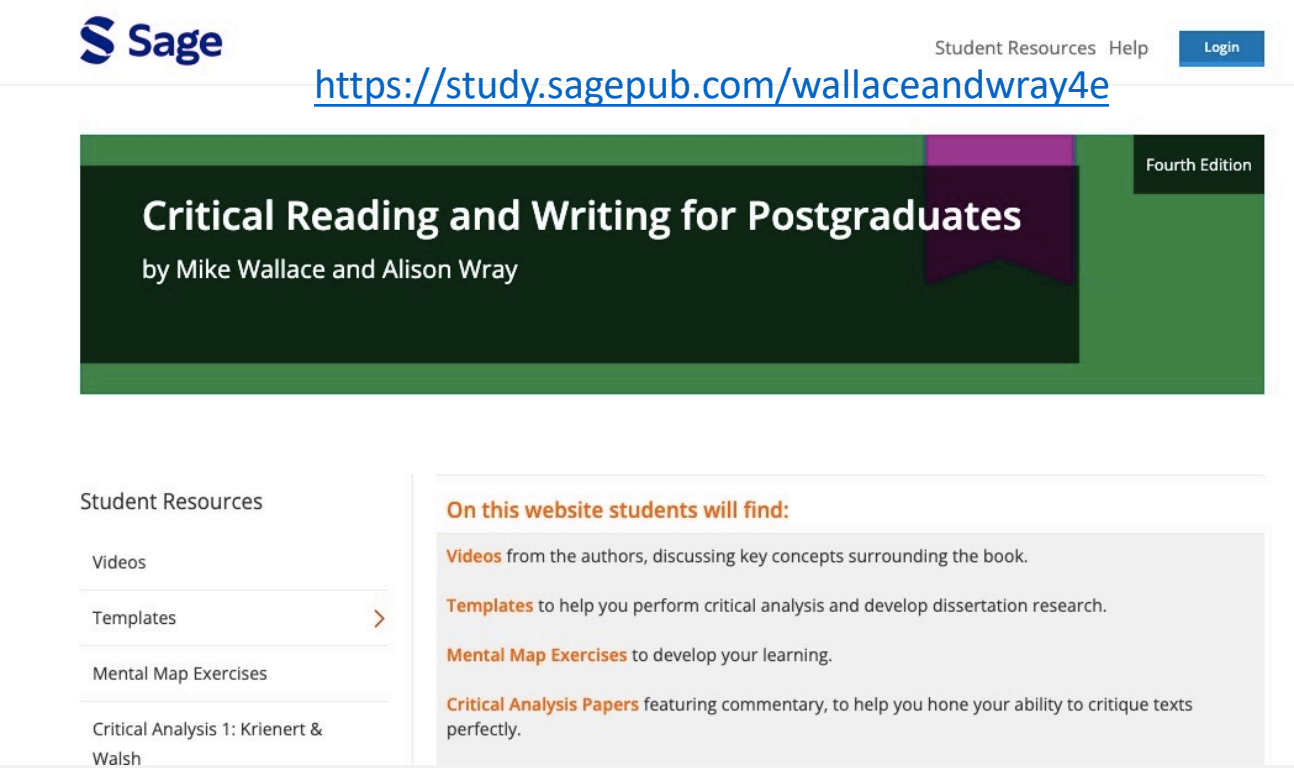
HANDOUT

Table 4.2 Targeting your reading using the Critical Synopsis Questions and the abstract

My initial answers to the Critical Synopsis Questions, from the abstract	What I need to find out from the paper itself in order to answer the Critical Synopsis Questions adequately
A. Why am I reading this?	
My research is into the effectiveness of early years educational support	• Is this paper relevant? Do the authors, who don't appear to be educationalists, align with my understanding of what 'early years educational support' is? Do they define that term?
B. What are the authors trying to achieve in writing this?	
Reporting patterns in data from a large survey – it is secondary data and their main message is about how they analysed it	• Do they say what they are trying to achieve? • Are they primarily looking at this general data set, and happen to be looking at education in this paper? Or do they have something particular to say about early years support? • Do they have an implicit position on the desirability of ethnic minority representation in early intervention education? • As it's not their data, how have they ensured they understand what it does and doesn't represent, why it was collected, etc., so that it does enable them to achieve what they want to?
C. What are the authors claiming that is relevant to my work?	
The following characteristics are associated with high representation in EI/ECSE: male gender, low birth weight, congenital abnormalities, behavioural problems. The following characteristics are associated with low representation: low socioeconomic status, high language and numeracy, ethnic minority group. Of these, it's the last that remains after factoring out interfering variables	• Do they make any important claims that are not mentioned in the abstract? • Do their definitions of key terms (e.g., 'ethnic minority group', 'early intervention', 'special education', 'other than English') align sufficiently with mine for their claims to inform my study? • What were the 'additional factors' they mention? • Are any reasons given for the disproportionate under-representation they find?

