AI Researchers
Embedding Responsible AI in Research

AI READINESS TOOLKIT

UC1-02 Use case 1: Literature review and synthesis

From summary to synthesis

Facilitator guide for a 60-minute workshop on using generative AI without losing researcher judgement

AT A GLANCE

A 60-minute workshop that helps researchers move from AI-generated summaries to a traceable, balanced literature synthesis. Participants build a manual evidence map, audit each AI claim against its source, improve a prompt and rewrite a synthesis paragraph. The pack includes a facilitator guide with timings and a script, a 14-slide deck and four participant worksheets. AI proposes structures. Researchers authorise every interpretation.

TYPE
Workshop

FORMAT
Facilitator guide (PDF), slides (PPTX and PDF)

CONTRIBUTING PARTNER
UPF Barcelona School of Management

WHO IT IS FOR
Researchers, supervisors, doctoral mentors and early-career researchers

FRAMEWORK BARRIERS
Trust in AI, Know-how, Protecting expertise, This task

HUMAN-ONLY BOUNDARY

Source selection, assessment of evidence quality, interpretation, the final narrative and responsibility for claims remain with the researcher.

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Workshop overview

FIELD	CONTENT
Title	From Summary to Synthesis: Using generative AI without losing researcher judgement
Use case	Literature review & synthesis
Type	Workshop / AI demonstration workshop
Audience	Researchers, supervisors, doctoral mentors and early-career researchers
Duration	60 minutes; can be extended to 90 minutes by adding a live tool demonstration
Format	Facilitator-led discussion, paired audit exercise, prompt improvement task and short synthesis rewrite
Participant outputs	Evidence map; claim-source audit; improved prompt; revised synthesis paragraph; GO/STOP decision
Thematic area	Practical AI Applications for Researchers; also relevant to Trustworthy & Responsible AI in Research
Barriers addressed	Know-how; Trust in AI; Task-specific resistance; The rules
Human-only boundary	Source selection, assessment of evidence quality, interpretation, final narrative and responsibility for claims remain with the researcher.

Learning outcomes

Distinguish between summary, aggregation and critical synthesis.

Detect when AI-generated text overstates, omits or distorts evidence.

Trace major synthesis claims back to original sources using a claim-source matrix.

Write prompts that ask AI to separate findings, interpretation, limitations and uncertainty.

Make a GO/STOP decision before using AI-supported synthesis in research writing.

Recommended materials

Slides: From_Summary_to_Synthesis_Workshop_UPFBSM_complete.pptx.

This facilitator guide printed or shared as PDF/Word.

Participant worksheet: included in Section 9 of this guide.

Mini-corpus source cards: included in Section 7. These are paraphrased from real open-access articles, not copied abstracts.

Optional: institutionally approved AI tool or a prepared AI output. If using live AI, avoid uploading unpublished, confidential or personal data.

USING REAL ABSTRACTS

Real articles make the workshop more credible. However, for a reusable Erasmus+ toolkit, do not paste full copyrighted abstracts unless the licence clearly permits reuse. A safe approach is to create short, attributed, paraphrased source cards from open-access papers, as done here. If you have permission or CC BY confirmation, you may also include full abstracts in an appendix.

Timing and facilitation plan

TIME	STEP	FACILITATOR ACTION	PARTICIPANT OUTPUT
0-5 min	Frame	Introduce the purpose, the human-only boundary and the difference between AI support and research judgement.	Shared understanding of scope
5-12 min	Summary vs synthesis	Explain the distinction using one simple example. Ask participants to name what synthesis adds.	Definitions in own words
12-22 min	Read source cards	Give participants the five source cards. Ask them to mark one finding, one limitation and one uncertainty per card.	Manual evidence map
22-35 min	Audit AI output	Show the flawed AI synthesis. In pairs, participants classify claims as supported, partially supported, unsupported or misleading.	Claim-source audit
35-45 min	Reveal and discuss	Reveal expected issues and discuss why fluent text can still be unreliable.	Shared error taxonomy
45-53 min	Improve the prompt	Participants rewrite the AI prompt so it requests evidence, limitations and disagreement.	Improved prompt
53-58 min	Rewrite paragraph	Participants revise one paragraph into a balanced synthesis.	Revised synthesis paragraph
58-60 min	GO/STOP close	Use the checklist and ask each participant to name one rule they will reuse.	GO/STOP decision

Facilitator script

OPENING MESSAGE

Today we are not learning to make AI write a literature review for us. We are learning how to use AI to organise evidence while keeping interpretation, quality assessment and final responsibility with the researcher. The core rule is simple: AI may help us see possible patterns, but the researcher must decide whether those patterns are justified by the sources.

KEY EXPLANATION: SUMMARY VS SYNTHESIS

A summary reduces what each source says. A synthesis explains what the sources mean together. In a literature review, synthesis normally includes agreement, disagreement, methodological differences, limitations, gaps and the researcher's interpretation of how the evidence should be weighted.

Generative AI can assist with screening, clustering, summarising, producing provisional structures and checking whether draft claims appear to be linked to sources. It should not decide inclusion and exclusion, infer evidence quality, resolve contradictions or determine the final argument. Every major claim must be traceable to an original source.

