



# From Google to ChatGPT

Libraries and the tale of two revolutions

Oren Beit-Arie, SVP Strategy & Innovation, Clarivate

# **The Guardian**

A new report says libraries will have to change what they do or risk becoming redundant. Natasha Gilbert reports

The Guardian

**Killing the written word by snippets**

Naomi, S. Baron

# **THE CHRONICLE of Higher Education®**

**The Uncertain Future of  
Libraries**

The Chronicle of Higher-Ed

# **THE WALL STREET JOURNAL.**

**The changing role of librarians, as  
new technologies revolutionize job**

Wall Street Journal



**The  
Guardian**

Jan. 15, 2008

A new report says libraries will have to change what they do or risk becoming redundant. Natasha Gilbert reports

The Guardian

**THE CHRONICLE**  
of Higher Education®

Apr. 21, 2005

**The Uncertain Future of  
Libraries**

The Chronicle of Higher-Ed

Nov. 28, 2005

**Killing the written word by snippets**

Naomi, S. Baron

**THE WALL STREET JOURNAL.**

Jan. 2, 2007

**The changing role of librarians, as  
new technologies revolutionize job**

Wall Street Journal

## WHO WROTE THIS?

HOW AI AND THE LURE  
OF EFFICIENCY  
THREATEN HUMAN WRITING

NAOMI S. BARON

STANFORD UNIVERSITY PRESS  
*Stanford, California*

american  
libraries

## Reading Between the Bots: Where librarianship is headed in the age of AI

American Libraries Magazine, March 2024

THE CHRONICLE  
of Higher Education®

## Is this the end of reading?

Beth McMurtrie, The Chronicle of Higher-Ed, May 2024

THE CHRONICLE  
of Higher Education®

## It's Time to Start Teaching Your Students How to Be a Student

Emily J. Isaacs, The Chronicle of Higher-Ed, March 2024

# Feels like déjà vu?

Same?

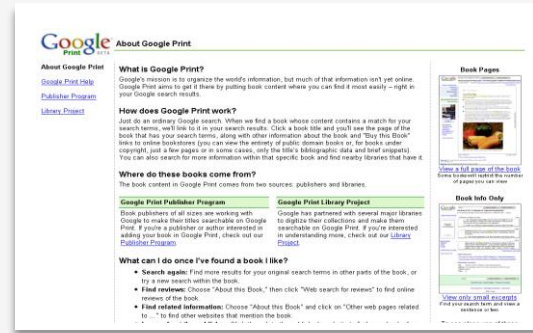
Similar?

Different?





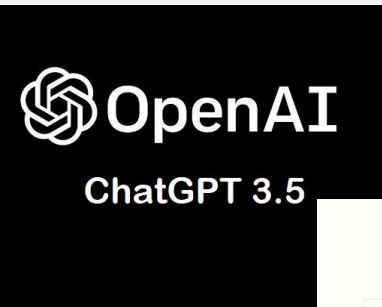
1998: Google Search



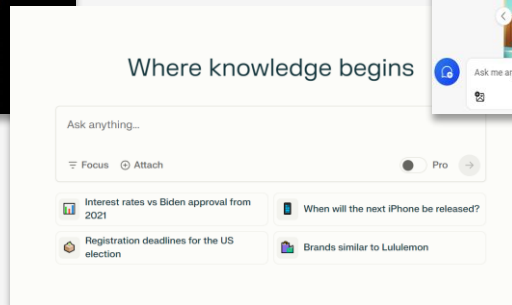
Oct. 2004: Google Print (Books)



