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NotebookLM for TEACHERS

PRACTICAL TIPS TO BOOST TEACHING
AND RESEARCH WITH AI



By Med Kharbach, PhD

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Introduction

One thing I always say about AI is that it is the perfect tool for people who have expertise in their specific disciplines. AI can help amplify that expertise because you get it to work like an intern or what Mishra (2023) refers to as a "smart, drunk intern"; drunk because it can always make mistakes and inaccuracies and given your expertise you get to notice that.

You become the judge. In this way, you engage with AI in a symbiotic relationship (Bronet, 2024) where your knowledge guides the technology, and the technology helps you work more efficiently and discover new connections in your field.

Among the many AI tools available today, NotebookLM stands out as particularly valuable for educators and researchers. This is a tool that I think every teacher and researcher should try out, which is why I devoted a whole guide to it.

NotebookLM transforms how we interact with documents and sources by creating a controlled AI environment where you upload your own materials and the AI works exclusively within that context. Unlike general chatbots that draw from their broad training data, NotebookLM focuses only on the sources you provide which makes it incredibly reliable for academic work.

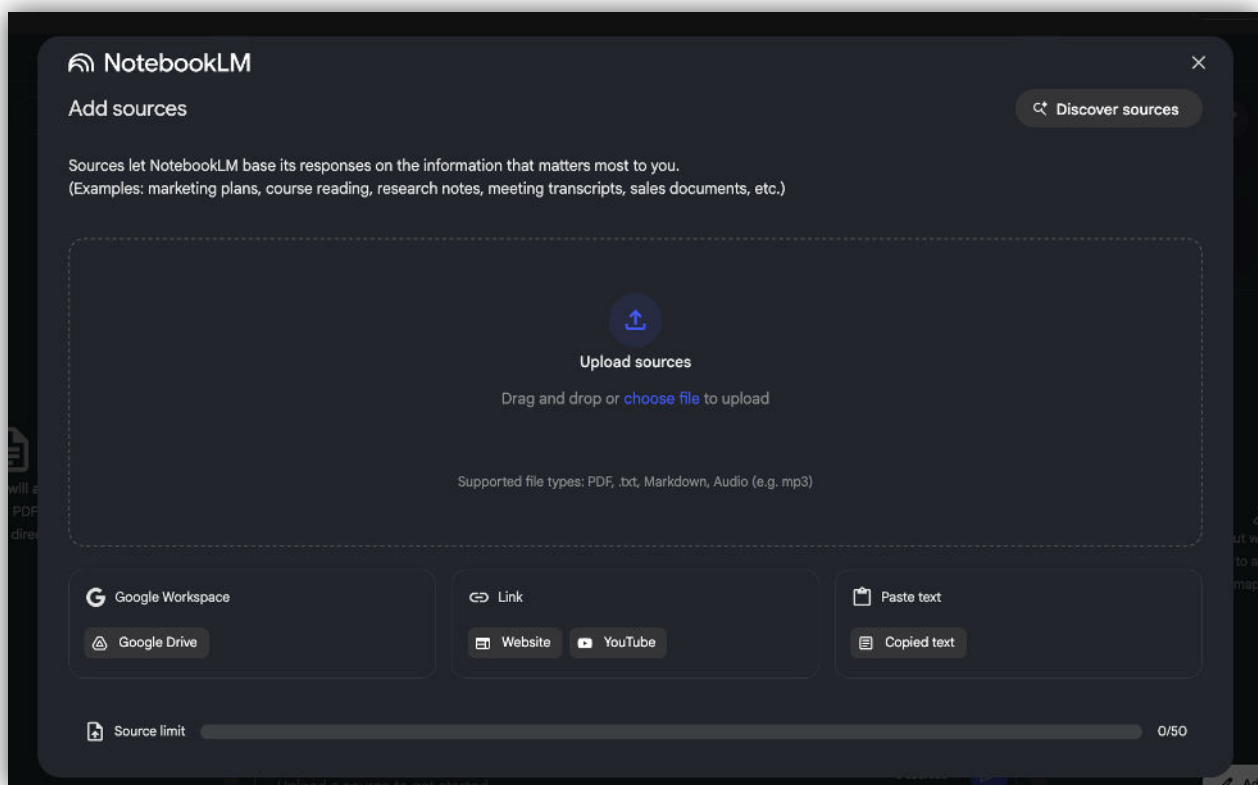
In this guide, you will learn how to use NotebookLM's core features through practical examples and proven strategies. We'll explore its general uses including creating personal libraries, generating study materials, and visualizing data through mind maps. You'll discover specific applications for research and for teaching. We'll also cover two of its main features namely Audio Overviews and Video Overviews and we will talk about some practical ways to leverage them in your instruction. We will then conclude with tips to help you make the best of NotebookLM in both your teaching and research. By the end of this guide, you'll have everything you need to integrate NotebookLM effectively into your professional workflow.

