AI for Academic Writing and Research

A Practical and Ethical Guide for Postgraduate Students

Nabil Mohareb

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Free & freemium tools prioritized · Always verify AI-generated content

22 Chapters · 8 Appendices · 50+ Power Prompts · 100+ Free Tools

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Preface

This guide exists because the conversation about AI in academic writing has been dominated by two unproductive extremes: uncritical enthusiasm that treats AI as a magic research shortcut and reflexive prohibition that ignores how fundamentally these tools have changed what is possible. Neither extreme serves postgraduate students well.

This guide takes a different approach. It is built on a single governing conviction: AI is most valuable when it accelerates processes you already know how to do and most dangerous when it replaces processes you have not yet mastered. The difference between these two situations is not always obvious, which is precisely why this guide spends as much time on judgment, ethics, and limitations as it does on tools and prompts.

Everything here is grounded in what actually works in 2026: tools that are free or have generous free tiers, prompts that have been tested across disciplines, workflows that have been used in real postgraduate contexts, and ethical frameworks that reflect current institutional and journal policies.

You will not find uncritical tool promotion here. Every tool recommendation comes with its limitations. Every prompt comes with a warning about where it can fail. And every workflow comes with explicit instructions about what must remain yours — your judgment, your argument, your intellectual responsibility.

How to Use This Guide

This guide is designed to serve three different readers and can be navigated accordingly.

If you are a student working through a research project: read Parts I and II first to establish your ethical framework, then use Part III as a stage-by-stage companion as you work. Keep the appendices open as quick-reference tools.

If you are preparing for a workshop, use the Master Quick Reference table in Chapter 8 as your session anchor. The Power Prompts throughout the book are copy-paste ready—just replace the [BRACKETED] placeholders.

If you are a supervisor or instructor: Chapter 19 and the educator companion sections are written specifically for you. Chapter 3's traffic-light framework is also useful for communicating AI boundaries to students.

The prompts in dark boxes can be copied directly into any AI tool. Tools marked FREE require no credit card. Tools marked FREE TIER have generous free usage with optional paid upgrades.

Who This Guide Is For — and Who It Is Not For

This guide is written for postgraduate students at master's and doctoral levels who are engaged in original research. It assumes you are writing academic papers, theses, literature reviews, or research proposals—and that the quality and integrity of your work matters to you.

It is also useful for early-career researchers preparing first journal submissions, multilingual academic writers who use English as an additional language, and instructors who want a framework for AI policy in their courses.

This guide is not a substitute for your supervisor, your disciplinary expertise, or your institution's academic integrity policy. It does not tell you what to think — it shows you how to use AI tools while continuing to think for yourself. It does not promise to make academic writing easy. It promises to make it more efficient without making it less yours.

PART I

FOUNDATIONS

1 Why AI Matters in Academic Work

1.1 The Changing Landscape of Academic Writing

Academic writing has always been shaped by available tools: the printing press, the library catalog, the word processor, and the internet search engine. Each changed what was possible without changing what was expected—original thought, rigorous evidence, and honest argument. AI represents the latest shift in this series, and like its predecessors, it is neither inherently good nor bad for scholarship. Its value depends entirely on how it is used.

What is different about AI is its speed and its apparent authority. A search engine returns links; a language model returns prose that sounds like expertise. This difference in surface presentation creates a new and specific risk: the risk of mistaking fluency for accuracy and polish for understanding.

In 2026, AI tools have become genuinely useful across the full academic writing cycle—from initial topic generation to final submission checks. Postgraduate students who understand these tools are faster, more systematic, and better prepared for the realities of academic publishing. Those who misuse them risk submitting work that is technically polished but intellectually hollow, or worse, factually incorrect.

1.2 What AI Can Do Well

When used appropriately, AI tools genuinely accelerate the following academic tasks:

- Generating multiple ideas and angles quickly, expanding the territory you consider before narrowing your focus
- Screening large numbers of abstracts for relevance, saving hours of manual reading
- Synthesizing themes across multiple papers once you provide the extracted content
- Structuring outlines and checking logical flow in your proposed argument architecture
- Improving the clarity, register, and grammar of your writing — especially valuable for multilingual writers
- Explaining statistical output in plain language when you already understand the underlying method
- Generating first draft text that you then substantially revise, overcoming blank-page paralysis
- Reformatting references, generating alternative titles, and producing cover letter drafts

1.3 What AI Cannot Do Well

Equally important is understanding where AI consistently fails or produces misleading outputs:

- AI cannot reliably generate accurate academic citations—hallucinated references are well-documented and common
- AI cannot interpret your specific data; it can describe patterns but cannot provide the 'why' that constitutes scholarly insight
- AI cannot access very recent literature; training data cutoffs mean the most current research is often absent
- AI cannot understand your context, your institution, your supervisor's preferences, your specific participant group, your disciplinary community
- AI cannot exercise ethical judgment; it cannot weigh the real-world implications of claims made in your field
- AI cannot verify its own outputs; it produces confident-sounding text regardless of whether the underlying information is accurate

- AI tends to produce synthetic consensus, smoothing over genuine intellectual disagreements that matter in academic work

1.4 Why Human Judgment Remains Central

None of the limitations above are reasons to avoid AI. There are reasons to use AI with informed judgment. The most productive relationship with AI tools is one where you understand what the tool does well, use it for exactly those tasks, and never surrender the tasks that require genuine human thought.

The postgraduate students who get the most value from AI are those who already have strong academic instincts, they use AI to go faster, not to go instead of thinking. The students who get the least value and face the most risk are those who use AI to substitute for learning the skills they have not yet developed. The distinction is always the same question: Could you explain this if asked?

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2 The Core Principle: AI as Assistant, Not Author

AI is your research and writing ASSISTANT, not your researcher, not your author. The ideas, arguments, analysis, and conclusions in your work must authentically reflect your own thinking.

2.1 Intellectual Responsibility

When you submit academic work, you are making a claim about your own intellectual contribution. You are asserting that the argument is yours, that you understand the evidence, that the conclusions follow from what you have done. This claim does not change because AI helped you draft a paragraph or locate a paper. You remain fully responsible for every sentence you submit.

This means that intellectual responsibility cannot be delegated to a tool. If your research causes harm, misrepresents evidence, or misleads other researchers, the responsibility is yours — not the AI's. This is not a bureaucratic rule. It is a fundamental principle of how knowledge works: claims require accountable authors.

2.2 Originality, Authorship, and Accountability

Academic originality does not require you to discover everything without help. It requires that your contribution — the framing of the question, the selection of evidence, the interpretation of findings, the argument about what it all means — is genuinely yours. AI can help you get to that contribution faster. It cannot make the contribution for you.

On authorship: no AI tool can be listed as a co-author. This is explicitly prohibited by COPE, ICMJE, and most major academic publishers. The requirement is not arbitrary — it exists because authorship carries accountability, and AI tools cannot be held accountable.

2.3 The Difference Between Assistance and Substitution

The line between legitimate AI assistance and problematic substitution is not always obvious, but the test is always the same: can you explain it, defend it, and take responsibility for it?

Assistance (Acceptable)	Substitution (Problematic)
Using AI to generate an outline you then substantially develop	Submitting an AI-generated outline as your paper's structure without intellectual engagement
Using AI to improve the grammar of your own argument	Using AI to write an argument you do not understand or cannot defend

Using AI to screen 50 abstracts for relevance	Using AI summaries as a substitute for reading key papers
Using AI to identify potential gaps you then verify	Claiming AI-identified gaps as your intellectual contribution without further analysis
Using AI to draft a methodology paragraph you then rewrite	Submitting AI-generated methodology without verifying every claim and choice

2.4 What Must Remain Human-Led

✦ The Non-Negotiable Human Tasks

- CHOOSING your research problem — you must be able to explain why this question matters to you
- MAKING theoretical judgments — deciding which framework fits is interpretive expertise, not pattern-matching
- INTERPRETING ambiguity — when your data is unclear, you must sit with it and decide what it means
- DECIDING what evidence matters — not all findings are equally significant; your judgment is your contribution
- TAKING ethical responsibility — if your research harms, misleads, or misrepresents, you are accountable
- FRAMING your original contribution — the sentence that answers 'what does this add?' must be yours
- FINAL approval of every claim — every sentence you submit carries your name and your record

3 The Boundaries of Acceptable AI Use

3.1–3.3 The Three-Level Framework

Before using AI for any academic task, locate it on this framework. The color-coding reflects risk level — not prohibition. Yellow and red tasks are not forbidden; they require more careful judgment, verification, and oversight.

🟢 GREEN — Low Risk, Use Freely	🟡 AMBER — Use Carefully, Verify Everything	🔴 RED — Stop: Human Judgment Required First
Brainstorming topic ideas Generating alternative titles Checking grammar and spelling Formatting references (verify after) Explaining concepts you understand Outlining structures you will fill Translating source text (verify) Generating practice quiz questions Creating slides from your notes Summarizing papers you have read	Synthesizing across multiple papers Generating first draft sections Suggesting qualitative codes Paraphrasing your own writing Explaining statistical output Gap identification from data you extracted Writing literature review paragraphs Transcribing interviews (review output) Checking your argument for gaps Generating survey instruments	Generating citations without verifying Interpreting your own primary data Deciding which theoretical framework fits Writing your final argument/conclusion Analyzing real participant data in cloud AI Making causal claims from correlational data Submitting AI-generated text unchanged Citing papers you have not personally read Uploading participant data to any AI tool Framing your original research contribution

3.4 Applying the Framework in Practice

The framework is a starting point for judgment, not a rigid rule. Context matters. A literature review paragraph generated by AI (amber) becomes green if you have done the reading and are using AI only to structure what you already know. The same task becomes red if you are using AI to tell you what the literature says in a field you have not yet read. The question is always, "Do you understand this well enough to defend it?"