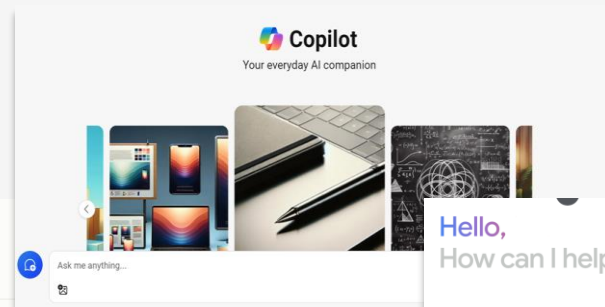
Nov. 2004: Google Scholar



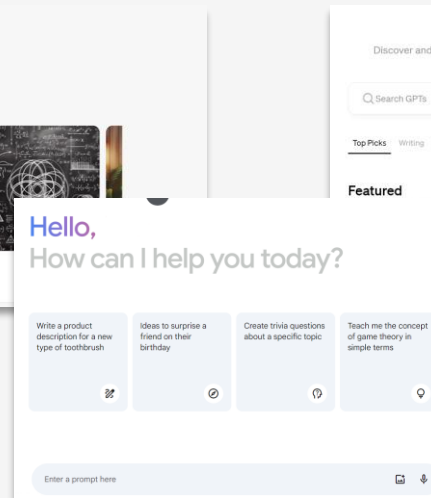
Nov. 2022  
ChatGPT-3.5



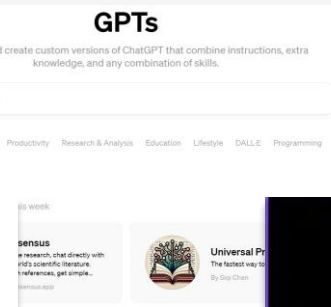
Dec. 2022  
Perplexity AI



Feb. 2023  
Microsoft  
CoPilot



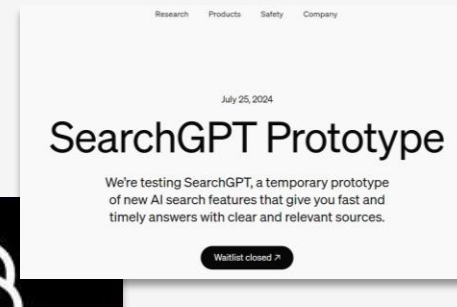
Mar. 2023  
Google Gemini



Jan. 2024  
GPT Store



May 2024  
GPT-4o



July 2024  
SearchGPT


- Content licensing deals (publishers – LLM vendors) →
- Copyright law suits →

# How OpenAI's New AI Search Engine Plans to Topple Google

OpenAI announces tactical launch of new AI search platform, which aims to be better, and more targeted than Google.



Written by  
**Isobel O'Sullivan**

Published on  
 **May 10, 2024**

[Research](#)

[Products](#)

[Safety](#)

[Company](#)

July 25, 2024

## SearchGPT Prototype

We're testing SearchGPT, a temporary prototype of new AI search features that give you fast and timely answers with clear and relevant sources.

Waitlist closed ↗



**Ex Libris**



## Where Google™ and Libraries Meet ?

Oren Beit-Arie

Mount Holyoke College, January 12, 2006

## Ex Libris Launches a Beta Program of Generative AI Powered Primo Research Assistant

June 19, 2024







**The search revolution:**

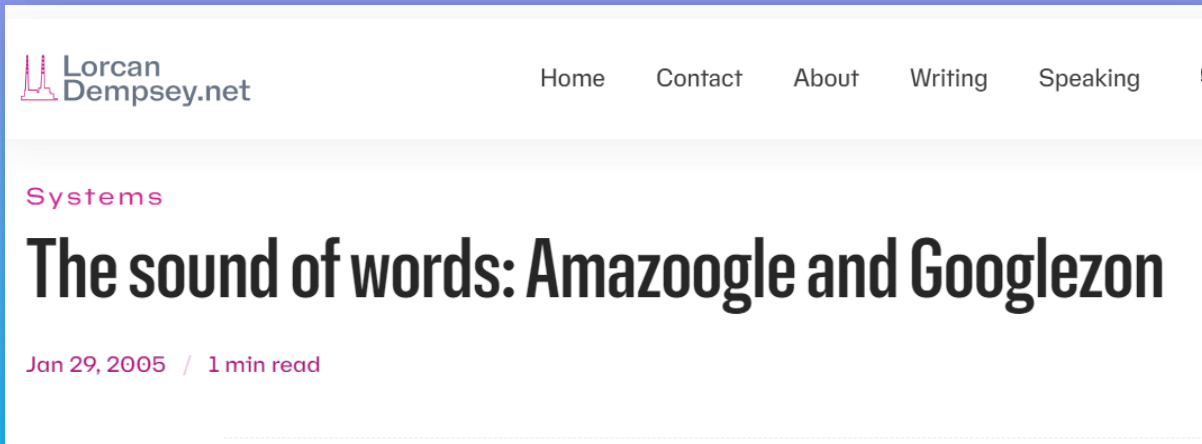
**What did we do (collectively) in response?**

Modernized library services

Met users where they are

Re-thought library's role

- New paradigm: Single-search box
- New user-centric experience
- Decoupling discovery from ILS



