

Activity: Learning Action-Oriented Research
with AI Assistance
Class Activity Handout

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Overview

- ▶ Understand the goals of action-oriented research.

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- ▶ Review the structure of the outline for the research paper assignment.

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- ▶ Understand the goals of action-oriented research.
- ▶ Review the structure of the outline for the research paper assignment.
- ▶ Create an initial outline draft using AI assisted writing.

Learning Objectives

- ▶ Craft a focused, researchable question.
- ▶ Plan search strategies and vet credible sources.
- ▶ Synthesize literature into a hierarchical outline with mapped evidence.
- ▶ Use Gemini in Docs responsibly for brainstorming, structuring, and revising.
- ▶ Track and reflect on AI contributions and verification steps.

Setup and Materials

- ▶ Google account with Gemini in Google Workspace enabled (Docs: Help me write or Ask Gemini side panel).
- ▶ Google Docs, Google Scholar, library databases; Zotero or a citation manager (optional).
- ▶ Handouts: AI guardrails, source verification checklist, synthesis matrix template.
- ▶ LMS dropboxes: proposal, annotated sources, outline Doc (shared link), AI log, reflection.

Gemini Guardrails (paste atop every prompt)

- ▶ You are an academic research coach. Do not invent sources or facts. If unsure, say “I’m not sure.”
- ▶ Use only sources I provide unless I ask for suggestions; label any suggestions as UNVERIFIED.
- ▶ When suggesting sources, give full citations with DOI/URL and a 1–2 sentence reason.
- ▶ Keep text original; preserve my citations; ask clarifying questions if needed.

Instructor Prep

- ▶ Ensure Gemini features are on in Docs; demo Help me write and the side panel.
- ▶ Clarify course AI policy, paraphrasing/quoting expectations, and privacy.
- ▶ Prepare an example of a hallucinated citation and how to verify it.

Session 1 (Discover, Plan, Collect) — 75 minutes

1) Ethics and Tools (10 min)

- ▶ Open Gemini in Docs: Tools → Help me write or the Ask Gemini side panel.
- ▶ Show where to keep the AI log (end of the Doc or a separate section).

2) Topic Narrowing with Gemini (15 min)

In a new Google Doc titled "[Name] – Research Outline," run:

Act as a research coach. For the broad topic "[topic]," propose

- ▶ Choose one research question (RQ); paste the final RQ at the top of the Doc.

3) Key Terms and Search Strings (15 min)

For my research question "[paste]," list 6-10 key terms and syn

- ▶ Run searches yourself in Scholar/databases (not via AI).
- ▶ Save links/DOLs in the Doc (use Cmd/Ctrl+K for smart links).

4) Source Vetting Drill (20 min)

For each candidate source (paste citation/abstract):

Here is a citation/abstract: [paste]. Evaluate relevance, credi

- ▶ Independently verify all items in Scholar/library. Keep only sources you can locate.

Homework (Before Session 2)

- ▶ Complete 5 annotations in the synthesis matrix.
- ▶ Add sources in Tools → Citations (APA/MLA/Chicago). Include DOI/URL.

Session 2 (Synthesize and Outline in Docs) — 75 minutes

6) Theme Grouping with Gemini (15 min)

Paste only your verified summaries:

Using these verified source summaries [paste], group them into

- ▶ Add brief notes under each theme in the Doc.

7) Thesis and Outline Structure (30 min)

Turn on View → Show document outline. Use: - Heading 1: Paper title - Heading 2: Major sections - Heading 3: Subsections

Prompt:

Based on my RQ, thesis aim, and these themes [paste], propose a
Use:

- H2: Introduction, Background, Thematic Sections (2-3), Counter
- H3: Subpoints under each H2

Map evidence to each subpoint with placeholders like [Author Year]

- ▶ Insert the outline; apply Heading styles.
- ▶ Link each [Author Year] tag to its DOI/URL or to the Tools →

Deliverables

- ▶ Google Doc outline containing:
 - ▶ Research question and thesis at top.
 - ▶ H2/H3 hierarchical outline with bullet points and mapped citations [Author Year].
 - ▶ Linked DOIs/URLs; sources added in Tools → Citations.
 - ▶ Synthesis matrix (end of Doc or appendix).
 - ▶ AI interaction log (see below).
- ▶ Annotated bibliography (in the Doc or separate).
- ▶ Reflection (300–500 words) on Gemini's usefulness and limits.

AI Interaction Log (keep at end of the Doc)

For each meaningful use of Gemini: - Paste your prompt and the response used. - Note what you kept/changed, any errors found (e.g., hallucinated citation), and how you verified facts/links.

Assessment Highlights

- ▶ Research question and thesis: focused, arguable, feasible.
- ▶ Source quality: peer-reviewed, current as appropriate, verifiable; no unverified items.
- ▶ Synthesis and outline: coherent structure; themes/gaps identified;

Appendix: Synthesis Matrix Template

Citation	Method/Type	Key Findings (bullets)	Evidence Quality Notes	How It Supports My Argument	Notes
Author (Year). Title. Journal. DOI	e.g., RCT, systematic review, qualitative	■ ... ■ ...	Sample, validity, limitations	Claim/section supported	Quotes/pages, figures, follow-ups