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4 Ethics, Integrity, and Disclosure

4.1 Academic Honesty in the AI Era

Academic integrity does not mean using only your own unaided effort. It means being honest about what you did and taking responsibility for what you submit. Students use dictionaries, thesauruses, library databases, and writing centers — none of these are considered integrity violations. AI tools occupy a similar position when used appropriately: they are legitimate supports that must be disclosed and used responsibly.

The integrity problems arise specifically when AI use is hidden, when outputs are submitted without verification, or when AI substitutes for intellectual work the student has not done. These are not new integrity problems — they are old ones (misrepresentation, fabrication, plagiarism) enabled by a new tool.

4.2 Hallucinated References and Fabricated Claims

⚠️ The Hallucination Problem — Critical Warning

▸ Large language models including ChatGPT, Claude, and Gemini regularly produce 'hallucinated' academic references — citations that look real (correct author names, plausible journals, realistic years) but do not exist.

▸ This is one of the most dangerous risks for academic writing. A hallucinated citation can pass a superficial check and survive into published work.

▸ RULE: Verify every reference using Google Scholar, your university library, PubMed (sciences), or Semantic Scholar — before including it in any submitted work.

▸ If you cannot find the paper, do not use the citation. There are no exceptions.

▸ Report hallucinated references to your workshop facilitator or supervisor — they are teaching moments of AI's fundamental limitations.

4.3 Disclosure Expectations

Disclosure requirements vary by institution, by journal, and by the nature of the task. The safest approach is to disclose all AI use unless you are certain it is not required. No institution has penalized a student for excessive transparency. Many have penalized students for insufficient transparency.

The key elements of any AI disclosure are which tools were used, for which specific tasks, and what was done with the output (reviewed, revised, verified). The templates in Appendix D cover coursework, thesis, and journal submission scenarios.

4.4 Sample AI Disclosure Statements

See Appendix D for full templates. The core template is:

> *The author(s) used [TOOL NAME(S)] to assist with [SPECIFIC TASKS]. All AI-generated content was reviewed, verified against source material, and substantially revised by the author(s). The final text, all arguments, and all analytical judgements are the author's own.*

4.5 Institutional and Journal Policy Awareness

AI policies are changing rapidly. What was acceptable in 2023 may now be prohibited, and policies that did not exist in 2024 are now mandatory. Before submitting any AI-assisted work, check: your institution's current policy (student handbook or library website); your target journal's author guidelines page (search for 'AI' or 'artificial intelligence'); and your supervisor's expectations if working on a supervised project.

When in doubt, disclose. When uncertain whether your use is acceptable, ask your supervisor or graduate office before submitting, not after.

PART II

SAFE AND EFFECTIVE USE

5 Verification Before Trust

5.1 Why Verification is Non-Negotiable

AI models produce confident-sounding text regardless of accuracy. This is not a bug — it is a fundamental feature of how language models work. They predict plausible next words, not true statements. The confidence of the prose is no guide to its accuracy. This means that every factual claim, every citation, and every summary produced by AI requires independent verification before you use it.

Verification is not optional for careful researchers — it is what makes you a researcher rather than a transcriptionist. The student who verifies AI outputs is doing exactly what scholarship requires: critically evaluating sources before accepting their claims.

5.2 How to Verify References

Follow this sequence for every AI-generated citation without exception:

1. Search for the exact paper title on Google Scholar (scholar.google.com) or Semantic Scholar
2. Confirm the author names, year, and journal name match exactly
3. Obtain the DOI or URL and confirm it resolves to a real, accessible paper
4. Read the abstract and confirm the paper says what the AI claimed it says
5. Check Scite.ai or Retraction Watch for retractions, corrections, or widespread contradiction
6. Add the verified reference to Zotero immediately

If any step fails — particularly steps 1-4 — do not use the citation. Find an alternative that passes all checks.

5.3 How to Verify Factual Claims

Beyond citations, AI also produces factual claims: statistics, dates, attributions, empirical findings stated without citation. Each of these requires verification:

- Any specific statistic (percentage, effect size, sample size) must be traced to its source paper
- Any claim about 'consensus' or 'most studies show' must be checked against actual search results
- Any description of a theoretical framework must be verified against the original theorist's work
- Any claim about policies, laws, or institutional positions must be verified against current official sources

5.4 How to Verify Summaries and Interpretations

When AI synthesizes multiple papers, it may distort their findings. Check AI summaries by asking:

- Does the summary represent the range of positions in the literature, or does it smooth over disagreements?
- Does it characterize findings as stronger than the original papers do?
- Does it use causal language ('X causes Y') where the original papers only claim association?
- Does it accurately represent limitations the original authors acknowledged?

5.5 The Step-by-Step Verification Workflow

Step	Action	Tool	When to Stop
1	Generate or extract content using AI	Claude / ChatGPT / Elicit	—
2	Highlight every factual claim, statistic, and citation	Your text editor	—
3	Search each citation on Google Scholar and verify existence	scholar.google.com	If paper not found → discard
4	Read each source abstract and confirm AI's characterization	Journal website / DOI	If paper says something different → correct or discard
5	Check each source for retractions or major contradictions	Scite.ai / Retraction Watch	If retracted or heavily contradicted → discard or note
6	Rewrite the paragraph in your own voice using verified sources	Your own writing	—
7	Record AI assistance in your process log	Process Log (Appendix E)	—

6 Privacy, Confidentiality, and Data Security

6.1 What Should Never Be Uploaded

🚫 **NEVER Upload to Consumer AI Platforms (ChatGPT, Claude, Gemini, Perplexity)**

- Interview or focus group transcripts containing participant names, locations, or any identifiers
- Survey responses linked to identifiable individuals — even if you consider them anonymous
- Student grades, assessment marks, or academic records of any kind
- Patient data, clinical notes, or any health-related personal information
- Unpublished manuscripts currently under journal review
- Confidential institutional strategic, financial, or personnel documents
- Supervisor feedback or internal correspondence not intended for external systems
- Exam scripts, upcoming question papers, or marking schemes
- Commercial research data covered by NDA or confidentiality agreement
- Any data from participants who did not consent to commercial AI processing

6.2–6.3 Research Materials and Participant Data

Your institution's ethics approval covers specific uses of participant data. Commercial AI processing is almost certainly not included. When you upload data to ChatGPT, Claude, or Gemini, that data may be used for model training (check each provider's current privacy policy — these change). The risk is not hypothetical: data breaches, unintended processing, and policy violations have occurred.

The ethical obligation to protect participants does not end when you finish data collection. It continues through analysis and writing. If your data is sensitive — involving health, identity, trauma, legal exposure, or professional vulnerability — you have an ethical obligation to keep it out of commercial AI systems.

6.4 Safe Alternatives for Sensitive Work

✅ **Privacy-Safe Alternatives**

- Whisper (run locally): speech-to-text transcription that never leaves your computer
- QualCoder (offline): qualitative coding with no internet required — free NVivo alternative
- JASP / Jamovi: statistical analysis that runs entirely on your device
- Anonymise first: replace all identifiers with codes (P1, P2) before any AI interaction
- Synthetic data: ask AI to generate realistic synthetic data for testing prompts before using real data
- Institutional AI tools: some universities provide approved AI with institutional data agreements — ask your IT or research office

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7 Common AI Failure Modes in Academic Work

A responsible user of AI tools knows not just how to use them but how they fail. The following failure modes are documented and recurring. Recognizing them is the first step to avoiding them.

7.1 Hallucination

The most well-known failure: AI generates plausible sounding but entirely false information, most dangerously in the form of academic citations that do not exist. Hallucination is not random error — it is a systematic product of how language models work. They predict probable text, and academic citations have a characteristic form that models have learned to reproduce. The output looks right even when it is entirely fabricated. There is no reliable way to detect hallucination from the text itself. Only independent verification works.

7.2 Shallow Synthesis

When asked to synthesize literature, AI produces summaries that sound comprehensive but systematically underrepresent contested claims, minority positions, methodological debates, and the nuanced qualifications that distinguish sophisticated scholarship. AI synthesis reads like a competent undergraduate's summary — adequate on the surface but missing the intellectual texture that makes a literature review genuinely useful.

7.3 Overconfident but Weak Reasoning

AI models present their conclusions with uniform confidence regardless of the strength of the underlying reasoning. A logical leap from correlation to causation sounds exactly like a well-evidenced causal claim. An unverified generalization sounds exactly like an established finding. Always interrogate the reasoning chain, not just the conclusion.

7.4 Biased and One-Sided Framing

AI training data is dominated by English-language, Western, STEM-heavy academic literature. When asked about any topic, AI systematically underrepresents non-English scholarship, non-Western intellectual traditions, unpublished grey literature, and minority positions within fields. If your research involves non-Western populations, non-English contexts, or emerging methodologies, AI synthesis will give you a skewed picture of the landscape.

7.5 False Methodological Confidence

AI can describe research methodologies accurately at a surface level while missing the practical judgments that make methodology work in a real research context. It will recommend a research design without knowing your participant access constraints. It will suggest sample sizes without knowing your resources. It will describe analysis procedures without knowing your data's specific

characteristics. Use AI for methodology structure; verify every choice against the specifics of your actual study.

7.6 Polished but Empty Prose

Perhaps the most insidious failure mode: AI generates text that is grammatically correct, stylistically appropriate, and structurally sound, but intellectually empty — it sounds like scholarship without containing the genuine insight, original argument, or disciplinary expertise that scholarship requires. This is the failure mode behind the shadow literacy gap: students who submit polished AI text that they cannot explain or defend. The test is always whether you could explain it in conversation.