(Continued)

TEXTBOOK's Webpage with Resources & TEMPLATES



EXERCISE

HANDOUT

Example
Completed Critical Synopsis of a Text

A. Why am I reading this?

Part of reading to answer the review question 'In what ways can language be the focus of a court dispute?'

B. What are the authors trying to achieve in writing this?

***Abstract**: They're questioning the relative weight of psycholinguistic and sociolinguistic explanations. (But what are those two explanations and how convincing are they?) They seem to be defending the person who gave offence. (How do they justify that position?)*

***Full reading**: They provide an explanation, from psycholinguistic theory (Wray's) for why two people had different understandings of the same word or phrase. They show that sociolinguistics and psycholinguistics play a role in how we understand language. But they do not propose that court cases should always take these things into account.*

C. What are the authors claiming that is relevant to my work?

***Abstract**: If you encounter an unknown word/phrase, you break it down to understand it. But if you do know it, then you do not need to break it down to understand it. So you can miss seeing that it may be offensive for some people. (What sort of psycholinguistic theory is used to make that case?)*

***Full reading**: An African-American woman sued her employer after she was sent a certificate calling her a 'Temporary Coon Ass'. 'Coonass' (usually one word) is a dialect word that does not relate historically to 'coon' or 'ass', and refers to white people from Louisiana. The case revolved around whether the sender should have realized that the woman would find 'coonass' offensive because it contains 'coon'. The authors' 'Needs Only Analysis' model shows how the sender could fail to notice 'coon' inside 'coonass', because he had never had to break the term down into its components. Meanwhile the recipient, not knowing the dialect word, would automatically break it down to reveal two offensive words.*

D. How convincing are these claims, and why?

***Abstract**: The authors claim a 'psycholinguistic rationale'. (But how plausible is it that someone could fail to see an offensive word inside a longer word or phrase? What other explanations could there be, and are they considered? Is their claim generalizable to other court cases?)*

***Full reading**: Their argument is convincing in itself, but draws only on one theory. They do not mention any other court cases, so it is not clear how common this sort of dispute is. There is no mention of other kinds of disputes in the courtroom either. There is good*

(Continued)

PART II
FROM CRITICAL SYNOPSIS TO CRITICAL SUMMARY

Source: Wray & Wallace, 2021

SELF-CRITICAL WRITING

- When you give your own view on an issue, this does not mean simply presenting your instinct or opinion
- It implies assessing evidence in published (and unpublished) material to build up a coherent and convincing position →
- you construct an argument using the available evidence as the warranting for your conclusion

COMPARE:

'There are many different opinions about this question, but I think that phonics should be taught in DBA program'

'Taking into account the various arguments in the literature that I have discussed, it seems reasonable to conclude that phonics is a sufficiently reliable method to be adopted in DBA programs

SELF-CRITICAL WRITING

COMPARE

(1)There are many different opinions about this question, but I think that phonics should be taught in DBA program →

the sweeping statement disguises a greater insight than the reader can detect

(2)Taking into account the various arguments in the literature that I have discussed, it seems reasonable to conclude that phonics is a sufficiently reliable method to be adopted in DBA programs →

difficult to construct convincingly without discussing arguments and coming to a conclusion. Have more confidence that this wording is an accurate reflection of author's knowledge/thinking

Target your reader

HANDOUT

How strong is your sense of the audience for your academic writing?

Look carefully at each statement in our profile of the academics who may assess a postgraduate's written work. Then consider the two questions at the end of the exercise.