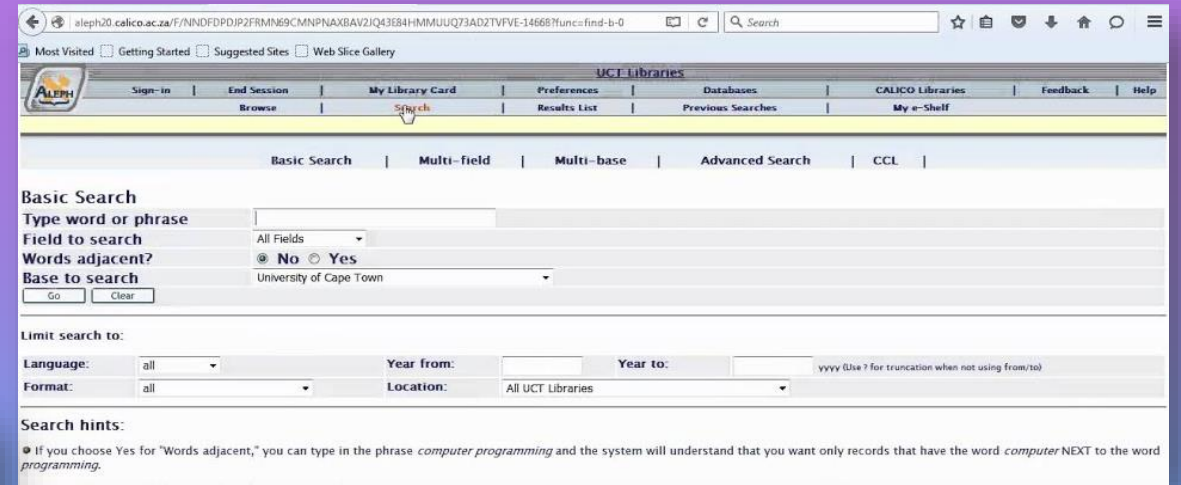
Lorcan Dempsey.net

Home Contact About Writing Speaking

Systems

# The sound of words: Amazoogole and Googlezon

Jan 29, 2005 / 1 min read



aleph20.calico.ac.za/F/NINDFPDIP2FRMN69CMNPNA8BAV2Q43E84HMMUUQ73AD2TVFVE-14668Yfunc=find-b-0

UCT Libraries

Basic Search | Multi-field | Multi-base | Advanced Search | CCL

Basic Search

Type word or phrase

Field to search: All Fields

Words adjacent?: No

Base to search: University of Cape Town

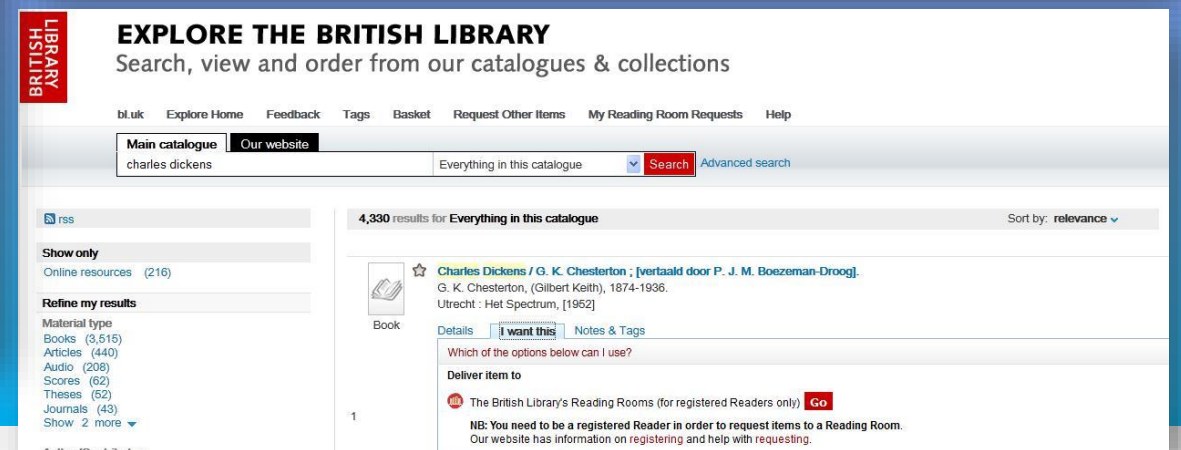
Limit search to:

Language: all Year from: Year to: yyyy (Use ? for truncation when not using from/to)

Format: all Location: All UCT Libraries

Search hints:

If you choose Yes for "Words adjacent," you can type in the phrase *computer programming* and the system will understand that you want only records that have the word *computer* NEXT to the word *programming*.



BRITISH LIBRARY

## EXPLORE THE BRITISH LIBRARY

Search, view and order from our catalogues & collections

bl.uk Explore Home Feedback Tags Basket Request Other Items My Reading Room Requests Help

Main catalogue Our website

charles dickens Everything in this catalogue Search Advanced search

4,330 results for Everything in this catalogue Sort by: relevance

Charles Dickens / G. K. Chesterton ; [vertaald door P. J. M. Boezeman-Droog].  
G. K. Chesterton, (Gilbert Keith), 1874-1936.  
Utrecht : Het Spectrum, [1962]

Deliver item to

The British Library's Reading Rooms (for registered Readers only) Go

NB: You need to be a registered Reader in order to request items to a Reading Room.  
Our website has information on registering and help with requesting.

Modernized library services

Met users where they are

Re-thought library's role

- Indexing library catalogs (Sitemaps, SEO)
- OpenURL and Link Resolvers
- Integration into the LMS

Google Scholar BETA

knowledge environment Search

Scholar access provided by the University of Calgary Library Results 1 - 50 of 50

[book] Information Ecology: Mastering the Information and Knowledge Environment - Library Search - We

TH Davenport, L Prusak, L Prusak - Cited by 93

New York: Oxford University Press, 1997

Coevolution of Firm Absorptive Capacity and Knowledge Environment: Organizational Forms and ...

FAJ Van den Bosch, HW Volberda, M de Boer - Cited by 42 access provided by the University of Calgary Library

... Coevolution of Firm Absorptive Capacity and Knowledge Environment: Organizational

Forms and Combinative Capabilities. Source, Organization ...

Organization Science, 1999 - portal.acm.org - portal.acm.org

Automatically integrating multiple rule sets in a distributed knowledge environment

... by the University of Calgary Library

environment

chungwa ...