PART III

THE AI-ASSISTED ACADEMIC WORKFLOW

8 The Academic Workflow briefly

The following table shows all six stages of the AI-assisted research and writing cycle, the primary tools for each, and when to use AI versus when to step back and work independently.

Stage	Core Activity	Top Free Tools	When to Use AI	When to Work Independently
1. Brainstorm	Generate and evaluate research ideas	ChatGPT · Claude · Gemini · Perplexity	Idea generation, feasibility scoring, lateral connections	Choosing your final topic—this must be yours
2 Research Gap	Identify meaningful absences in the literature	Elicit · Consensus · ResearchRabbit · Scite.ai	Scanning large numbers of papers for patterns	Deciding which gap your study will address
3 Lit Synthesis	Build a thematic picture of the field	NotebookLM · Elicit · SciSpace · Scholarcy	Extracting findings, identifying themes across papers	Critical evaluation of paper quality and relevance
4 Structure	Design the logical architecture of the paper	Claude · ChatGPT · Jenni AI · diagrams.net	Outline generation, flow checking, section planning	Deciding what your argument actually is
5 Draft	Produce section-level text	Jenni AI · Paperpal · SciSpace Writer	Breaking writer's block, first drafts to react to	Rewriting in your own voice, adding original analysis
6 Polish	Citations, language, submission checks	Zotero · Grammarly · Scite.ai · Paperpal	Grammar, formatting, citation management	Verifying every claim before submission

8.2 When to Use AI at Each Stage

The general rule is that AI is most valuable for acceleration — doing faster what you already know how to do — and least valuable (and most risky) when used to substitute for work you have not yet done. At Stage 1, brainstorming, AI is almost always valuable because generating ideas does not require you to have done prior work. At Stage 5, drafting, AI is valuable only if you have done the prior stages—without a real argument and verified literature, an AI draft is hollow.

8.3 When to Stop Using AI and Think Independently

Stop using AI and work without it whenever you are deciding what your research question is; you are choosing which theoretical framework fits your data, you are deciding what your findings mean; you are writing your original contribution statement, or you feel like you do not understand what the AI has produced.

9 Stage 1: Brainstorming and Narrowing the Topic

The biggest mistake researchers make at this stage is starting too narrowly or too broadly. AI excels at helping you map the territory, explore intersections, and score feasibility — before you invest weeks in a direction that will not work.

9.1 Recommended Tools

TOOL	FREE ACCESS	BEST FOR
ChatGPT (GPT-5.5)	Free	Rapid idea generation, lateral thinking, interdisciplinary connections
Claude (Anthropic)	Free tier	Nuanced brainstorming, argument stress-testing, long document handling
DeepSeek R1	Completely free	Shows step-by-step reasoning — reveals HOW conclusions are reached
Perplexity AI	Free with citations	Source-backed overviews with URLs; Focus: Academic mode
Google Gemini	Free	Integrates with Google Search; trendspotting, Google Workspace
Google NotebookLM	Free (300 sources)	Upload your papers and ask what questions they collectively leave unanswered
Microsoft Copilot	Free	Web-grounded responses; no account needed
Le Chat (Mistral)	Free	Strong for non-English research contexts
Consensus	25 Pro + 3 Deep/month free	Evidence-backed angles from peer-reviewed papers directly
ResearchRabbit	Free (50 seeds)	Visual citation networks; theoretical ecosystem mapping

9.2 Testing Novelty and Feasibility

Novelty and feasibility are the two axes every research topic must score well on. Novelty without feasibility produces an unfinishable project. Feasibility without novelty produces a competent but unpublishable one. The scoring approach in the prompt below forces you to consider both before investing time.

9.3 Moving from Broad Interest to Researchable Focus

The most common brainstorming failure is moving too quickly from 'I am interested in X' to 'my research question is about X'. The middle step — identifying specific unexplored angles within X, testing their feasibility, and selecting one — is where AI adds the most value.

9.4 Power Prompts for Topic Generation

💡 **Topic Generator with Scoring**

```
"Act as an experienced research advisor in [FIELD/DISCIPLINE]. I am a
postgraduate
student working on a [Master's/PhD] thesis. Brainstorm 7 original research ideas
at the intersection of [TOPIC A] and [TOPIC B].
For each idea provide: (1) a working title, (2) a two-sentence description of the
research question, (3) a novelty score out of 5 with justification, (4) a
feasibility
score out of 5 for 12 months of data collection, and (5) one key challenge.",
Present results in a table."
```

💡 Topic Funnel Prompt (When You Feel Stuck)

```
"Act as my academic topic funnel. My field: [DISCIPLINE]. My broad interest:
[TOPIC].
My constraints: [X months], [qualitative/quantitative/mixed] methods,
access to [DATA SOURCES or PARTICIPANT GROUPS].
Ask me 5 targeted clarifying questions before suggesting anything.
Then propose 5 specific research topics with a one-paragraph rationale for each."
```

💡 Devil's Advocate / Stress-Test

```
"I am planning a research paper on: [YOUR TOPIC].
Act as a critical peer reviewer. Identify:
(1) Why this topic may already be well-covered,
(2) The three biggest methodological challenges I will face,
(3) Likely objections from reviewers,
(4) What would make this paper genuinely publishable vs a thin original
contribution."
```

9.5 Worked Example

Student starting point: 'I'm interested in social media and mental health.'

After the Topic Generator Prompt, the student received seven ideas. Three are shown:

Topic	Working Title	Novelty	Feasibility	Selected?
1	The moderating role of social media literacy on Instagram use and body image distress among female university students in Egypt	4/5 — limited non-Western studies	4/5 — online survey accessible	—
2	TikTok algorithm-driven content exposure and anxiety levels in adolescents 13–17: a longitudinal cross-national comparison	5/5	2/5 — complex cross-national access	—
3	The effect of 'social media detox' challenges on wellbeing and FOMO in postgraduate students: a mixed-methods intervention study	3/5	5/5 — own cohort accessible	✓

The student selected Topic 3: specific, feasible, clear methodology; addresses an understudied intervention type, and maps to available participants.

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10 Stage 2: Identifying the Research Gap

The research gap justifies your paper's existence. It is not simply 'nobody has studied X' — it must be a meaningful absence in the literature that your study is positioned to fill. Understanding the types of gaps helps you articulate yours precisely.

10.1–10.2 Types of Research Gaps

Gap Type	Definition	AI Tool Best for Detecting It
Empirical gap	A phenomenon theorized but not empirically tested, or tested only in one context	Elicit — extract methodology columns across 20 papers
Theoretical gap	Competing theories unreconciled, or a domain where theory is underdeveloped	Consensus — contested meter reveals where theory disagrees

Population gap	Studied in one group (Western undergrads) but not another (Middle Eastern postgrads)	Elicit — extract sample/population columns
Methodological gap	Only self-report surveys exist; no longitudinal or experimental data	Elicit — extract methodology column; look for recurring limitation
Temporal gap	Research conducted before a major shift (COVID-19, a new technology, policy change)	Litmaps — timeline showing when research activity stopped

10.3 Recommended Tools

TOOL	FREE ACCESS	BEST FOR
Elicit	Free tier	Scans 138M+ papers; extracts method, sample, finding, limitation into comparison tables
Consensus	25 Pro + 3 Deep/month free	Consensus Meter shows percentage supporting vs. contradicting any claim
ResearchRabbit	Completely free	Citation network maps — orphan clusters signal underdeveloped areas
Connected Papers	5 graphs/month free	Citation clusters with blank spaces between them = potential gaps
Scite.ai	Free tier	Distinguishes supporting vs. contrasting citations — reveals contested claims
Litmaps	Freemium	Timeline showing when research activity in an area went quiet
AnswerThis	Free	Produces structured gap reports: what's unanswered, what's contradicted

10.4 Power Prompts for Gap Identification

💡 **Gap Identification from Elicit Results**

```
"I am pasting titles, abstracts, and limitations from my literature search on
[TOPIC].
Identify: (1) the top 3 recurring limitations across these studies,
(2) populations or contexts consistently absent,
(3) methodological approaches not yet applied to this topic,
(4) questions the authors themselves say require further research.
Present as a structured gap analysis with one paragraph per gap type.
[PASTE YOUR ELICIT RESULTS HERE]"
```

💡 **Gap Validation Prompt**

```
"I believe the following is an important gap in [FIELD]: [DESCRIBE YOUR GAP].
Please: (1) validate whether this gap is real by testing my reasoning,
(2) identify papers published after 2020 that may have already addressed it,
(3) help me articulate this gap in 2-3 academically rigorous sentences,
(4) suggest what study design would most effectively address it."
```

10.5 Gap-Validation Workflow

7. Start with Elicit — ask your research question and extract a table of 15-20 papers with their limitations
8. Paste the limitations column into Claude with the Gap Identification prompt above
9. Run the same question through Consensus to check whether evidence is contested
10. Use ResearchRabbit to find peripheral papers your search missed
11. Validate your gap statement with your supervisor or the Gap Validation prompt

11 Stage 3: Literature Review and Synthesis

The literature review is where most postgraduate students lose weeks. AI tools can compress the reading and synthesis phase dramatically — but only if used correctly. The goal is thematic synthesis, not a collection of summaries.