Slide-by-slide facilitator notes

SLIDE	PURPOSE	FACILITATOR NOTES
1	Title	Set expectations: this is a practical workflow for responsible AI-supported literature synthesis.
2	What participants will produce	Emphasise concrete outputs: evidence map, audit, prompt, paragraph and GO/STOP decision.
3	Summary is not synthesis	Use the example on the slide and ask participants which version would be publishable in a literature review.
4	Human-AI boundary	Repeat the sentence: AI proposes structures; researchers authorise interpretations.
5	Use real literature carefully	Explain why this workshop uses paraphrased source cards from real open-access papers rather than full abstracts.
6	Mini-corpus source cards	Give participants time to read. Do not show AI output yet.
7	Manual evidence map	Ask participants to complete the evidence map before seeing any AI synthesis.
8	Naive prompt and flawed output	Show how a broad prompt can produce a confident but overgeneralised answer.
9	Claim-source audit	Participants classify claims. Require evidence for every classification.
10	Facilitator reveal	Explain the four issue types: overstatement, omission, smoothing of disagreement and unsupported inference.
11	Better prompt	Participants turn the flawed prompt into an evidence-aware prompt.
12	Defensible synthesis	Show the model paragraph; explain why it is cautious but still useful.
13	GO/STOP checklist	Close with a decision rule: no traceability, no synthesis.
14	References	Point to the source papers used for the source cards.

MINI-CORPUS: PARAPHRASED SOURCE CARDS FROM REAL OPEN-ACCESS ARTICLES

> **TOPIC**
>
> How generative AI can support literature review and synthesis workflows, and where it can distort or weaken research judgement.

CARD	SOURCE	ARTICLE	PARAPHRASED SOURCE NOTE	HOW PARTICIPANTS SHOULD USE IT
A	Bolaños et al. (2024)	Artificial intelligence for literature reviews: opportunities and challenges	Reviews AI-supported systematic literature review tools, especially screening and extraction. Finds strong potential for semi-automation, but stresses challenges around evaluation, usability and transparency.	Supports: AI can assist screening/extraction and tool-supported workflows. Limitation: focuses on tools and SLR processes, not proof that AI improves final synthesis quality.
B	Schryen et al. (2025)	Exploring the scope of generative AI in literature review development	Argues that GenAI may support knowledge development activities in literature reviews such as synthesis, evidence aggregation, critique, theory building, gap identification and agenda development, but only through a human-centred approach.	Supports: AI can help structure knowledge activities. Limitation: conceptual/activity-centric; does not establish that AI can replace human interpretation.
C	Adel & Alani (2025)	Can generative AI reliably synthesise literature? exploring hallucination issues in ChatGPT	Reports efficiency benefits in systematic review tasks, but wide variation in accuracy. Simple screening can perform better than nuanced synthesis; hallucination and low precision remain serious concerns.	Supports: AI may save time in some review tasks. Limitation: high hallucination and weak performance in nuanced synthesis mean strong verification is required.
D	Hagendorff (2024)	Mapping the Ethics of Generative AI: A Comprehensive Scoping Review	Maps 378 normative issues across 19 areas in generative AI ethics, including hallucinations, privacy, bias, safety and interaction risks. It also notes imbalances in the literature and unsubstantiated risk scenarios.	Supports: synthesis should surface categories, imbalances and risk types. Limitation: broad ethics review, not a study of AI-assisted reviewing workflows.
E	Albadarin et al. (2024)	A systematic literature review of empirical research on ChatGPT in education	Reviews 14 empirical education studies and finds uses such as feedback, writing support, personalised learning and teacher productivity. It also reports concerns about overuse, innovation, collaboration and the need for training and guidelines.	Supports: benefits and risks coexist; training and critical evaluation are needed. Limitation: education context, not research supervision or literature review production.

Prepared AI output for the audit exercise

> **USE THIS OUTPUT**
>
> This deliberately flawed synthesis is designed for teaching. It overstates, smooths disagreement and invents certainty. Do not present it as a correct model answer.

Prompt A - naive prompt: “Summarise what these sources say about the value of generative AI for literature reviews and synthesis.”

Prepared AI output: “The literature clearly shows that generative AI improves the quality and efficiency of literature reviews. Across the five sources, researchers agree that AI tools can screen and extract papers, identify themes, reduce bias and produce more original syntheses. The main concern is simply that users should check citations and follow institutional rules. Overall, generative AI can be treated as a reliable co-reviewer for researchers and supervisors, provided that references exist and the tool is used transparently.”

EXPECTED AUDIT FINDINGS

AI CLAIM	EXPECTED CLASSIFICATION	WHY
"Clearly improves quality"	Misleading / overgeneralised	Some sources discuss support, efficiency or potential. They do not jointly prove improvement in final review quality.
"Researchers agree"	Misleading	The sources are not unanimous; they contain concerns about hallucination, accuracy, transparency and human judgement.
"Reduce bias"	Unsupported	The source cards do not provide evidence that GenAI reduces bias in literature reviews.
"Produce more original syntheses"	Unsupported / partially related	Schryen et al. discuss knowledge development, but this does not prove originality of AI-generated syntheses.
"Main concern is simply checking citations"	Misleading	Concerns include hallucination, low precision, weak nuanced synthesis, transparency, ethics and training.
"Reliable co-reviewer"	Misleading	The sources support cautious human-AI collaboration, not autonomous reliability.