... explore.ieee.org

environment

vided by the University of Calgary Librar

distributed

... l.acm.org - all 8 versions »

Google scholar "Paul Otlet" Search Advanced Scholar Search

Scholar Articles and patents anytime include citations Create email alert

Traite de documentation: le livre sur le livre, theorie et pratique

P Otlet - 1934 - Editions Mundaneum

Cited by 262 - Related articles - Related Info at Baruch - Library Search

[book] International organisation and dissemination of knowledge: selected essays of Paul Otlet

P Otlet - 1990 - ideals.illinois.edu

Abstract: These translations of a selection of Paul Otlet's writings have been a long time in preparation. Now put down, now taken up again over a period of ten years or so in Chicago, London and Sydney, they are dispatched at last to Amsterdam with relief. They follow an ...

Cited by 28 - Related articles - Cached - Related Info at Baruch - Library Search - All 3 versions

[book] The universe of information: the work of Paul Otlet for documentation and international organisation

WB Rayward ... - 1975 - en.scientificcommons.org

... The Universe of Information: the Work of Paul Otlet for Documentation and International Organisation (1975). ... A biographical study of the life and work of Paul Otlet (1868-1944) focusing on his work for documentation and the creation of a range of international organizations. ...

Cited by 87 - Related articles - Cached - Related Info at Baruch - Library Search - All 9 versions

[HTML] Visions of Xanadu: Paul Otlet (1868-1944) and hypertext

WB Rayward - Journal of the American Society for ..., 1994 - people.lis.illinois.edu

The work of the Belgian internationalist and documentalist, Paul Otlet (1868-1944), and his colleagues in Brussels, forms an important and neglected part of the history of library science. They developed a complex of organisations that functioned as a ...

Cited by 121 - Related articles - Cached - BL Direct - All 17 versions

[HTML] from illinois.edu

Find Full Text at Baruch

[HTML] from illinois.edu  
Find Full Text at Baruch



Modernized library services

Met users where they are

Re-thought library's role

- From gatekeeping to guiding
- Reliance on resources beyond library's control
- Re-defined the meaning of information literacy skills

#### SCHOOL LIBRARIES

## 21st-Century Libraries: The Learning Commons

Libraries become a different kind of learning destination when schools reimagine them as open, transparent spaces that invite student communication and collaboration.

By **Beth Holland**

January 14, 2015

The screenshot shows a Wikipedia article titled "Buttered cat paradox". The article text explains that the paradox is based on the tongue-in-cheek combination of two bits of folk wisdom: "Cats always land on their feet" and "Buttered toast always lands buttered side down." It describes the paradox as what happens if one attaches a piece of buttered toast (butter side up) to the back of a cat and drops it from a large height. The article includes a "Contents" table of contents with sections for "Thought experiments", "Loophole theories", "In popular culture", "See also", "References", and "External links". There are three cartoon illustrations labeled "Fig. 1", "Fig. 2", and "Fig. 3" showing a cat with a piece of buttered toast on its back in various falling positions. The Wikipedia logo and navigation sidebar are visible on the left.

## *What have we learned?*

Google didn't replace us. Arguably, it only made us better.  
By embracing change, we sustained and evolved.

### **The Guardian**

A new report says libraries will have to change what they do or risk becoming redundant. Natasha Gilbert reports

The Guardian

# Feels like déjà vu?

Same?

Similar?

Different?





# A tale of two revolutions: Some similarities, but stakes seem higher

## SEARCH REVOLUTION

## GENERATIVE AI REVOLUTION

**Impact on**

Academic information  
discovery and access

Practically every academic  
aspect

# A tale of two revolutions: Some similarities, but stakes seem higher

## SEARCH REVOLUTION

## GENERATIVE AI REVOLUTION

Impact on

Academic information discovery and access

Practically every academic aspect

**Academic Integrity**

Risk of reliance on non-academic sources

Risk of reliance on non-academic sources + **hallucinations**

# A tale of two revolutions: Some similarities, but stakes seem higher

## SEARCH REVOLUTION

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**Full-text**

Users likely to enter full-text resources  
(result snippets drive traffic to full text)

Users might suffice with GenAI-generated answer



# A tale of two revolutions: Some similarities, but stakes seem higher

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Full-text

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Users might suffice with GenAI-generated answer

**Library resources**

Content indexed in search engine, can lead to library resources

Currently limited attribution. Users more likely to bypass library resources altogether

# A tale of two revolutions: Some similarities, but stakes seem higher

## SEARCH REVOLUTION

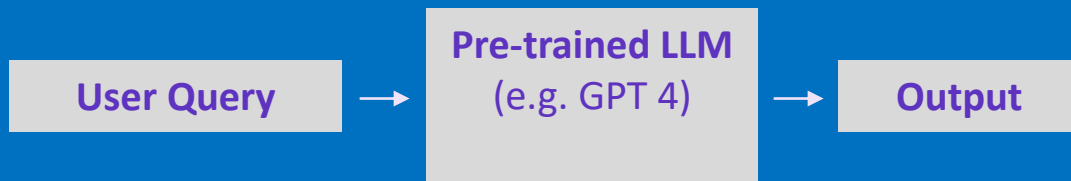
## GENERATIVE AI REVOLUTION

Impact on	Academic information discovery and access	Practically every academic aspect
Academic Integrity	Risk of reliance on non-academic sources	Risk of reliance on non-academic sources + hallucinations
Full-text	Users likely to enter full-text resources (result snippets drive traffic to full text)	Users might suffice with GenAI-generated answer
Library resources	Content indexed in search engine, can lead to library resources	Currently limited attribution. Users more likely to bypass library resources altogether
<b>Model</b>	PageRank Index, Sitemaps	Large Language Models (LLMs): trained on "web knowledge"