11.1 Summary Versus Synthesis

Summary (Not Enough)	Synthesis (What Examiners Want)
Describes what each paper found	Shows how papers relate to, build on, and contradict each other
Organized by paper (Paper A says..., Paper B says...)	Organized by theme, question, or theoretical position
Presents findings neutrally	Critically evaluates methodology, sample quality, and transferability
Comprehensive — covers everything	Gaps-forward—everything included justifies your study's existence

11.2 Recommended Tools

TOOL	FREE ACCESS	BEST FOR
Google NotebookLM	Free (50 sources)	Answers ONLY from your uploaded documents—zero hallucinated outside sources
Elicit	Free tier	Extracts method, sample, finding, limitation per paper into structured tables
SciSpace	Free tier	AI Copilot: chat with any PDF; compare papers side-by-side
Scholarcy	Free tier	Auto-generates structured flashcards with key claims, methodology, limitations
Semantic Scholar	Completely free	AI TL;DR summaries; author influence metrics; citation context search
Scite.ai	Free tier	Shows HOW a paper was cited: supported, contradicted, or mentioned
Rayyan	Free for systematic reviews	PRISMA-aligned screening, deduplication, blind review for systematic reviews

11.3 The 3-Pass Reading Strategy

📋 **Best Practice: The 3-Pass Reading Strategy with AI**

▸ PASS 1 — AI Screening (30 seconds per paper): Paste abstract into Claude or SciSpace. Ask: 'Is this paper directly relevant to [MY RESEARCH QUESTION]? Score 1-3 with one-sentence justification.'

▸ PASS 2 — AI Extraction (5 minutes per paper): For papers scoring 2-3, use SciSpace Copilot to extract methodology, findings, and limitations. Take your own notes alongside.

▸ PASS 3 — Deep Read (30-60 minutes for key papers): Read fully the 8-12 papers most central to

your argument. AI cannot replace this for papers where nuance matters.

11.4–11.5 Power Prompts for Literature Synthesis

💡 Thematic Synthesis Prompt

```
"You are an expert academic synthesizer. Below I have pasted key findings from
[NUMBER] research papers on [TOPIC].
Please: (1) identify 4-5 overarching themes across these papers,
(2) for each theme, name papers that support it and note any that contradict,
(3) identify one major unresolved debate or contradiction,
(4) suggest the logical 'next question' the field should address.
Format as a structured literature synthesis for a journal article — not a list of
summaries.
[PASTE YOUR EXTRACTED FINDINGS HERE]"
```

💡 Synthesis Table Builder

```
"Using these paper titles and abstracts on [TOPIC], create a synthesis table:
Author & Year | Research Question | Methodology | Sample | Key Finding |
Limitation | Relevance to My Study.
My study focuses on: [YOUR RESEARCH QUESTION].
After the table, write a two-paragraph narrative synthesis identifying the main
patterns and gaps.
[PASTE ABSTRACTS HERE]"
```

---

12 Stage 4: Designing the Structure of the Paper

A well-structured paper is not written — it is designed. Before writing a single paragraph, use AI to stress-test your logical architecture. The time you invest in structure pays off threefold during the writing stage.

12.1 The Standard Research Paper Architecture

Section	Purpose	Typical Word Count (7k paper)
Introduction	State the problem, justify significance, identify gap, state aim and objectives, outline the structure.	300-500
Literature Review	Map and synthesize existing knowledge, build theoretical framework, and justify the gap	1,500-2,000
Methodology	Describe and justify research design, data collection, and analysis approach	1,000-1,500
Results / Findings	Present data systematically, without interpretation	1,500-2,000
Discussion	Interpret findings, link to literature, acknowledge limitations, suggest future research	1,000-1,500
Conclusion	Summarize key contributions, practical implications, closing statement	400-500

12.2 Recommended Tools

TOOL	FREE ACCESS	BEST FOR

Claude (Anthropic)	Free tier	Highly structured logical outlines; section-by-section critique; argument flow checking
ChatGPT-5.4	Free	Rapid outline generation; abstract-first blueprint; introduction funnel checker
Jenni AI	Free tier	Academic-specific structure templates; discipline-specific formats
diagrams.net	Completely free	PRISMA flow diagrams; conceptual frameworks; no account needed
Obsidian	Free (local)	Personal knowledge graph; privacy-safe; no cloud upload required
Notion	Free personal plan	Multi-chapter thesis management; linked databases; research notes

12.3–12.5 Power Prompts for Structure

💡 **Full Paper Outline**

```
"Create a detailed section-by-section outline for a [10,000]-word research paper.
Topic: [YOUR TOPIC]. Research question: [YOUR QUESTION].
Methodology: [qualitative/quantitative/mixed].
For each section (Introduction, Literature Review, Methodology, Results,
Discussion, Conclusion):
(1) the key argument that section must make,
(2) 3-5 specific sub-points in order,
(3) recommended word count,
(4) specific types of evidence to include.
Ensure logic flows from section to section."
```

💡 **Abstract-First Blueprint (Highly Recommended Starting Point)**

```
"Write a structured abstract for a research paper on [TOPIC] using IMRaD format:
Background (2-3 sentences), Objective (1 sentence), Methods (2 sentences),
Results (2 sentences of expected findings), Conclusion (2 sentences).
This abstract will serve as my writing blueprint — make it tight and precise.
Once written, identify any logical inconsistencies in the proposed study design."
```

13 Stage 5: Drafting with AI Responsibly

The first draft is the hardest step for most researchers because perfection paralysis sets in. AI tools can break this paralysis by giving you something to react to, edit, and improve — which is always faster than writing from a blank page.

⚠️ **The Golden Rule of AI-Assisted Drafting**

- Never paste an AI-generated section directly into your document.
- Always: (1) read it critically, (2) verify any claims or citations, (3) rewrite it substantially in your own voice, (4) add your own analysis and original insight.
- The AI draft is a scaffold — you build the real structure on top of it.

13.1 Recommended Tools

TOOL	FREE ACCESS	BEST FOR

ChatGPT-5.2 / Claude	Free tiers	Section drafts, paragraph expansion, argument elaboration, abstract writing
Jenni AI	Free tier	AI autocomplete inside document editor; in-text citation insertion
Paperpal	Free plan	Trained on academic corpus; 95%+ accuracy on scholarly language
Writefull	Free tier	Academic language model trained on published papers; Overleaf/LaTeX integration
DeepSeek R1	Completely free	Step-by-step reasoning—excellent for methods sections
SciSpace Writer	Free tier	Full section drafts with in-line citations from 280M+ paper database
Scribbr	Free, no login	Academic paraphrasing: Standard, Fluency, Formal, and Creative modes

13.2–13.5 Power Prompts for Drafting

💡 Introduction Section Prompt

```
"Write an academic introduction for a paper on [TOPIC] targeting
[JOURNAL/AUDIENCE].
Must accomplish these moves in order:
(1) Broad significance of the topic — 2-3 sentences,
(2) Narrow to the specific problem — 2 sentences,
(3) Brief review of existing research — 2-3 sentences,
(4) State the gap — 1-2 sentences,
(5) State the research aim and objectives,
(6) Paper road map.
Target: 400-500 words. Formal academic tone, third person, present tense for
literature overview."
```

💡 Methodology Section Prompt

```
"Write a methodology section for a study on [TOPIC].
Research design: [qualitative/quantitative/mixed].
Approach: [case study/survey/experiment/discourse analysis].
Sample: [describe sample, size, selection method].
Instrument: [questionnaire name/semi-structured interviews/observation].
Analysis: [thematic analysis/regression/content analysis].
Ethical considerations: [brief note].
For each methodological choice, include a one-sentence justification.
Third person, past tense, approximately 600-800 words."
```

💡 Discussion Section Prompt

```
"Write a discussion section based on these findings: [PASTE YOUR KEY RESULTS].
Structure:
(1) Open with the most significant finding — does it support or contradict the
research question?
(2) Interpret each major finding in light of existing literature — connect to at
least 3 prior studies.
(3) Explain unexpected findings.
(4) Acknowledge 2-3 key limitations with brief impact statements.
(5) Recommend 2 specific directions for future research.
Avoid repeating results verbatim — interpret, contextualise, argue. ~700-900
words."
```

💡 Academic Tone Elevator (Best for Non-Native English Writers)

```
"Rewrite the following paragraph in formal academic English.
Requirements: (1) Maintain the exact meaning — do not add or remove information.
(2) Use formal vocabulary; avoid contractions and colloquialisms.
(3) Improve sentence variety — mix short and long sentences.
(4) Use appropriate epistemic hedging (suggests, indicates, may contribute to).
```

```
(5) Check for logical flow between sentences.
[PASTE YOUR PARAGRAPH HERE]"
```

Worked Example — Before and After

Before (Student's Draft)	After (AI-assisted + Student Revision)
Social media is used by lots of young people, and it causes a lot of problems with their mental health. Many studies have looked at this, but they don't agree with each other. This paper is going to study how Instagram affects body image in university students.	Social media platforms have achieved near-universal adoption among young adults, with emerging evidence suggesting significant implications for psychological well-being. However, empirical findings regarding the specific nature of this relationship remain inconclusive. The present study investigates the association between Instagram usage patterns and body image dissatisfaction in university students.

---

14 Stage 6: Polishing, Referencing, and Final Checks

The final mile of academic writing — citations, grammar, submission checks, and presentation — often separates a publishable paper from a rejected one. AI tools accelerate every aspect of this stage, but verification remains non-negotiable.

14.1 Citation Management

Zotero — https://www.zotero.org [FREE]

The gold-standard free reference manager. Its browser extension captures citations from any webpage, PDF, or database with one click. Generates bibliographies in 10,000+ styles including APA, MLA, Harvard, Vancouver, and IEEE.

- Install the Zotero Connector extension immediately — it captures references automatically as you find papers
- The ZotGPT-5.2 plugin allows you to chat with your entire Zotero library using AI
- Better BibTeX plugin (free) for LaTeX/Overleaf integration

Mendeley — https://www.mendeley.com [FREE]

Widely used in sciences and medicine. Strong institutional integration with Elsevier journal submission systems. Mendeley Cite (Word add-in) for seamless in-document citation as you write.