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1. What is NotebookLM?

NotebookLM is Google's AI-powered research assistant that works exclusively with documents you provide. Unlike ChatGPT or Claude that draw from vast training data, NotebookLM only references the materials you upload: PDFs, notes, or transcripts.

This focused approach means you control exactly what the AI knows and can trust that every response comes directly from your sources. It's like having a research assistant who has read only your specific materials and can help you analyze, synthesize, and create content from them.



2. General Uses of NotebookLM

There are various ways to use NotebookLM to help with your research and teaching. Here are some examples:

1. Personal Library

View NotebookLM as a Zotero alternative but with powerful AI-driven features. You can save your research materials such as papers, guides, and other resources then query them when in need of specific information.

You can ask complex questions across all your sources, find connections between different materials, and instantly retrieve relevant passages without manual searching through multiple of documents.

2. Book and Content Summaries

If you have a big reading assignment, you can split chapters, upload them separately, and get comprehensive summaries of each section. NotebookLM can distill lengthy academic texts into digestible summaries while preserving key arguments, evidence, and theoretical frameworks that are essential for understanding the material.

3. Create Study Guides and Flashcards

This is an excellent feature that enables you to create flashcards, study guides, and quizzes from your uploaded materials. It can be used to prepare for exams by creating practice questions at different difficulty levels, identify key areas to focus on based on your sources, and generate comprehensive review materials tailored to your specific learning objectives.

4. Visualize Your Data in Mind maps

NotebookLM allows you to create AI-based mind maps from your sources. This can help you visualize complex relationships between concepts, theories, and findings. These visual representations can reveal hidden connections, support brainstorming sessions, and provide a bird's-eye view of your research landscape.

5. Research Assistant

If you are working on a literature review or comprehensive research project, you can upload your materials such as research papers, textbooks, and web pages to turn your notebook into a mini subject-matter expert. It can generate summaries of large and complex documents, provide detailed explanations of difficult concepts, and help you synthesize information across multiple sources to build stronger arguments.

6. Audio Overviews

This is great for learning on the go. You can turn books, papers, or long YouTube videos into audio summaries to listen to while driving, commuting, or exercising. The conversational format

makes complex academic content more approachable and helps reinforce learning through auditory channels.

7. Subject-Specific Notebooks

Another great way to use NotebookLM is to build topic-focused notebooks (e.g., "Neuroscience Research 2024" or "Climate Policy Analysis") so queries stay focused and context-aware. This organization strategy prevents information overload and ensures more accurate, relevant responses to your questions.

8. Enhance Accessible and Inclusive Learning

Audio summaries and video overviews allow you to accommodate different learning styles and accessibility needs. Students with dyslexia, visual impairments, or attention challenges can benefit from multiple content formats thus ensuring equal access to educational materials.

9. Grow Professionally

You can use NotebookLM to help with your professional development. For instance, you can upload recent research in your area and engage in deep analysis of emerging trends. Another way to use it is to get personal insights by uploading your teaching reflections or professional journal entries (avoiding personal data) and get NotebookLM to help analyze patterns, identify areas for growth, and support self-analysis for continuous improvement.

10. Review Policies and Manuals

No one likes to go through policy jargon whether it's a school technology policy, institutional handbook, or legal documents. NotebookLM can help by summarizing key points, extracting relevant sections for specific questions, and translating bureaucratic language into plain English for better understanding and compliance.

11. Generate Transcriptions

NotebookLM can help you transcribe and summarize meetings, YouTube videos, and audio recordings. For instance, you can upload meeting audios and get NotebookLM to extract action items, key decisions, and important discussion points, creating organized meeting minutes that are searchable and actionable.