# General-purpose LLM

## Training data: “the Web”

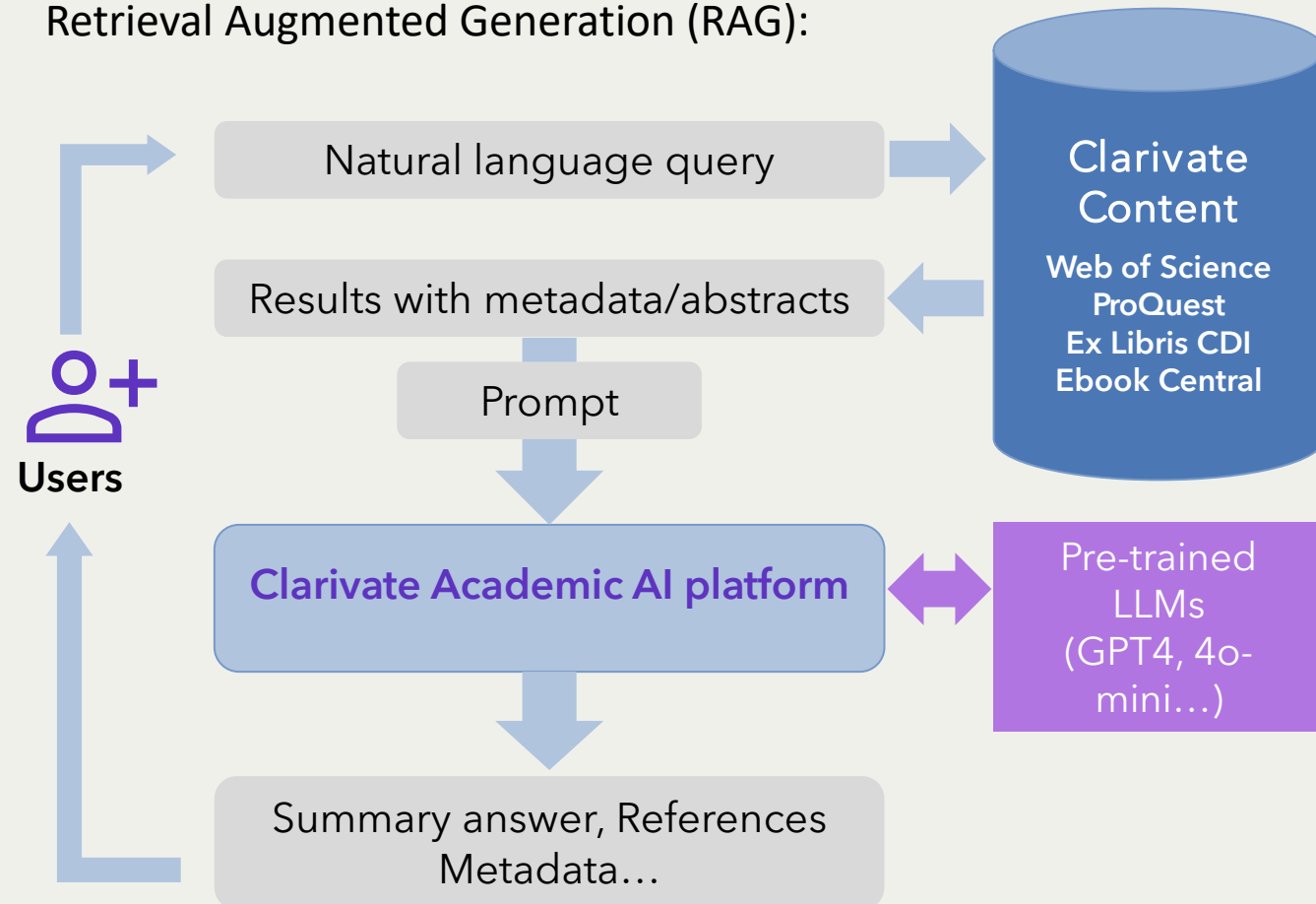
- Unspecific, not transparent
- BUT, effective at training the LLM to:
  - Understand patterns
  - Create coherent text outputs
  - Translate



# Academic AI: Grounding output in trusted content

- Results are based on trusted facts & information
- Minimizing hallucinations and bias