14.2 Language and Style Refinement

TOOL	FREE ACCESS	BEST FOR
Grammarly	Free tier	Grammar, spelling, basic style in real time; works across all platforms
Writefull	Free tier	Trained on academic texts — understands disciplinary conventions; Overleaf integration
DeepL Write	Free	Most accurate paraphrasing and translation for academic text
Paperpal	Free plan	Academic tone; 'Make it Academic' feature; word-count trimming

14.3–14.4 Plagiarism and AI Detection

Most universities now use both plagiarism detection (text against existing publications) and AI content detection (whether text appears AI-generated). These are separate checks using different methods.

Important: AI detection tools are not perfectly reliable. A high AI score does not automatically mean misconduct — heavily paraphrased or formulaic academic writing can trigger detectors. Always maintain your process log (Appendix E) so you can demonstrate your writing process if questioned.

14.5 Other Tasks AI Can Help With

Task	How AI Helps + Best Tool
Abstract writing	Use Claude/ChatGPT-5.2 with the Abstract-First prompt. Target: 250 words, IMRaD structure. Always rewrite in your voice.
Title generation	Prompt: 'Generate 5 alternative titles for a paper on [TOPIC]: (1) descriptive and specific, (2) include key terms, (3) avoid jargon.' Choose and refine.
Cover letter (journal)	Prompt: 'Write a cover letter for [PAPER TITLE] to [JOURNAL]. Address gap, fit, and original contribution.' Personalize before sending.
Response to reviewers	Paste reviewer comments into Claude: 'Draft a professional, point-by-point response acknowledging valid criticisms while politely addressing concerns I disagree with.'
Social media summary	Prompt: 'Summarize this paper in 3 sentences for a LinkedIn post targeting [AUDIENCE]. Engaging but accurate. Include one concrete takeaway.'
Conference poster/slides	Use Canva (free) or Gamma.app (free) for AI-powered academic poster and slide design.
Translation	DeepL (free) is significantly more accurate than Google Translate for academic text. Verify accuracy before citing translated sources.

PART IV

PROMPTING FOR ACADEMIC WORK

15 Prompt Engineering for Postgraduate Research

15.1 Why Prompts Matter

The quality of AI output depends almost entirely on the quality of the input. A vague prompt produces vague output — not because the AI is limited, but because it has no way to know what you actually need. Specificity is not optional; it is the core skill of working productively with AI.

15.2 The CARTS Framework

The CARTS framework gives you a systematic way to build prompts that consistently produce strong academic outputs:

Letter	Element	What to Include	Example
C	Context	Tell the AI who it is — its role, expertise, and perspective	'Act as an experienced research advisor in educational psychology'
A	Audience	Specify who the output is for	'Writing for a peer-reviewed journal targeting postgraduate researchers'
R	Requirements	List specific constraints: tone, person, tense, word count, format	'Formal register, third person, past tense, 500 words, table format'
T	Task	Be explicit about what to produce — not just topic but output type	'Write a methodology section that justifies why I chose qualitative discourse analysis'
S	Sample	Provide examples of the style or format you want	'Here is a section I wrote — match this academic voice: [PASTE]'

15.3 Weak Prompts Versus Strong Prompts

Weak Prompt	Problem	Strong Prompt
"Write about social media and education."	Vague — no role, format, or constraints	"Write a 300-word academic introduction establishing the significance of social media in higher education for a journal article targeting educational researchers. Formal register, third person, present tense."
"Summarize this paper."	No context, no output format	"Summarize this paper for a literature review on [TOPIC]. Extract: main argument, methodology, key finding, one limitation. Maximum 150 words. Cite as (Author, Year)."
"Find me references on AI in education."	Will produce hallucinations	"List the TYPES of sources I should search for in Google Scholar on [TOPIC]. What search terms should I use? Do not provide specific citations."
"Is my research question good?"	Too open — no evaluation criteria	"Evaluate my research question: [QUESTION]. Score on: (1) specificity, (2) answerability in 12 months, (3) originality, (4) significance. Score each 1-5 with justification."

15.4 Iteration and Refinement

Strong AI output rarely emerges from a single prompt. The most productive approach is iterative: start with a reasonable prompt, evaluate the output critically, then refine with a follow-up. Common follow-up moves:

- 'Make it more critical' — when the output is too descriptive
- 'Reduce to [N] words while keeping the core argument'—when output is too long
- 'The methodology section lacks justification—add one sentence of justification per methodological choice.'
- 'Rewrite this section for a non-specialist audience'—when writing for interdisciplinary journals
- 'You used causal language (X causes Y) where the evidence only shows correlation—correct this throughout.'

15.5 Asking AI to Critique Its Own Output

💡 AI Self-Critique Prompt

```
"Now critique what you just wrote.
(1) What are the three weakest points in this section?
(2) Which claims are most at risk of being challenged by a reviewer?
(3) Where have you oversimplified or glossed over genuine complexity?
(4) Suggest specific revisions for each weakness you identified."
```

---

16 Prompt Library by Academic Task

This chapter collects the most useful prompts across all stages of the academic writing cycle. Each prompt follows the CARTS framework and can be copied directly — replace the [BRACKETED] placeholders with your specific content.

16.1 Topic Generation

💡 Topic Generator with Scoring

```
"Act as a research advisor in [FIELD]. Brainstorm 7 research ideas at the
intersection of [A] and [B]. For each: working title, 2-sentence research
question, novelty score 1-5 with justification, feasibility score 1-5, one key
challenge. Present in a table."
```

16.2 Gap Identification

💡 Gap Identification from Literature Data

```
"Based on the paper limitations below, identify: (1) top 3 recurring limitations,
(2) absent populations/contexts, (3) missing methodological approaches, (4)
questions authors say need further research. One paragraph per gap type. [PASTE
ELICIT RESULTS]"
```

16.3 Literature Synthesis

💡 Thematic Synthesis

```
"From [N] papers on [TOPIC] pasted below: (1) identify 4-5 themes, (2) for each
theme name supporting and contradicting papers, (3) identify one unresolved
debate, (4) suggest the next logical research question. Format as structured
synthesis for journal article. [PASTE FINDINGS]"
```

16.4 Outline Generation

Section-by-Section Outline

```
"Create a detailed outline for a [N]-word paper on [TOPIC]. Research question: [QUESTION]. Methodology: [TYPE]. For each section: key argument, 3-5 sub-points, word count, types of evidence needed."
```

16.5 Draft Writing

Introduction Paragraph

```
"Write an academic introduction for a paper on [TOPIC]. Five moves: broad significance (2-3 sentences), narrow to problem (2 sentences), existing research review (2-3 sentences), gap statement (1-2 sentences), aim + objectives + roadmap. 400-500 words, formal third person."
```

16.6 Methodology Writing

Methodology Section

```
"Write a methodology section. Design: [TYPE]. Approach: [SPECIFIC]. Sample: [DESCRIBE]. Instrument: [NAME/TYPE]. Analysis: [METHOD]. Ethics: [NOTE]. Include one-sentence justification per methodological choice. Third person, past tense, 600-800 words."
```

16.7 Discussion Writing

Discussion Section

```
"Write a discussion based on findings: [RESULTS]. Structure: (1) Most significant finding + does it support research question? (2) Interpret each finding against literature — cite 3 prior studies. (3) Explain unexpected findings. (4) 2-3 limitations with impact. (5) 2 specific future research directions. ~700-900 words."
```

16.8 Language Polishing

Academic Tone Elevator

```
"Rewrite this paragraph in formal academic English. Preserve every fact exactly. Use hedged language (suggests, indicates, may). Avoid contractions and first-person singular where inappropriate. Improve sentence variety. [PASTE PARAGRAPH]"
```

16.9 Reviewer Response Drafting

Point-by-Point Reviewer Response

```
"I received these peer review comments: [PASTE COMMENTS]. For each: (1) categorise as factual correction / valid methodological concern / clarification request / interpretation disagreement / minor language issue. (2) Draft a professional 2-4 sentence response. (3) Where I disagree, formulate a respectful counter-argument. Format as numbered list. Professional, collaborative, non-defensive."
```

16.10 Abstract and Title Generation

IMRaD Abstract

```
"Write a structured abstract for a paper on [TOPIC] using IMRaD: Background (2-3 sentences explaining problem and gap), Objective (1 sentence), Methods (2 sentences), Results (2 sentences expected/actual findings), Conclusion (2 sentences: contribution + implications). 250 words maximum."
```

Title Generation

```
"Generate 5 alternative titles for a paper on [TOPIC] that: (1) are descriptive and specific, (2) include key search terms, (3) avoid unnecessary jargon, (4) are between 10-15 words. For each title, note which key concepts it foregrounds."
```

PART V

CONTEXTUAL AND ADVANCED USE

17 Discipline-Specific Guidance

The core workflow in Part III applies across disciplines, but the tools, conventions, and risks shift depending on your field. This chapter flags the most important adjustments.

17.1–17.4 Discipline Comparison

Area	Social Sciences & Education	STEM & Health	Humanities
Citation style	APA, Harvard	APA, Vancouver, IEEE	MLA, Chicago, Turabian
Writing style	Mixed; increasingly active voice	Passive voice, IMRaD	Active voice; argumentative
Best literature tools	Consensus, Google Scholar, JSTOR	Elicit, PubMed, Semantic Scholar	Google Scholar, JSTOR, Litmaps
Data analysis AI	QualCoder, Atlas.ti, JASP	Julius AI, JASP, Google Colab	AntConc, MAXQDA, QualCoder
Primary risk	Flattening participant voices in AI synthesis	Fabricated statistics and p-values	Misattributed interpretations
Translation relevance	Medium — cross-cultural data	Low — mostly English	High — primary sources in other languages
Key caution	AI defaults to Western frameworks for non-Western contexts	Verify all statistical outputs independently	AI cannot access unpublished archival sources

17.5 Non-Western and Non-English Research Contexts

If your research context, participants, or primary literature is non-Western or non-English, you face an additional layer of AI limitation: systematic underrepresentation in training data.