12. Get Assistance with Creative Writing

If you are working on a novel, academic book, or creative non-fiction, NotebookLM can help with character development, plot summaries, thematic analysis, and maintaining consistency across your manuscript. Upload your drafts, outlines, and research materials to create an intelligent writing companion that understands your project's unique voice and goals.

These are general uses that show the educational potential of NotebookLM. However, we can also go deeper and explore the different ways you can use this amazing tool to help you with your research and teaching.

3. Using NotebookLM to Help with Research

NotebookLM, as I stated before, is originally a research assistant and it does a great job helping you organize your research materials and synthesize information across multiple sources. I like to think of it as Zotero on steroids. Here are some practical ways to leverage NotebookLM in your research:

3.1. Summarize Research Articles

This is one of the main strengths of NotebookLM. You can create notebooks for your research projects, upload materials to each notebook and get NotebookLM to summarize key insights, methodologies, and findings across multiple papers. Ask it to highlight common methodologies, conflicting results, or emerging trends and it will save you hours of reading time.

3.2. Discover Gaps in the Literature

If you are not yet sure which gaps in the literature in your research area need to be explored, create a notebook and upload materials you collected during your research search (use tools such as Scite, Elicit, SciSpace, Research Rabbit, Consensus, among others, to help with the search part). Ask NotebookLM to identify understudied areas, methodological limitations across studies, or questions that remain unanswered in the current literature.

3.3 Pull Quotes

Use NotebookLM to extract quotes from your uploaded sources to back up your arguments in manuscripts, grant proposals, or presentations. You will need to verify the accuracy of the quotes though. Simply go to the original source, Cmd + F (Mac) or Ctrl + F (Windows) and paste a phrase or two from the quote to quickly locate it and ensure proper context and citation.

3.4. Get Feedback

Upload your research draft and ask NotebookLM to find weaknesses in your arguments, identify unsupported claims, and provide constructive feedback on your methodology, literature review, or discussion sections. It can act as an intelligent peer reviewer helping you strengthen your work before submission.

3.5. Identify Recurring Themes

Upload research papers and ask NotebookLM to identify recurring themes, methodologies, or theoretical frameworks across the papers. Use these patterns to structure a literature review, organize your theoretical framework, or identify which approaches are most used in your field.

3.6. Discover New Sources

Use the Discover feature in NotebookLM to conduct AI-enhanced online searches around a particular topic. NotebookLM searches the web and suggests various linked sources you can add to your notebook. You can then generate summaries, compare these new sources with your existing materials, and expand your research scope systematically.

3.7. Create Video Presentations

Upload the script of your presentation or even upload your research papers and use the Video Overview feature to generate engaging video summaries. You can use these for conference presentations, teaching materials, or to share your research findings with non-academic audiences in an accessible format.

3.8. Get Help with Data Analysis

Upload your research data and ask NotebookLM to identify patterns, suggest analytical approaches, or help interpret results. While it won't replace statistical software, it can help you understand trends, formulate hypotheses, or explain complex findings in plain language for your discussion section.

3.9. Visualize Your Research Data

Use NotebookLM to create mind maps from your sourced data. You can ask it to visualize connections between concepts, theories, or research findings which can help you see relationships you might have missed and organize your thoughts for writing or presentations.

3.10. Learn on the Go

Generate audio summaries from uploaded research materials to review literature while commuting, exercising, or doing other tasks. This is particularly useful for staying current with new publications in your field or reviewing materials before meetings, defenses, or conferences.

4. Using NotebookLM to help with Teaching

Here are 10 ways to use NotebookLM to help with teaching:

4.1. Create Engaging Lesson Plans:

Upload previous lesson plans or sample exemplary lesson plans and ask NotebookLM to analyze patterns, suggest improvements, or generate new variations. Create a notebook exclusively for lesson planning where you upload successful templates, curriculum standards, and teaching resources to build a personalized AI assistant for curriculum design.

4.2. Create Flashcards

Use NotebookLM to create comprehensive flashcard sets by uploading textbooks, lecture notes, or study guides. Ask it to identify key terms, concepts, and definitions, then format them into question-answer pairs suitable for digital flashcard platforms like Anki or Quizlet.