## Retrieval Augmented Generation (RAG):



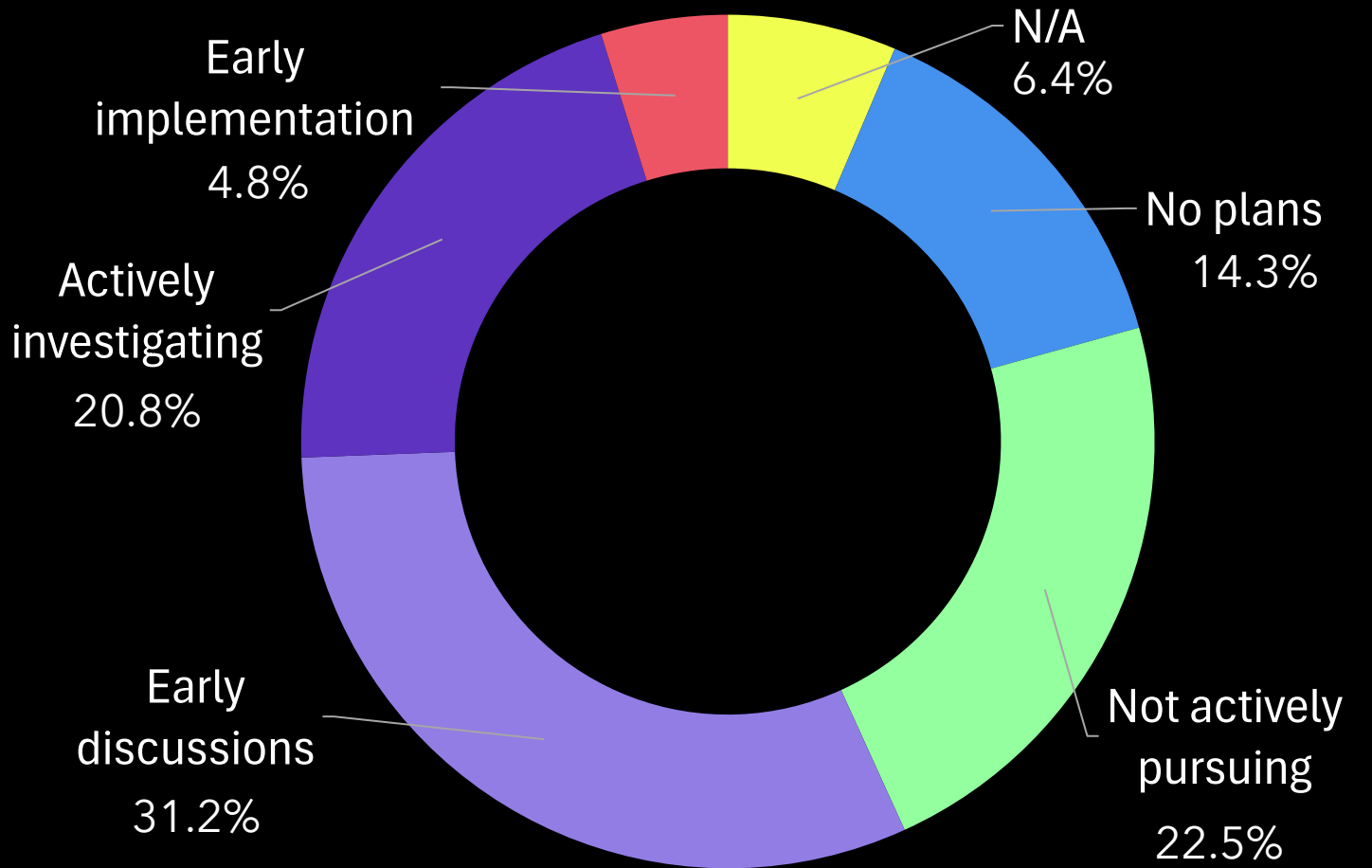
# Where does your library currently stand in terms of implementing AI tools and technologies?

Clarivate Library Survey,  
1,500+ respondents

Survey:

- Academic (75%), Public and National Libraries
- 20+ qualitative interviews

Visit:  
[clarivate.com/pulse-of-the-library](https://clarivate.com/pulse-of-the-library)