- Use DeepL (not Google Translate) for academic text translation — significantly more accurate for formal register
- For Arabic-language literature, use Google Scholar's Arabic interface and Dar AlMandumah alongside English tools
- Always explicitly state your cultural and geographic context in prompts — AI defaults to Western assumptions without instruction

💡 **Non-Western Context Modifier**

```
"Note: My research context is [COUNTRY/REGION].
My participants are [DESCRIPTION].
Please: (1) flag any assumptions in your response that presume a Western context,
(2) suggest how the analysis might differ in [REGION]-specific literature,
(3) recommend any region-specific databases or journals I should search."
```

18 AI for Multilingual and Non-Native English Writers

AI tools offer genuine and substantial benefits to multilingual academic writers—but the benefit comes with a specific risk that does not exist for native speakers: the risk of using AI to substitute for developing the language skills that academic writing requires.

18.1 Language Support Versus Intellectual Outsourcing

There is a clear and important distinction between using AI to express your ideas more clearly in English and using AI to generate the ideas themselves. The first is legitimate language support with a long history in academic practice—tutors, writing centers, and language editors have always done this. The second is intellectual outsourcing that undermines your own development.

The test is the same as always: can you explain the argument in your own words, in conversation, without the text in front of you?

18.2 Recommended Tools for Multilingual Writers

TOOL	FREE ACCESS	BEST FOR
DeepL Write	Free	Most accurate AI paraphrasing/rewriting for academic text: preserves register
Writefull	Free tier	Trained on academic papers; understands disciplinary conventions across languages
Paperpal	Free plan	'Make it Academic' feature; trained on published scholarship; formal register
Grammarly	Free tier	Grammar and spelling in real time; available as browser extension and Word add-in
Claude / ChatGPT-5.2	Free tiers	Tone elevation; sentence restructuring; preserves meaning with hedged academic language

18.3 Power Prompts for Multilingual Writers

💡 Tone Elevation with Meaning Preservation

```
"Rewrite this paragraph in formal academic English.
Critical requirements:
(1) Do NOT change the meaning — preserve every fact, claim, and nuance exactly.
(2) Use formal academic vocabulary; eliminate contractions and colloquialisms.
(3) Ensure every claim uses appropriate epistemic hedging.
(4) Improve sentence variety.
(5) If you are uncertain about any phrase, keep my original wording and flag it.
[PASTE YOUR PARAGRAPH]"
```

💡 Terminology Preservation Prompt

```
"I am a researcher in [FIELD] writing in English as my second language.
The following paragraph contains technical terms specific to my discipline: [LIST
TERMS].
These terms must not be changed or paraphrased.
Please improve the grammar, sentence structure, and academic register of the
paragraph
while preserving all technical terminology exactly as written.
[PASTE PARAGRAPH]"
```

18.4 Translation Risks

When translating source material from another language for use in academic work, AI translation introduces specific risks that require verification:

- Meaning loss in technical or discipline-specific concepts that have no direct English equivalent
- Over-standardization—AI translation can remove culturally specific nuances that are analytically important
- Citation risk—never cite a translated passage without verifying it against the original source

Always back-translate key passages: translate from the source language to English, then translate the English back to the source language and compare. Significant divergence signals a translation problem.

---

19 Working with Supervisors, Instructors, and Reviewers

19.1 What Supervisors Usually Expect

Understanding what supervisors are looking for helps you use AI in ways that strengthen rather than undermine the supervisory relationship. The core expectations rarely change regardless of AI policy:

Quality	What Supervisors Look For	What AI-Over-reliance Produces
Argument	A student can explain and defend the argument verbally and has a personal intellectual position	Argument is well-structured but generic; student cannot explain without reading from the text
Literature	Has read key papers and can discuss them critically; engages with contradictions	Literature is smooth and comprehensive but misses field-specific nuance
Methodology	Can justify every methodological choice; aware of limitations	Methodology is described correctly but student cannot explain why each choice was made
Interpretation	Findings interpreted in relation to specific research context; acknowledges ambiguity	Findings presented with smooth, generic commentary; no uncertainty acknowledged
Voice	Consistent, distinctive academic voice; some productive awkwardness	Uniformly polished; no register variation; sounds like a press release

19.2 How to Discuss Your AI Use Honestly

Situation	What to Say	What Your Supervisor Wants to Hear
You used AI to help structure your chapter	"I used Claude to generate a first outline, which I then significantly revised. I can show you both versions if helpful."	That you made the decisions; AI was a scaffold
You used AI for grammar and language	"I used Writefull and Paperpal for language editing — English is not my first language. All arguments and ideas are mine."	That content is yours; tool only polished expression
You used AI to screen literature	"I used Elicit to build an initial table of 30 papers, which I then read and filtered myself."	That you read the papers; AI only found them

You are unsure if your AI use is acceptable	"I want to be transparent — I used [TOOL] for [TASK]. I want to confirm this is within what you consider acceptable."	Honesty and that you sought guidance proactively
Your supervisor asks you to explain a section	Be ready to explain it in your own words. If you cannot, re-engage with the material before submitting.	That you understand what you submitted

19.3 Process Transparency

The most robust defense of AI-assisted academic work is a documented writing process. If you can show your supervisor or examiner: your initial brainstorm notes, your AI prompts and outputs, your annotated reading notes, your draft versions, and your revisions — then the authenticity of your intellectual contribution is demonstrable, not merely asserted.

This is why the process log (Appendix E) is not bureaucratic overhead. It is your evidence of scholarly process. Keep it running throughout any project where AI tools play a significant role.

19.4 How to Defend Your Writing Process if Questioned

If you are ever asked to explain or defend your writing process — by a supervisor, an examiner, or a journal editor — the following demonstrate genuine intellectual ownership:

- You can explain your research question and why it matters without reading from your paper
- You can discuss at least three key papers in your literature review in genuine conversation
- You can explain every methodological choice and why you made it, including alternatives you considered
- You can articulate your findings and what they mean without the paper in front of you
- You have a process log, version history, or AI disclosure that documents your workflow transparently

PART VI

FULL APPLICATION

20 End-to-End Worked Case Study

This chapter follows one student — we will call her Nour — from a vague interest all the way to a polished paragraph with a completed AI disclosure statement. The case is fictional, but the problems and decisions are real and typical.

20.1 From Vague Idea to Research Question

Starting point: 'I'm interested in how students use social media for studying.'

AI tool used: ChatGPT-5.2 with Topic Generator prompt

Prompt: 'Act as a research advisor in educational technology. Brainstorm 7 research ideas at the intersection of social media use and academic learning in higher education. Score each on novelty and feasibility...'

ChatGPT-5.2 returned seven topics. Nour scored them herself after reviewing the suggestions critically, not taking the AI scores as final. She selected:

> **The relationship between student-initiated use of TikTok for subject revision and self-reported learning outcomes among first-year university students in Egypt: a mixed-methods study.**

Why this topic was selected: Specific, feasible within 6 months using a survey + interview design, addresses a clear population gap (Egyptian first-year students), and uses a novel platform angle (TikTok for academic revision versus social use).

20.2 From Reading List to Gap Statement

Nour used Elicit to extract findings from 18 papers on social media and academic learning. She noted the limitations column carefully. Three limitations recurred across 12 of the 18 papers:

12. Studies conducted exclusively on Western university samples
13. Self-report surveys with no behavioral or outcome verification
14. Focus on general social media rather than platform-specific usage patterns

She then used Consensus to check whether there was agreement on whether social media use supports or undermines academic outcomes. The Consensus Meter showed 47% supporting, 53% mixed or negative. No consensus — a genuine gap.

Gap statement (written by Nour after AI-assisted analysis):

> *Despite growing interest in social media's role in informal learning, empirical research has disproportionately focused on Western undergraduate populations and general platform engagement, leaving platform-specific student-initiated learning behaviors—particularly in non-Western educational contexts — largely unexplored. The present study addresses this gap by examining how Egyptian first-year university students intentionally use TikTok as a revision tool and whether this use is associated with self-reported academic outcomes.*

20.3 From Synthesis Table to Outline

Nour used NotebookLM after uploading her 18 papers. She asked, 'What are the 4 main themes across all these papers? For each theme, list the papers that support it and note any that contradict the consensus.'

NotebookLM returned four themes: (1) passive vs active engagement, (2) platform-specific affordances, (3) peer learning and collaboration, and (4) distraction and self-regulation. She used Claude with the Full Paper Outline prompt to generate a structure, which she then revised substantially to reflect her specific research question and Egyptian context.

20.4 From Draft to Revised Paragraph

Introduction first draft generated by Jenni AI, then substantially revised by Nour:

AI Draft (Jenni AI)	Nour's Revision
Social media has become ubiquitous in higher education. Studies show that students use social media platforms for various academic purposes. However, research in this area has focused on Western samples. This study examines TikTok use among Egyptian students.	The proliferation of short-form video platforms has introduced new modalities for informal academic learning that existing research has not yet adequately examined. While a substantial body of literature addresses social media use in higher education, this literature is overwhelmingly derived from Western undergraduate populations (see Stage 2 gap statement), limiting its applicability to students navigating different educational cultures and digital affordances. The present study examines whether and how first-year university students in Egypt intentionally deploy TikTok as a revision tool, and the extent to which such use is associated with self-reported learning outcomes.