4.3. Generate Differentiated Materials

Upload your lesson or curriculum unit and ask NotebookLM to create multiple versions at different reading levels, complexity levels, or learning styles. Request modifications for advanced learners, struggling students, or those with specific learning needs.

4.4. Design Assessment Questions

Feed NotebookLM your course materials and learning objectives to generate varied assessment questions including multiple choice, short answer, essay prompts, and project-based assessments aligned with Bloom's Taxonomy levels.

4.5. Create Student Handouts and Worksheets

Upload core content and ask NotebookLM to design accompanying worksheets, graphic organizers, note-taking templates, and practice problems that reinforce key concepts through different exercise types.

4.6. Develop Rubrics and Grading Criteria

Input assignment descriptions and learning outcomes to have NotebookLM create detailed, objective rubrics with clear performance indicators and point distributions for consistent, transparent grading.

4.7. Generate Discussion Questions

Upload readings, videos transcripts, or lecture content and request thought-provoking discussion questions at various depth levels, from comprehension checks to critical analysis prompts that encourage student engagement.

4.8. Build Vocabulary Lists and Glossaries

Have NotebookLM analyze course materials to extract subject-specific terminology, create definitions in student-friendly language, and organize vocabulary by unit or difficulty level with example sentences.

4.9. Create Parent Communication Resources

Upload curriculum outlines and class activities to generate parent newsletters, homework help guides, or suggestions for at-home extension activities that align with classroom learning.

4.10. Design Cross-Curricular Connections

Input materials from multiple subjects and ask NotebookLM to identify interdisciplinary links, suggest integrated projects, and create lessons that connect your subject area to others, promoting holistic learning.

5. NotebookLM Audio Overview

NotebookLM Audio Overview is a powerful feature that allows you to transform your uploaded sources into engaging podcast-style conversations between AI hosts. You can customize the format of your audio overview to match your specific learning or presentation needs.

You can choose between four distinct formats:

- **Deep dive:** A lively conversation between two hosts, unpacking and connecting topics in your sources for comprehensive understanding
- **Brief:** A bite-sized overview to help you grasp the core ideas from your sources quickly
- **Critique:** An expert review of your sources, offering constructive feedback to help you improve your material
- **Debate:** A thoughtful debate between two hosts, illuminating different perspectives on your sources

The customization options extend beyond just format selection. You can also generate audio overviews in different languages to accommodate multilingual audiences or personal preferences.

Additionally, you can specify what the AI hosts should focus on in the episode. For instance, ask them to concentrate only on a particular source from your notebook, dive deep into a specific topic, or address certain themes or questions you're most interested in exploring.

This level of customization ensures that each audio overview is tailored to your exact needs, whether you're studying for an exam, preparing a presentation, or conducting research analysis.

5.1 Using Audio Overviews in Teaching

Here are some practical ways to use Audio Overviews in your teaching:

5.1.1. Podcast Generation

This is especially great for auditory learners. You can upload your course materials, lecture notes, or textbook chapters and generate podcast-style narrations to listen to on the go. Students can review complex topics during their commute, while exercising, or as they prepare for bed, turning passive time into active learning opportunities.

5.1.2. Language Learning Support

Generate audio overviews in multiple languages to support multilingual classrooms or create immersive language learning experiences. Upload texts in the target language and have the AI hosts discuss them. This provides natural conversation models that help students develop listening comprehension and familiarize themselves with academic discourse patterns.

The screenshot shows the 'Customise Audio Overview' interface. At the top, there's a title bar with a speaker icon and a close button. Below the title bar, the 'Format' section offers four options: 'Deep dive' (selected with a checkmark), 'Brief', 'Critique', and 'Debate'. Each option has a brief description. The 'Choose language' section has a dropdown menu set to 'English'. The 'Length' section has three buttons: 'Shorter', 'Default' (selected with a checkmark), and 'Longer'. Below these, there's a text area for 'What should the AI hosts focus on in this episode?' with a placeholder text 'Things to try' and two bullet points: '• Focus on a specific source ('only cover the article about Italy')' and '• Focus on a specific topic ('just discuss the novel's main character')'. A 'Generate' button is located at the bottom right.