# AI Revolution: Repeat or Rewrite?



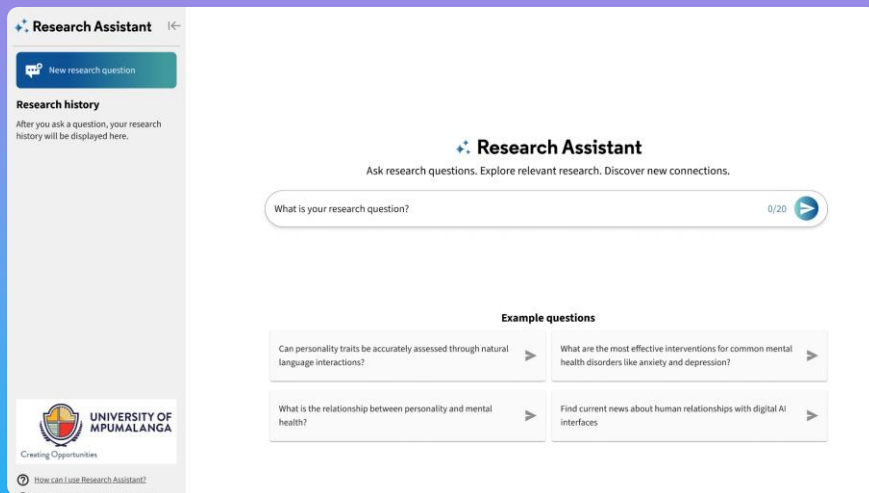


Modernize library services

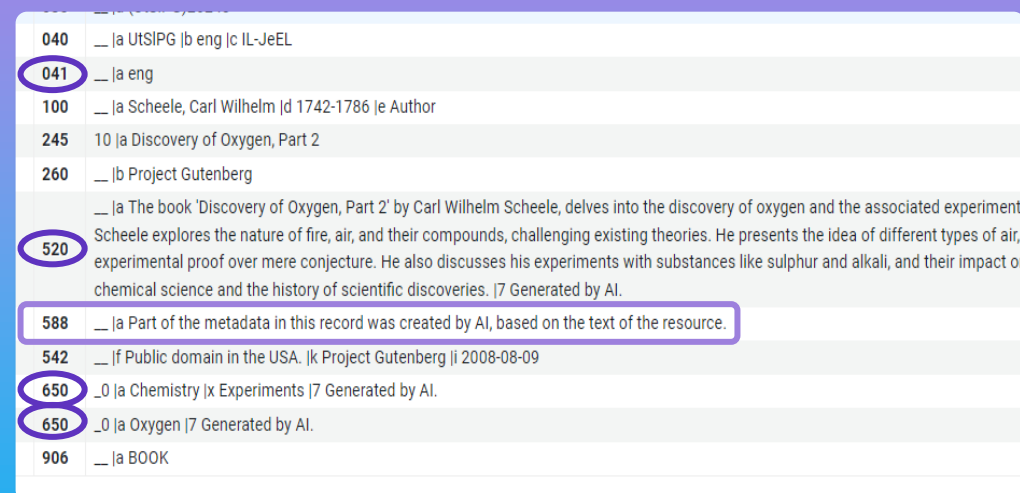
Meet users where they are

Re-think library's role

- Embed AI into library services
- Operational efficiencies (metadata, automation)



ProQuest Research Assistant



Metadata Assistant

# Explore Clarivate Academic AI

## Meet your Discovery Research Assistant

Tuesday, 2:10 – 2:40 PM, Sankt Hans Torv



**Christine Stohn**

Senior Director, Product Management

**Sima Bloch**

Senior Product Manager

## Introducing Specto

Wednesday, 11:55 – 12:25 PM, Hovedbanegården



**Yaniv Levi Korem**

VP, Product Management

**Guy Ben-Porat**

VP, Academic AI

## GenAI at Clarivate: From research to applications

Wednesday, 10:20 – 10:50 AM, Sankt Hans Torv



**Guy Ben-Porat**

VP, Academic AI

## Metadata Enrichment with AI

Monday, 1:30 PM



**Tamar Ganor**

Senior Product Manager

Modernize library services

Meet users where they are

Re-think library's role

- What is today's equivalent of Sitemaps & SEO?
- How do we ensure attribution & citation of scholarly content, including library resources?

**Research Assistant**

New research question

**Research history**

- How do social media influencers affect consumer behavior?
- How does consumer materialism affect influencer impact?
- Which influencer reputation aspects most affect consumer choices?
- How does consumer materialism affect influencer impact?
- Which influencer reputation aspects most affect consumer choices?

**How do social media influencers affect consumer behavior?**

searching your library for **social media influencers and consumer behavior**  
generating summary of 5 most relevant sources

**Summary**

Social media influencers (SMIs) significantly influence consumer behavior, as evident from various studies. In 2023, technology-oriented SMIs impact purchase decisions through attractiveness, expertise, and trustworthiness. A 2021 study emphasizes perceived influencer credibility's (IC) effect on purchase intentions, augmented by psychological ownership (PO). Another 2023 study explores emotional bonds' role, revealing familiarity and intimacy influence purchases. A 2021 study identifies four dimensions shaping an influencer's reputation, impacting decision-making. Lastly, a 2023 paper underscores SMIs' credibility, with trustworthiness and expertise predicting purchase intentions, moderated by materialism. These studies highlight SMIs' diverse impact on consumer choices through emotional connections, credibility, and reputation.

Expand this summary Copy text Rate this answer

**Sources**

- 1 Mediation Effects of Social Cognition in the Real World: Reconnecting the Study of Social Cognition with Social Reality  
Simpson et al., Journal of Psychology and Social Science, 2023  
Download PDF Available Online
- 2 Impact of social media influencers' credibility on millennial consumers' green purchasing behavior: a concept paper on personal and social...  
Simpson et al., Journal of Psychology and Social Science, 2023  
Download PDF Available Online
- 3 Social Media Influencers and its Impacts on Consumer Behavior: Malaysia  
Simpson et al., Journal of Psychology and Social Science, 2023  
Available Online
- 4 The impact of credibility of influencers recommendations on social media on consumers behavior towards brands  
Simpson et al., Journal of Psychology and Social Science, 2023  
Download PDF Available Online
- 5 Heterophily or Homophily of Social Media Influencers: The Role of Dual Parasocial Relationships in Impulsive Buying

Ask a follow-up question 1/20

UNIVERSITY OF MPUMALANGA  
Creating Opportunities  
How can I use Research Assistant?