20.5 Disclosure and Verification

Nour's completed AI disclosure statement (using the Appendix D template):

> *The author used Elicit, Consensus, NotebookLM, Jenni AI, and Claude to assist with literature screening and gap identification (Elicit, Consensus), cross-document synthesis (NotebookLM), outline generation (Claude), and first-draft paragraph generation (Jenni AI). All AI-generated content was critically reviewed, verified against original sources, and substantially revised by the author. All citations were personally verified using Google Scholar. The final argument, all analytical judgements, and all interpretive claims are the author's own. This use is in accordance with [INSTITUTION]'s postgraduate AI use policy.*

---

21 Common Mistakes and How to Avoid Them

21.1 Over-Reliance

The mistake: Using AI for every step, including steps that require genuine intellectual engagement—choosing the research question, deciding what evidence matters, interpreting your own data.

The consequence: Work that cannot be defended under examination because the student does not actually understand it.

The fix: Apply the productive friction principle. Write 200 words of your own thinking before asking AI to help. Work without AI for at least one significant section of every project.

21.2 Blind Trust in Sources

The mistake: Citing AI-generated references without verification or trusting AI summaries of papers without reading the originals.

The consequence: Submitting fabricated citations or misrepresented findings — a serious academic integrity violation.

The fix: Every citation requires the 8-step verification process in Appendix B. No exceptions. If you cannot find the paper, do not cite it.

21.3 Weak Prompts

The mistake: Using vague, one-line prompts and accepting the output without refinement. 'Write about methodology' produces generic text. 'Summarize this paper' produces a hallucination risk.

The consequence: Generic, shallow output that requires more editing than it saves.

The fix: Use the CARTS framework. Specify role, audience, format, word count, constraints. Iterate with follow-up prompts.

21.4 Generic Language

The mistake: Submitting AI-polished text that uses the same phrases as thousands of other AI-assisted papers: 'in today's rapidly changing landscape,' 'this study aims to explore,' and 'significant implications for.'

The consequence: Work that reads like AI triggers detection tools and fails to demonstrate disciplinary expertise.

The fix: After AI revision, read your text aloud. Every sentence that sounds like it could appear in any paper on any topic needs to be rewritten to be specific to your study.

21.5 Losing the Original Contribution

The mistake: Becoming so focused on using AI tools effectively that you lose sight of what makes your study original.

The consequence: A technically competent paper that examiners describe as 'well-executed but lacking original contribution'.

The fix: Write your original contribution statement without AI before you start. Keep it visible throughout your writing process. Every AI-assisted section should be checked against it: 'Does this serve my original contribution, or has it drifted toward generic content?'

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22 Final Principles for Responsible AI Use in Academic Writing

22.1 The Irreducible Human Role

Some things cannot be delegated to AI without destroying the value of your academic work. The choice of research question, the theoretical judgment, the interpretation of ambiguous data, the decision about what evidence matters, the ethical responsibility for what you claim — these are irreducibly human tasks not because AI cannot produce text about them, but because their value comes entirely from being the product of human thought and accountable to a human author.

22.2 Strategic Use, Not Constant Use

The most effective users of AI in academic work use it deliberately and selectively. They know which tasks AI handles well (idea generation, language polish, literature screening, citation formatting) and which require human judgment (interpretation, argumentation, ethical decision-making). They turn to AI when it will genuinely save time on tasks they already understand, and they step away from it when the work requires thinking they have not yet done.

22.3 Accuracy Before Fluency

AI produces fluent, confident prose. This fluency can be seductive — text that sounds right often feels like it must be right. It is not. Accuracy must always take priority over fluency. A sentence that is clumsily expressed but factually correct is better scholarship than a polished sentence built on a hallucinated citation. Verify first. Polish second.

22.4 Ethics Before Convenience

The pressures of postgraduate study are real. Deadlines are tight, data is difficult, and the blank page is always waiting. In this context, the temptation to take shortcuts with AI is understandable. But the value of your academic work—the value of your degree, your future research, your contribution to knowledge—depends on its integrity. A shortcut that compromises that integrity is not a shortcut at all. It is a different kind of cost, paid later and at a much higher price.

🎓 Seven Final Principles

- AI is your research assistant, not your researcher. Authentic intellectual contribution is irreplaceable.
- Verify every citation. AI hallucinations are real and common — never submit an unchecked reference.
- The best prompt is specific, role-based, and constrained. Vague prompts produce vague outputs.
- No single tool does everything. Combine strategically: Elicit for gaps → NotebookLM for synthesis → Jenni AI for drafting → DeepL for polish → Zotero for citations.
- Disclose your AI use honestly and follow your institution's current policy.
- Maintain your writing process log—it is your evidence of scholarly integrity.
- If you cannot explain it, defend it, or take responsibility for it—rewrite it until you can.

APPENDICES

Appendix A: AI Use Decision Tree — Traffic Light Framework

Before using AI for any academic task, locate it on this framework. Green tasks require minimal caution. Amber tasks require careful review and verification. Red tasks require you to pause, think, and verify before proceeding — they are not forbidden, but they require more human oversight.

🟢 GREEN — Low Risk	🟡 AMBER — Verify Everything	🔴 RED — Human Judgment Required
Brainstorming topic ideas Generating alternative titles Checking grammar and spelling Formatting references (verify after) Explaining concepts you understand Outlining structures you will develop Translating source text (verify) Generating practice quiz questions Slides from your own notes Summarizing papers you have read Creating survey question drafts	Synthesizing multiple papers into themes Generating first draft sections Suggesting qualitative codes Paraphrasing your own writing Explaining statistical output Gap identification from extracted data Literature review paragraph drafting Transcribing interviews (must review) Checking argument for logical gaps Drafting email responses to reviewers Generating methodology descriptions	Generating citations without verification Interpreting your primary data findings Deciding which theoretical framework fits Writing your final argument or conclusion Analyzing real participant data in cloud AI Making causal claims from correlations Submitting AI text unchanged Citing papers you have not read Uploading participant data to any AI Deciding your original contribution Framing the significance of your findings

Appendix B: Reference Verification Checklist

Run every AI-generated citation through this checklist before including it in any submitted work. Do not skip steps. If any step fails on steps 1-4, discard the citation and find a replacement.

Step	Action	Tool	Pass / Fail
1	Search for the exact paper title on Google Scholar	scholar.google.com	☐ Found ☐ Not found
2	Confirm author names, year, and journal name match exactly	Google Scholar result	☐ Match ☐ Mismatch
3	Confirm journal name is real and published by a legitimate publisher	Google Scholar / journal website	☐ Real ☐ Suspicious
4	Obtain the DOI or URL and confirm it resolves to a real paper	doi.org or journal website	☐ Resolves ☐ Dead link
5	Read the abstract and confirm the paper says what AI claimed	Abstract on journal website	☐ Confirmed ☐ Inaccurate
6	Check for retractions or major corrections	Retraction Watch / Scite.ai	☐ Clean ☐ Retracted
7	Check citation quality — is it widely supported or contested?	Scite.ai Smart Citations	☐ Supported ☐ Contested
8	Add verified reference to Zotero immediately	Zotero browser extension	☐ Added ☐ Pending

Rule: If any step 1-4 fails, do not use the citation. Find a replacement that passes all steps.

Appendix C: What Not to Upload — Privacy and Confidentiality Checklist

Category	Specific Examples	Safe Alternative
Participant data	Interview transcripts with names/locations, survey responses linked to individuals, focus group notes with identifiers	Anonymize fully (P1, P2 codes) before any AI interaction
Student records	Grades, assessment marks, attendance records, behavioral notes	Describe data in aggregate/statistical form only
Health/clinical data	Patient notes, clinical outcomes, hospital records, prescriptions	Use offline tools only: JASP, QualCoder, Whisper local
Unpublished manuscripts	Drafts under review, pre-prints not yet submitted, book chapters in press	Work with published versions only; use your own notes
Confidential documents	Institutional strategy, internal reports, NDA-covered commercial research	Use only approved institutional AI tools
Exam materials	Past exam scripts, upcoming questions, marking schemes, model answers	Never. No exceptions. Under any circumstances.
Ethics-sensitive data	Anything covered by your IRB/ethics approval as confidential	Check your ethics approval explicitly—if unclear, do not upload
Supervisor correspondence	Feedback not intended for external systems, internal review comments	Keep all supervision communications offline

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Appendix D: Sample AI Disclosure Statements

Select and adapt the appropriate template. Replace all [BRACKETED] text with your specific details.

For Coursework Submission

The author used [TOOL NAME(S)] to assist with [SPECIFIC TASKS: e.g., grammar checking, brainstorming topic ideas, generating a first outline]. All AI-generated content was reviewed, verified against source material, and substantially revised by the author. The final text, all arguments, and all analytical judgments are the author's own. This use is in accordance with [INSTITUTION NAME]'s AI use policy [REFERENCE/URL IF APPLICABLE].

For Thesis Submission

Generative AI tools were used in the preparation of this thesis, as documented in the Methodological AI Use Appendix (Appendix [X]). Specifically, [TOOL NAME(S)] assisted with [LIST TASKS — e.g., literature screening, grammar editing, initial codebook generation]. All AI outputs were critically reviewed and substantially revised. No AI tool was used to generate findings, interpret data, or

produce conclusions. All sources cited were personally verified against their original publications. The candidate takes full responsibility for the intellectual content of this thesis.

For Journal Submission

The author(s) used [TOOL NAME(S)] to assist with [SPECIFIC TASKS: e.g., language editing and grammar checking / initial literature screening / transcription]. All AI-assisted content was reviewed and revised by the author(s). AI tools were not used to generate data, produce findings, or write conclusions. The author(s) take full responsibility for the accuracy and integrity of the work. No AI tool is listed as an author, in accordance with [JOURNAL NAME]'s authorship policy.

For Conference Paper

AI writing tools ([TOOL NAMES]) were used to assist with [TASKS] in the preparation of this paper. All AI-generated content was reviewed and substantially revised by the author(s). All arguments, analytical conclusions, and research findings are original contributions by the author(s), who take full responsibility for the content of this paper.