Customise Audio Overview

Format

- Deep dive** ✓
A lively conversation between two hosts, unpacking and connecting topics in your sources
- Brief**
A bite-sized overview to help you grasp the core ideas from your sources quickly
- Critique**
An expert review of your sources, offering constructive feedback to help you improve your material
- Debate**
A thoughtful debate between two hosts, illuminating different perspectives on your sources

Choose language

English

Length

Shorter **✓ Default** Longer

What should the AI hosts focus on in this episode?

Things to try

- Focus on a specific source ('only cover the article about Italy')
- Focus on a specific topic ('just discuss the novel's main character')

Generate

5.1.3. Exam Review Sessions

Transform study guides and past exam materials into engaging audio reviews using the "Brief" format. Students can listen to condensed versions of key concepts repeatedly, reinforcing memory through auditory repetition. The conversational format makes dry material more memorable than traditional study methods.

5.1.4. Critical Thinking Development

Use the "Debate" format to model academic discourse and critical analysis. Upload controversial topics or competing theories and let students hear how to respectfully discuss opposing viewpoints and teach them to consider multiple perspectives and construct balanced arguments.

5.1.5. Accessibility Accommodations

Create audio alternatives for students with dyslexia, visual impairments, or reading difficulties. The conversational format is often easier to follow than dense academic text which enables all students to have equal access to course content regardless of their learning challenges.

5.1.6. Parent Engagement Tools

Generate audio summaries of curriculum units, student progress reports, or classroom activities that busy parents can listen to while commuting or doing household tasks. This improves home-school communication without requiring parents to read lengthy documents.

5.1.7. Professional Development Resources

Use the "Critique" format to analyze your own teaching materials, lesson plans, or student work samples. The AI hosts can provide objective feedback on your instructional design and help you identify areas for improvement in a non-threatening, conversational manner.

5.1.8. Flipped Classroom Content

Create audio overviews of new topics for students to listen to before class, using the "Deep dive" format to thoroughly explore concepts. This pre-exposure to material through audio allows class time to focus on application, discussion, and hands-on activities.

5.1.9. Differentiated Instruction

Generate multiple audio versions of the same content at different complexity levels or focusing on different aspects. Advanced students might receive a debate-style overview exploring nuances, while struggling students get a brief, simplified explanation of core concepts.

5.1.10. Reflection and Metacognition

Have students upload their own work (essays, projects, or portfolios) to generate audio critiques. This external perspective promotes self-reflection and helps students identify strengths and weaknesses in their own academic work, and develop crucial metacognitive skills.