ProQuest Research Assistant

**View 5 referenced documents**

- 1 **Advances in Microfluidics-Based Technologies for Single Cell Culture** 14 Citations  
Alonso, DG, Yu, MC, Shen, F  
2019 | ADVANCED BIOSYSTEMS
- 2 **Recent advances in microfluidic technology for manipulation and analysis of biological cells (2007-2017)** 48 Citations  
Alam, MK, Koomson, E, Yang, MS  
2018 | ANALYTICA CHIMICA-ACTA
- 3 **Recent developments of microfluidics as a tool for biotechnology and microbiology** 49 Citations  
Scheler, O, Postek, W, Garstecki, P  
2019 | CURRENT OPINION IN BIOTECHNOLOGY

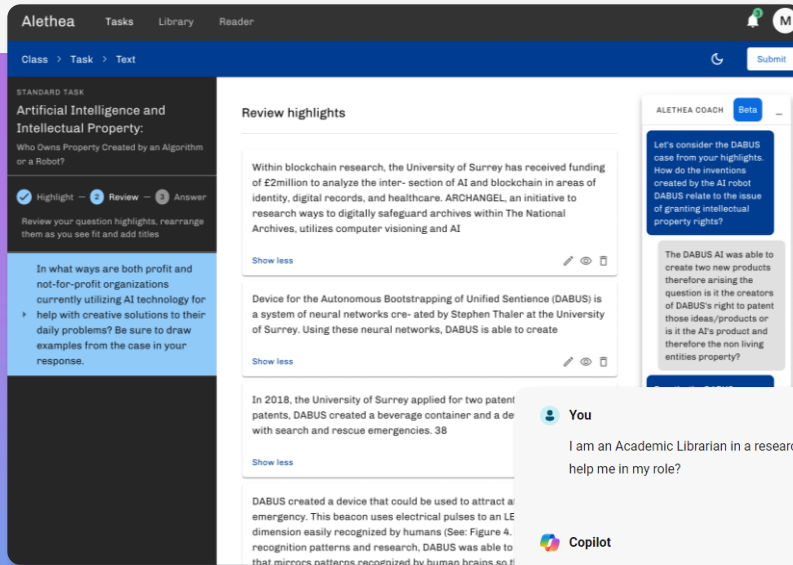
Web of Science Research Assistant

Modernize library services

Meet users where they are

Re-think library's role

- AI literacy
- Going deeper into the user's knowledge journey
- Using AI to advance societal impact



Alethea Academic Coach

# nature

More than 10,000 research papers were retracted in 2023 – a new record

The number of articles being retracted rose sharply this year. Integrity experts say that this is only the tip of the iceberg.

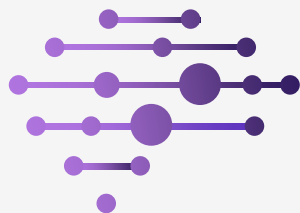
As an AI, I can assist you in various ways in your role as an Academic Librarian:

1. **Research Assistance:** I can help you find academic papers, articles, and other resources related to a specific topic. I can also provide summaries of these materials.
2. **Information Literacy Instruction:** I can provide explanations and tutorials on various aspects of information literacy, such as evaluating sources, understanding scholarly communication processes, and avoiding plagiarism.
3. **Reference Management:** I can provide guidance on using reference management tools and citation styles.
4. **Collection Development:** I can provide insights into trending topics in various fields which might be useful for collection development.
5. **Technology Guidance:** I can provide assistance with using various digital tools and platforms used in libraries and academia.
6. **Outreach and Communication:** I can help draft emails, newsletters, or social media posts to communicate with students, faculty, and other stakeholders.

Remember, while I strive to provide accurate and helpful information, I should be used as a supplement to, not a replacement for, professional judgement. Always verify the information from multiple sources when making

Using AI for professional development

Modernize library services



Embed AI into library services

Operational efficiencies  
(metadata, automation)

Meet users where they are



What is today's equivalent of  
Sitemaps & SEO?

How do we ensure attribution  
& citation of scholarly content,  
including library resources?

Re-think library's role



AI literacy

Going deeper into the  
user's knowledge journey

Using AI to advance  
societal impact

**Stewardship of the scholarly record**  
driving research and education integrity and excellence



9/11: THE IRAN CONNECTION • IRAQ: A NEW STRONGMAN

# Newsweek

July 26, 2004 • \$3.95

Steve Jobs and  
The Must-Have  
Music Player  
Everyone Is  
Talking About

iPod,  
Therefore  
i Am



Mar. 15, 2043

## Libraries say goodbye to 'Vintage' AI – what's next?

The Daily Future

Apr. 21, 2044

## Brain chip boom: Libraries tackle literacy in the age of instant content consumption

The Next-Gen Dewey

May 17, 2044

## IGeLU 2044: Gearing up for quantum computing – libraries at the helm

The Library Ledger

June 22, 2044

## Virtual Reality Time Travel Transforms Libraries into Interactive Time Portals

The Higher-Ed Tribune





TAK