Profile of the postgraduate student's target readers (assessors)

Age **Old enough** to have read plenty of other postgraduate work, so they will have a measure by which to judge yours.

Lifestyle **Busy**, so they will appreciate a logical structure, clear focus and fluent writing style that communicates efficiently.

Attitudes **Fair and respectful**, concerned solely with the quality of your argument.

Sceptical, so they will not accept your argument unless you provide adequate warranting for the claims in your conclusion.

Open-minded, so they will be ready to be convinced by your argument if your conclusion is well warranted, even if their own views are different.

Empathetic, having once been postgraduate students themselves, they will have a sense of how you are feeling and how difficult it can be to navigate a new topic.

Best subject **The field of enquiry:** knowledgeable about the area in general but possibly not about detailed issues or your professional experience. Therefore, they will welcome a brief description of specific context and content, but only in so far as it is relevant to your argument.

Likes **Logic**, as expressed in an account that is carefully constructed, well argued, balanced, meticulous on detail and reflective.

Books and journals, so they know the literature well and will expect you to have read what you write about and to report it accurately (and they may wish to follow up some of your references to extend their own knowledge).

Evidence that your work has met the assessment criteria, since no work, however imaginative, can pass unless it fulfils the requirements that are laid down.

PART II
Analysing Research & Drawing Conclusions

Source: Cecile Badenhorst (n.d.). Critically analysing research and drawing conclusions. Memorial University Graduate School. https://www.youtube.com/watch?v=gHMathpk9Qs

Hart (2018) process for critically reading the source text

- Read Abstract
- Scan text noting research purpose and problem
- Read text again, highlight words *yet, thus , therefore, however* which indicate a shift and are linked to an argument
- Sum up the author's argument, if unclear, note what points the author is making and why
- Highlight interim and main conclusions and reasons for the conclusions (usually follow the words *therefore , thus, consequently, as a result of etc.)*
- Take each conclusion and evaluate the reasons for these conclusions (words for reasons : *because, since, it follows etc)* **Are you convinced?**

Hart (2018) process for critically reading the source text

- Read Abstract
- Scan text noting research purpose and problem
- Read text again, highlight words *yet, thus , therefore, however* which indicate a shift and are linked to an argument
- Sum up the author's argument, if unclear, note what points the author is making and why
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- Take each conclusion and evaluate the reasons for these conclusions (words for reasons : *because, since, it follows etc)* **Are you convinced?**

Question both Claims and Conclusions for the argument

- The claims will contain assumptions: is the argument worthwhile to make in the first place? Is this an appropriate focus? Are there other questions we should be asking?
- The conclusions need to logically & reasonably follow from the claims & supported by evidence
- Leaps in reasoning: more claims than evidence

“bring together different studies… and to find new meaning from the sum of those papers viewed as a whole than could be obtained by reading each one individually”

Aveyard, 2010, p.124

Conclusions of the Literature review

- Conclusions on the individual sources using note taking
- Conclusions across source texts using analysis, synthesis and evaluation
- Meta conclusions: meta synthesis points that you can make now when you have done this review (develop three meta conclusions–> push yourself a bit further by asking
  "What three things I can say about this?"
  "What does it all means?"

Analysis and Synthesis

- Analysis- taking an idea, argument, or piece of research apart to see how it was constructed. Doing the same wit h multiple ideas, arguments, or pieces of research
- Synthesis- re-assembling the pieces of an idea(s), argument(s), or piece(s) of research in a different way to support new claims, proposals, and interpretations and proposals for research (Hart, 2018, p. 197)

Analysis

EXAMPLE

Analysis statement

Findings Section

The analysis revealed **two major trends** and **seven thematic areas of research focus**, providing a comprehensive understanding of the current state of ESD research.

First, the analysis indicates a notable increase in ESD research, especially since 2015, reflecting the growing academic interest in Japan aligned with global sustainable development initiatives.

Second, the analysis shows a significant emphasis on research within formal educational settings, suggesting a trend toward formalizing ESD or indicating a research gap in informal or continuous education settings.

Finally, analysis of the seven thematic areas shows that research on pedagogical approaches and material development predominates within the field, whereas inquiries into teacher training and school management aspects of ESD are less frequent.