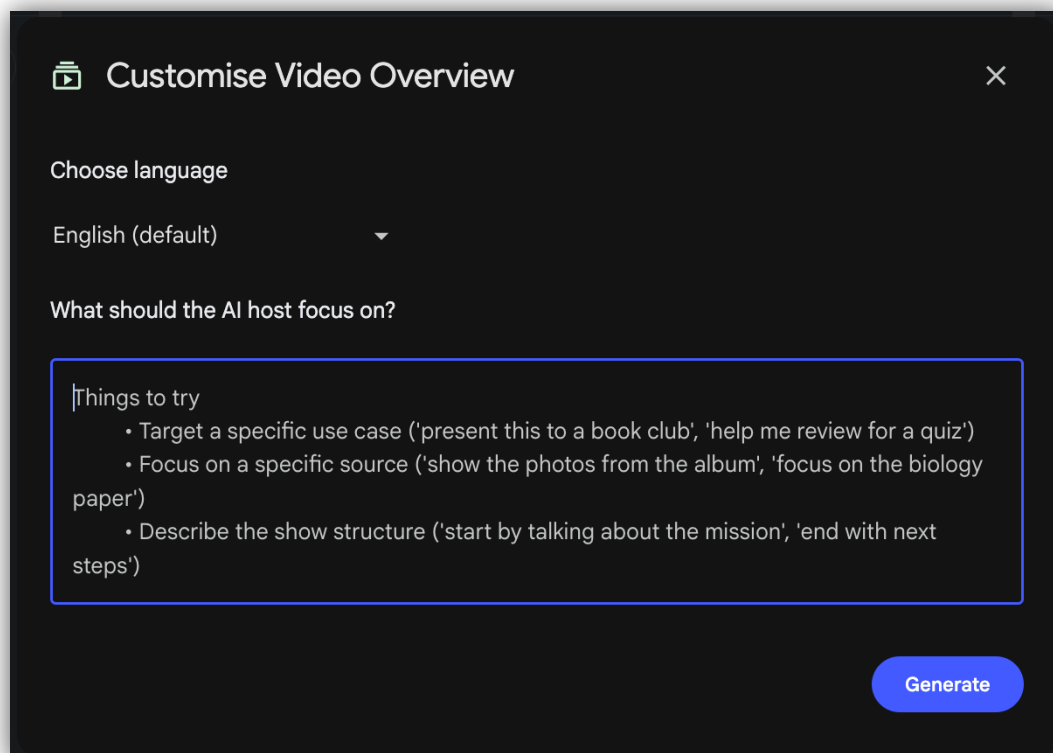
6. NotebookLM Video Overviews

Now let's talk about NotebookLM Video Overviews. Video Overviews is another powerful feature by NotebookLM. It allows you to create engaging visual presentations with AI hosts who explain your source materials using dynamic visuals and clear narration. Like Audio Overviews, you can also customize the language and direct the AI host's focus to specific aspects of your content.

The customization interface lets you guide the presentation by:

- Targeting specific use cases (like "present this to a book club" or "help me review for a quiz")
- Focusing on particular sources (such as "show the photos from the album" or "focus on the biology paper")
- Describing the show structure (for example, "start by talking about the mission, end with next steps")

I have used video overviews feature with some of my blog posts and it generated amazing videos with illustrative visuals. It was able to pull key insights, create relevant visual metaphors, and present complex ideas in an accessible, engaging format that brought my written content to life.



6.1. Using Video Overviews in Teaching

Here are 10 ways to use Video Overviews in your teaching:

6.1.1. Visual Review Activities

Transform study guides or chapter summaries into engaging video reviews that students can watch before exams. The visual elements help reinforce key concepts and create memorable associations that improve retention.

6.1.2. Flipped Classroom Lectures

Create video overviews of new topics for students to watch at home, replacing traditional lectures. This allows class time to focus on discussions, problem-solving, and hands-on activities while ensuring consistent content delivery.

6.1.3. Parent Conference Presentations

Generate video overviews of student progress, curriculum goals, or classroom projects that can be shared during virtual parent conferences or sent home for parents who couldn't attend meetings.

6.1.4. Multi-Modal Assignment Feedback

Upload student essays or projects to create video critiques that combine visual and auditory feedback. Students often engage more deeply with video feedback than written comments alone.

6.1.5. Differentiated Learning Resources

Create multiple video versions of the same content at different complexity levels or focusing on different learning objectives, allowing students to choose the version that best meets their needs.

6.1.6. Professional Development Portfolios

Document your teaching innovations, classroom successes, or action research by creating video overviews of your work, perfect for tenure applications, job interviews, or sharing best practices with colleagues.

6.1.7. Lab and Procedure Demonstrations

Upload written lab procedures or safety protocols to generate video overviews that visually explain steps, making complex procedures more accessible and reducing the risk of misunderstandings.

6.1.8. Literature and Text Analysis

Transform written literary analyses or book reports into dynamic video presentations that explore themes, characters, and symbolism through visual storytelling, making abstract concepts more concrete.

6.1.9. Student Presentation Support

Help students overcome presentation anxiety by having them create video overviews of their research or projects. They can focus on content quality while the AI handles the visual presentation aspects.

6.1.10. Substitute Teacher Resources

Create video overviews of lesson plans and classroom procedures that substitute teachers can watch quickly to understand your expectations, routines, and the day's learning objectives, ensuring continuity in your absence.

7. Tips for Making the Best of NotebookLM

In this section, I share practical strategies to maximize NotebookLM's effectiveness in your teaching and research workflow. While NotebookLM is a powerful AI tool, understanding its capabilities and limitations will help you use it more effectively. These tips come from extensive hands-on experience and will help you avoid common pitfalls while leveraging the tool's full potential for educational purposes.

7.1.1. Always Verify Output

NotebookLM is an AI tool and like any AI tool, it succumbs to AI limitations which we all know. Risks of hallucinations, inaccuracies, and fabrications are possible, though less frequent than with open-ended models. Always verify quotes, statistics, and specific claims against your original sources. Use NotebookLM as a research assistant, not a replacement for critical thinking.