Appendix E: Process Log Template

Complete this log as you work. It protects your academic integrity, supports reflective practice, and can be submitted with your work if required. Keep it as a running document throughout your project.

Date	Stage	Task	AI Tool	Prompt Summary	What AI Produced	How I Used It	What I Changed
DD/MM/YY	e.g. Stage 2	Literature gap	Elicit	gaps in motivation research 2020-26	List of 8 limitations from 15 papers	Identified 2 recurring gaps	Added context from my reading

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Appendix F: Quick Reference: Tools by Task

Task	Best Free Tool(s)	Key Feature
Topic brainstorming	ChatGPT-5.2, Claude, Gemini	Lateral thinking, idea scoring, interdisciplinary connections
Literature search	Google Scholar, Semantic Scholar	Broad cross-discipline; citation alerts; TL;DR summaries
Gap identification	Elicit, Consensus	Structured extraction tables; Consensus Meter for contested claims

Citation networks	ResearchRabbit, Connected Papers	Visual maps; orphan clusters signal unexplored areas
Timeline analysis	Litmaps	Shows when research activity in an area went quiet
Citation quality	Scite.ai	Supporting vs. contrasting citation counts per paper
PDF chat	SciSpace, NotebookLM	Ask questions of individual papers or your whole library
Cross-document synthesis	NotebookLM	Answers ONLY from your uploaded sources — no hallucination
Flashcard summaries	Scholarcy	Key claims, methodology, limitations extracted per paper
Outline generation	Claude, ChatGPT-5.2	Structured logical outlines; section-by-section critique
Draft writing	Jenni AI, Paperpal	Academic autocomplete; in-text citation insertion
Academic tone	Writefull, Paperpal	Trained on published academic texts; disciplinary register
Grammar and spelling	Grammarly	Real-time checking across all platforms
Paraphrasing	DeepL Write, Scribbr	Meaning-preserving rewriting in academic register
Reference management	Zotero, Mendeley	APA, MLA, Harvard, IEEE — one-click capture
Transcription	Otter.ai (cloud), Whisper (local)	Automatic speaker-identified transcription; local option for privacy
Qualitative coding	QualCoder (offline), Atlas.ti	Human-audit-trail coding; free NVivo alternative
Statistical analysis	JASP, Julius AI	APA-formatted output; plain-English query interface
Presentation/poster	Canva, Gamma.app	AI-powered design; academic templates
Translation	DeepL	Most accurate for academic register
Session system prompt	Claude/ChatGPT-5.2 with Super Prompt	Zero-hallucination mode for citation-critical sessions

Appendix G: Quick Reference: Prompt Templates by Task

Task	Core Prompt Template	Best Tool
Research ideas	'Act as a research advisor in [FIELD]. Brainstorm 7 ideas at the intersection of [A] and [B]. Score each on novelty (1-5) and feasibility (1-5). Table format.'	ChatGPT-5.5 / Claude
Literature gap	'From the paper limitations pasted below: (1) top 3 recurring limitations, (2) absent populations, (3) missing methodologies, (4) authors' stated future directions. [PASTE]'	Elicit + Claude
Thematic synthesis	'Synthesise these findings into 4-5 themes. Note papers supporting each and any contradictions. Identify one unresolved debate. Suggest the next research question. [PASTE]'	Claude / NotebookLM
Paper outline	'Detailed outline for [N]-word paper on [TOPIC]. Research question: [Q]. Methodology: [TYPE]. For each section: key argument, 3-5 sub-points, word count, evidence needed.'	Claude
Introduction draft	'Introduction for paper on [TOPIC] for [JOURNAL]. Five moves: broad significance, problem, existing research, gap, aim + roadmap. 400-500 words, formal third person.'	Claude / Jenni AI
Methodology	'Methodology section. Design: [TYPE]. Approach: [SPECIFIC]. Sample: [DESCRIBE]. Instrument: [NAME]. Analysis: [METHOD]. One-sentence justification per choice. 600-800 words.'	Claude / DeepSeek R3
Discussion	'Discussion for findings: [RESULTS]. Open with most significant finding. Interpret against 3 prior studies. Explain unexpected findings. 2-3 limitations. 2 future directions. ~800 words.'	Claude
Tone elevation	'Rewrite in formal academic English. Preserve every fact exactly. Use hedged language. No contractions. Improve sentence variety. [PASTE PARAGRAPH]'	Writefull / Paperpal
Peer review simulation	'Act as a senior reviewer for [JOURNAL]. Review: (1) scope fit, (2) three hidden methodological assumptions, (3) unsupported claims, (4) contribution novelty. Editorial recommendation. [PASTE]'	Claude
Reviewer response	'For each reviewer comment: (1) categorize, (2) draft 2-4 sentence response, (3) respectful counter-argument where I disagree. Numbered list, professional tone. [PASTE COMMENTS]'	Claude
Abstract (IMRaD)	'Structured abstract: Background (2-3 sentences), Objective (1 sentence), Methods (2 sentences), Results (2 sentences), Conclusion (2 sentences). 250 words maximum.'	Claude / ChatGPT-5.5
Stress-test argument	'Act as critical peer reviewer. Identify: (1) why topic may be well-covered, (2) three methodological challenges, (3) likely reviewer objections, (4) what would make this publishable. [PASTE TOPIC]'	Claude

Verify AI reasoning	'Review this argument: [PASTE]. Identify unsupported claims, logical leaps, causal language where only correlation is evidenced, and any smoothed-over contradictions.'	Claude
The Super Prompt	Set as session system prompt: Zero Hallucination Policy + APA 7th + verify every citation before inclusion + refuse unverifiable claims + flag uncertain statements. (Full text in Chapter 16.9)'	Claude / ChatGPT-5.5

Appendix H: Advanced Workflow — NotebookLM + Gemini Gems in Google Docs

This workflow integrates three tools — NotebookLM, Gemini Gems, and Google Docs — into a single AI-powered research environment. The result is a custom AI assistant that answers questions using only your own uploaded sources, accessible directly inside the document you are writing.

Why This Workflow Is Powerful

- NotebookLM eliminates hallucinated outside sources by restricting the AI to your uploaded documents only
- Gemini Gems allows you to create a custom AI persona with your own instructions, role, and rules
- Google Docs integration means you can query your entire literature library without leaving your writing environment
- The combination gives you a private AI research librarian trained exclusively on the papers you have chosen

Step-by-Step Setup

Step	Action	Key Detail
1	Create and populate a NotebookLM notebook	Go to notebooklm.google.com — upload up to 300 source files including PDFs and website URLs. Organise by topic or chapter.
2	Build a custom Gemini Gem	Go to the Gemini platform and create a new Gem. Give it a name (e.g. 'My Literature Reviewer'), a short description, and a master system prompt (see template below).
3	Connect the Gem to your NotebookLM	In the Gem setup, find the 'Knowledge' section and connect it to your NotebookLM notebook. Connect only ONE notebook per Gem — focus produces better results.
4	Access the Gem in Google Docs	Open a Google Docs file. Open the Gemini chat panel (top right). Click 'More options' to see your custom Gems — select your research Gem.
5	Chat and brainstorm inside your document	You can now query your Gem directly in the document. Ask it to evaluate your outline, find contradictions in your sources, or suggest connections.

6	Update sources dynamically	If you need new sources, add them to NotebookLM (including YouTube URLs). Return to Google Docs and ask your Gem to apply the new information immediately.

💡 Gemini Gem Master Prompt Template (Customise and Paste into Gem Setup)

```
"You are [YOUR NAME]'s dedicated academic research assistant for [THESIS/PROJECT
TITLE].
Your knowledge base contains [N] papers on [TOPIC].

YOUR ROLE: Help me write a rigorous academic [thesis/paper/review] on [TOPIC].

RULES YOU MUST FOLLOW:
1. Answer ONLY using the documents in my knowledge base. Never use outside
knowledge.
2. Always cite the specific source and page when you make a claim.
3. If the answer is not in my sources, say: 'This is not addressed in your
sources.'
4. When I ask for synthesis, show me WHERE sources agree and WHERE they
contradict.
5. When I ask for structure help, follow [MY TARGET JOURNAL / MY SUPERVISOR'S]
conventions.
6. Never write full paragraphs for me — suggest ideas, structure, and
connections.
   I will write the text myself.

MY RESEARCH QUESTION: [YOUR RESEARCH QUESTION]
MY THEORETICAL FRAMEWORK: [YOUR FRAMEWORK]
MY METHODOLOGY: [YOUR METHOD]"
```

Power Queries for the NotebookLM + Gems Workflow

💡 Contradiction Finder Across Your Sources

```
"Across all documents in my knowledge base,
identify the 3 most significant contradictions or disagreements between authors.
For each: cite the specific papers, quote or paraphrase the contradicting claims,
and suggest why the contradiction may exist (methodology, context, date)."
```

💡 Outline Evaluator

```
"Here is the outline for my [chapter/paper]: [PASTE OUTLINE].
Using only my sources:
(1) Identify which sections are well-supported by my sources.
(2) Identify which sections have weak or no support in my current source set.
(3) Suggest 2-3 specific papers from my knowledge base I should re-read for each
gap.
(4) Flag any section where I may be claiming more than my sources support."
```

About the Author

Dr. Nabil Mohareb is an Associate Professor of Architecture and Urban Studies at The American University in Cairo, with more than 25 years of experience in teaching, research, supervision, and academic writing. His work spans architecture, urban studies, planning, design theory, and research methodology.

This guide was developed through years of working with postgraduate students and researchers navigating the demands of academic writing, research design, and ethical scholarly practice. It is intended as a practical, responsible, and academically grounded resource for using AI without compromising intellectual ownership, methodological rigor, or integrity.

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