Ohira, Y. (2024 in press). ***Beyond the classroom: The evolving spectrum of ESD research in Japan***. *International Journal of Comparative Education and Development.* ***Special Issue-*** *Problematizing development and EfS,* edited by T. Savelyeva and J. Liu

Synthesis

EXAMPLE

Synthesis statement

The general agreement in all papers which Ohira (2024) read

Discussion Section

There is a **general agreement** among the researchers that there has been a shift toward active, hands-on, and student-centered pedagogies to foster transformative learning experiences in ESD. This studies illuminate Japan's engagement with these global pedagogical trends, reflecting a growing interest in learner-centered strategies that aim to transcend traditional educational paradigm.

However, the persistent challenges in verifying the transformative impact of these strategies underscore the need for a nuanced understanding and further research, particularly in developing methods that can enact deep, sustainable changes within the educational system.

This aligns with global discussions emphasizing the need for empirical evidence of pedagogical effectiveness, suggesting that Japan's experience could offer valuable insights into the practical challenges of adopting innovative teaching methods in different cultural and institutional contexts

Ohira, Y. (2024 in press). ***Beyond the classroom: The evolving spectrum of ESD research in Japan***. *International Journal of Comparative Education and Development.* ***Special Issue-*** *Problematizing development and EfS,* edited by T. Savelyeva and J. Liu

Analysis Questions for individual texts, groups of texts, entire pool of texts you read

- In what ways researchers addressed the concept, topic, issue?
- What conclusions have researchers drawn about the concept topic issue?
- What do we know and not know about the concept topic issue?

Onwuenguzie & Frels (2016)

Synthesis Questions for individual texts, groups of texts, entire pool of texts you read

- What agreement/ disagreement is there in the research literature?
- What issues are contentious / controversial?
- Are there issues / concepts not considered int eh research literature?

Summarising a source text and connecting

Made it several times

EXAMPLE

What study was about

In another study (Chen et al., 2024), a group of international researchers from Taipei and Japan aimed at investigating effects of the institutional international policies on higher education internationalization. They surveyed 3,158 university researchers and **came to a conclusion** that clear internationalization strategies and financial support for the researchers' overseas studies significantly influence internationalization in the teaching-oriented and research-oriented higher education institutions in Taipei and Japan respectively. Du et al. (2024) **reported the similar findings**.

Savelyeva, T. & Jing, L. (2024 in press). Editorial Introduction: Special Issue- Problematizing development and EfS. *International Journal of Comparative Education and Development.*

Synthesis: Comparing and contrasting

2 differences in approaching the particular topic

EXAMPLE

Identify and describe these approaches by comparing n contrasting

There are **two basic premises** that characterise the studies in this group. The **first premise** claims that practical interlinking between educational psychology and instruction provides evidence of success from real projects and cases.

The proponents of this assumption base their claims on studies that explain variations of student performance (Coutinho and Neuman, 2008; Sarfo and Elen, 2007; Fraser and Lee, 2009); design instructional models (Savelyeva, 2011; van Merrie¨nbour 1997); and evaluate learning environments in the classrooms (Biggs, 1987; Fraser et al. 1982; Moos and Trickett 1974)

The second premise claims that…

Adapted from Savelyeva, T. (2012). Connecting instructional and cognitive aspects of an LE: A study of the global seminar project . *Learning Environ Res,* 15:65–79. DOI 10.1007/s10984-012-9099-1

Describing a concept

- can be quite complex, it is not as simple as a dictionary definition
- describe the range of definitions or understandings about this concept
- eventually come to what is the most useful concept for your study

Describing a concept

EXAMPLE

Synthesis statement

The article examines connections between the discourses of sustainability and peace education (PE). The way we think of PE is ecological in nature. Rooted in the fundamental 'question of relationship' between ourselves, others, and Nature, the ecological dimensions of **PE differentiate the present study** from the previous research by expanding its inquiries along the axes of this question. The ecological dimension of PE includes discourses which help frame and structure different ways of thinking about, articulating, describing, and interpreting the complexity of human relationships, as well as surrounding social and natural environments

Adapted from Savelyeva, T. (2018). Peace education in Anthropocene In M. A. Peters (Ed.), *Encyclopedia of Educational Philosophy and Theory* (1-5). New York: Springer. DOI: 10.1007/978-981-287-532-7_593-1