7.1.2. Read Your Materials Before Uploading

Always read the materials you upload to the model. This is something I always recommend to teachers and researchers. Don't let AI take over your role as the primary reader. You need to do at least the first reading to understand the content's context and relevance. For research papers, read them multiple times, annotate, and highlight key sections. This familiarity helps you ask better questions and spot any AI misinterpretations.

7.1.3. Upload Around 10 Documents Per Notebook

Based on my experience, the ideal upload is around 10 documents per notebook. When you upload more, the model tends to struggle with accurate citations and may confuse information across sources. For larger projects, create multiple themed notebooks rather than one overloaded notebook.

7.1.4. Use Specific, Targeted Prompts

To get the most from your sources, prepare specific questions before engaging with NotebookLM. Instead of "summarize this paper," try "What methodology did the authors use to measure student engagement, and what were their three main findings?" Specific prompts yield more useful, accurate responses.

7.1.5. Organize Sources Thematically

Create separate notebooks for different aspects of your work. For example, one for lesson planning, another for research papers on a specific topic, and another for student resources. This thematic organization improves the AI's ability to provide relevant, contextual responses.

7.1.6. Check Citations and Cross-Reference

When NotebookLM provides citations, always click through to verify the source material. The AI occasionally misattributes information or takes quotes out of context. Treat citations as starting points for verification, not definitive references.

7.1.7. Layer Your Queries Progressively

Start with broad overview questions, then drill down into specifics. For example, begin with "What are the main themes across all sources?" then follow with "How does Smith's approach to differentiated instruction differ from Johnson's?" This progressive questioning helps build comprehensive understanding.

7.1.8. Combine Multiple Output Formats

Don't rely on just one feature. Use text summaries for quick understanding, audio overviews for deeper reflection, and video presentations for visual learning. Each format reveals different insights from the same source material.

7.1.9. Document Your Limitations

Keep a record of what NotebookLM handles well and where it struggles with your specific content. For instance, it might excel at summarizing empirical studies but struggle with theoretical philosophy papers. This awareness helps you use the tool more strategically.

7.1.10. Use NotebookLM as a Collaboration Tool, Not a Replacement

Think of NotebookLM as a highly capable research assistant or teaching aide, not a substitute for your expertise. Use it to enhance your work, to find connections you might miss, to generate new perspectives, or to create alternate formats of your content. The best results come when you combine AI capabilities with your professional judgment and domain knowledge.

Conclusion

NotebookLM is a powerful AI tool to help with your research and teaching. It transforms how we work with documents and makes it easier to understand complex materials and create content that resonates with students. I've found it particularly valuable when I need to synthesize information from multiple sources quickly or produce different formats like audio podcasts and video summaries.

NotebookLM has saved me hours of work while I maintain control over the quality and accuracy of the output. I can spot connections between sources I might have missed, present information in different formats, and create professional materials in a fraction of the time it used to take. The secret lies in how you use it: always verify outputs, organize notebooks by theme, and treat the AI as your research assistant, not your replacement.

I encourage you to try its various features, adapt them to your specific needs, and discover how it can transform your educational practice. When we combine our professional judgment with AI capabilities, we create learning experiences that would have been impossible just a few years ago.

References

- Bornet, P. (2024). Irreplaceable: The Art of Standing Out in the Age of Artificial Intelligence. Kindle Edition. Wiley
- Mishra, P. (2023). ChatGPT is a smart drunk intern: 3 examples.
<https://punyamishra.com/2023/07/26/chatgpt-is-a-smart-drunk-intern-3-examples/>
- NotebookLM Help. <https://support.google.com/notebooklm/answer/16164461>
- Reddit
 - How to use NotebookLM effectively:
 - <https://www.reddit.com/answers/18fae745-86bb-45d9-8302-a0aed48a42d0/?q=How%20to%20use%20notebooklm%20effectively&source=PDP>
 - Using NotebookLM for academic paper summaries
 - <https://www.reddit.com/answers/a0d31602-0391-4415-a77f-ecbad5aefca5/?q=Using%20NotebookLM%20for%20academic%20paper%20summaries&source=PDP>