Participant worksheet

WORKSHEET A: MANUAL EVIDENCE MAP

CARD	MAIN FINDING	LIMITATION	WHAT REMAINS UNCERTAIN?	CAN THIS SUPPORT A SYNTHESIS CLAIM?
A				
B				
C				
D				
E				

WORKSHEET B: CLAIM-SOURCE AUDIT

AI-GENERATED CLAIM	SUPPORTED / PARTIAL / UNSUPPORTED / MISLEADING	SOURCE CARDS THAT SUPPORT IT	SOURCE CARDS THAT COMPLICATE IT	REVISED WORDING
AI improves review quality				
AI reduces bias				
AI produces original syntheses				
Citation checking is enough				
AI is a reliable co-reviewer				

WORKSHEET C: IMPROVED PROMPT

Write an improved prompt using the structure below:

> Context: What is the review question and what source notes are provided?
>
> Allowed task: What may AI do? For example, organise, compare, identify provisional themes.
>
> Evidence requirement: How should each claim be linked to sources?
>
> Limitations: How should uncertainty, disagreement and methodological limits be represented?
>
> Forbidden actions: What must AI not do? For example, invent evidence, claim consensus, add sources.
>
> Output: What should the result look like? For example, synthesis table plus one cautious paragraph.

WORKSHEET D: REVISED SYNTHESIS PARAGRAPH

Write 120-150 words that include: benefits, conditions, limitations, disagreement and the human-only boundary. Every major claim should be traceable to at least one source card.

Model improved prompt

Using only the five source cards provided, create a critical synthesis of what the evidence suggests about using generative AI for literature review and synthesis. Separate: (1) efficiency benefits, (2) support for organising or comparing literature, (3) limitations and risks, (4) areas of disagreement or uncertainty, and (5) implications for researcher responsibility. For every major claim, name the source card that supports it. Do not add sources, do not infer consensus where sources differ, and do not claim that AI improves final synthesis quality unless the cards directly support that conclusion. End with a short paragraph suitable for a literature review, clearly distinguishing evidence from interpretation.

Model revised synthesis paragraph

The selected literature suggests that generative AI can support literature review workflows by accelerating screening, extraction and the organisation of source material, and by helping researchers explore possible knowledge-development activities such as synthesis, critique and gap identification. However, the evidence does not justify the stronger claim that AI reliably improves final synthesis quality or can act as an autonomous co-reviewer. Reported benefits are conditional: AI appears more useful for bounded, structured tasks than for nuanced interpretation, where hallucination, low precision, overgeneralisation and loss of disagreement remain risks. A responsible workflow should therefore treat AI outputs as provisional prompts for human judgement. Researchers must verify every claim against the original sources, represent limitations and disagreement, and retain responsibility for the final analytical narrative.

Adaptation options

> Short version: skip the live prompt-writing task and use the model improved prompt directly.
>
> 90-minute version: ask participants to run the improved prompt in an approved tool and compare outputs across groups.
>
> Discipline-specific version: replace the source cards with five open-access papers from the participants' own field.

> Supervisor version: focus the discussion on how supervisors can review AI-supported literature work from doctoral students.
>
> Assessment version: ask participants to submit the completed claim-source matrix as evidence of learning.

References used for the source cards

Bolaños, F., Salatino, A., Osborne, F., & Motta, E. (2024). Artificial intelligence for literature reviews: opportunities and challenges. Artificial Intelligence Review, 57, 259. https://doi.org/10.1007/s10462-024-10902-3

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Albadarin, Y., Saqr, M., Pope, N., & Tukiainen, M. (2024). A systematic literature review of empirical research on ChatGPT in education. Discover Education, 3, 60. https://doi.org/10.1007/s44217-024-00138-2

About this resource

TITLE	From summary to synthesis
TOOLKIT REFERENCE	UC1-02, use case 1: Literature review and synthesis
DEVELOPED BY	UPF Barcelona School of Management, Ana Freire
SUGGESTED CITATION	AI Researchers (2026). From summary to synthesis. AI Readiness Toolkit, UC1-02. UPF Barcelona School of Management, Ana Freire. airesearchers.eu
QUALITY ASSURANCE	Reviewed by the AI Researchers consortium for quality, categorisation and alignment with the AI Engagement Framework. External peer review by senior academics is under way, and the item may be updated as a result.
VERSION	1.0, November 2026
PROJECT	AI Researchers: Embedding Responsible AI in Research. Erasmus+ Cooperation Partnership in Higher Education, KA220-HED-66835D2B. October 2025 to March 2028.
CONSORTIUM	University of Lodz (coordinator), FEP University of Porto, UPF Barcelona School of Management, ACEEU, NIPI (OPI PIB), European E-learning Institute and Momentum Marketing Services

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