Synthesis of sources : Reading across sources

Conclusion- no commonalities among studies in this group

EXAMPLE

Can make synthesis statement despite uncertainties in the literature

The findings among the 'instructional' category are not unequivocal. Rather, the instructional programs differ in many aspects- their design, duration, frequency, and the content they offer. These programs have **no common denominator** that enables us to reach a firm conclusion regarding the relationship between instructional and cognitive domains of the Learning Environment (LE). Furthermore, the reporting in these papers revolves around the technological aspects of the LE which is one part of the LE, but not the only part. The literature is lacking cognitive, social, and affective claims that could be made…

Showing connections between different source texts

1 line from the particular source is extended to a number of sources; connection to a synthesis of other sources

EXAMPLE

… one such variable might be student's cultural background, which is a strong predictor of participation in sustainability-related activities (Savelyeva, 2019), and therefore **it is not surprising** that the results of the reviewed studies are not uniformed.

Critical conclusion

These results are in line with Park's (2024) claims about importance of formal sustainability education at any level of the educational system

Analytical connection to an individual study to make a synthesis statement

Noting weaknesses or limitations in sourse texts

Making commentaries --not critiquing!-- based on your experience & being a practitioner in the field + caution in the language → quite soft

… although the body of research concerning the integrating relationship between university's professional development (PD) and sustainability is still limited in scope, the direct and immediate associations are **promising** about **such relationships** and warrant further research.

Critical comment

Focus of studies does not give enough info

The main difficulty with these studies is that **there are no data** on the exact content of PD and sustainability-related courses, or on the way they were taught in different countries. The reason behind the findings reman **largely unknown**, and they may have nothing to do with the pros and cons of PD, but instead may relate to other factors, such as…

The current research has not been able to **comprehensively pinpoint** what PD types may uplift sustainability mindset (Savelyeva and Liu, 2024; Savelyeva and Park, 2023)

Sets of Conclusions

Conclusion to each section

Conclusions to findings
-core of the paper!
draw on your analysis

Conclusions to lit review
-meta conclusions

Writing up conclusions: Creating new meaning

Tell what authors thought about the studies and their process of analysis, came to synthesis statements, and conclusions

Conclusion to each section

although the body of research concerning the integrating relationship between university's professional development (PD) and sustainability is still limited in scope, the direct and immediate associations are **promising** about **such relationships** and warrant further research.

Conclusions to lit review -meta conclusions

Our classification of the reviewed studies into three categories—the 'political' category, the 'interventionist' category and the 'integrative' category—enables us to reach a number of conclusions. The studies we reviewed in the 'political' category show that PE classes do not hinder schoolchildren's AAs. The studies included in the 'interventionist' category focused on a number of variables, such as the length of the physical activity, the intensity of the physical activity and the strengthening of children's physical fitness, which are only a few of the possibilities to consider when attempting to determine the link between PE and AAs. The studies in the 'integrative' category suggest that if we want that PE will positively influence academic, then PE and academic instruction should be integrated and significant changes in both the curriculum and the school system are needed.

Our results are in line with the conclusion presented by others (e.g. Bailey et al., 2009; Brown & Penney, 2013; Rink & Mitchell, 2002; Thorburn, 2007) that it might be beneficial to

Adopted from Sima Zach, Ella Shoval & Ronnie Lidor (2017) Physical education and academic achievement—literature review 1997–2015, Journal of Curriculum Studies, 49:5, 703-721, DOI: 10.1080/00220272.2016.1234649

An important way to make sense of the source texts for your reader

Conclusions to lit review -meta conclusions

- Tell the reader what you did
- Present findings and draw conclusions
- Reenforce what you think and what others think too
- Show that it is really important and supported by the literature

Litarature Review

Problem
Broad topic to narrow research focus

Critical analysis
of literature on problem + synthesis

Synthesis
Conclusions of review re problem + meta conclusions in relation to broad topic

Adapted from Cecile Badenhorst (n.d).*Literature review: Critically analyzing and drawing conclusions.* Memorial University Graduate School. *https://www.youtube.com/watch?v=gHMathpk9Qs*

Scientific research is about a mindset,
and here we are making it grow

Tamara Savelyeva

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Tamara Savelyeva
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