

# Evaluating the Impact of AI on Information Literacy and Critical Thinking in Academic Libraries

Presented by: Buelah Mullar

On behalf of: Kamogelo Mphuthi  
Rebecca Bapela  
Clara Ngobeni

Department of Library Services, University of Pretoria, South Africa

International Conference of Economics and Business Information 2025, Berlin.

Date: 15-16 May 2025



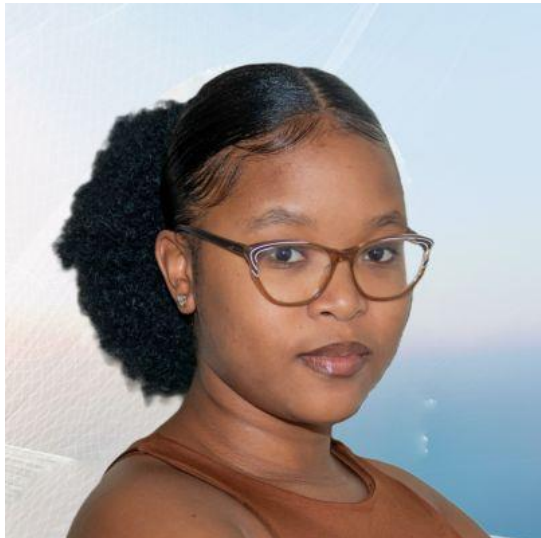
UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Make today matter

[www.up.ac.za](http://www.up.ac.za)

# Acknowledgements -Presentation Compiler

---



Kamogelo Mphuthi  
[kamogelo.mphuthi@up.ac.za](mailto:kamogelo.mphuthi@up.ac.za)



Rebecca Bapela  
[rebecca.bapela@up.ac.za](mailto:rebecca.bapela@up.ac.za)



Clara Ngobeni  
[clara.Ngobeni@up.ac.za](mailto:clara.Ngobeni@up.ac.za)



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Contents

---

- **Introduction**
- **Purpose and Objectives**
- **Theoretical Framework**
- **Definitions of Key Concepts**
- **Literature Review**
- **Information Literacy & Critical Thinking in Higher Education**
- **AI and Higher Education**
- **Role of AI in Academic Libraries**
- **Methodology**
- **Findings**
- **Discussion**
- **Conclusion and Recommendations**



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Introduction

---

- The Evolving Role of Academic Libraries in a Digital Age
- Digital transformation is reshaping higher education.
- Academic libraries are central hubs, adapting to user needs and supporting learning.
- Libraries enhance academic success with personalized, timely support.
- Universities increasingly view libraries as strategic to teaching and research.
- AI further drives change, boosting teaching quality, personalizing learning, and engaging students.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Study Purpose and Objectives

---

## Purpose:

This study investigates **AI's implications** for information literacy and **critical thinking skills** within **higher education and academic libraries**.

## Objectives:

- Assess whether AI risks diminishing critical information literacy skills (e.g., evaluation, source credibility, critical thinking).
- Evaluate the advantages and disadvantages of integrating AI in academic libraries for information literacy education.
- Propose strategies for effective AI integration that strengthen critical thinking alongside information literacy.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Theoretical Framework - Unified Theory of Acceptance and Use of Technology (UTAUT)<sup>(Venkatesh et al., 2003)</sup>

## Performance Expectancy

- Belief that AI tools enhance information discovery and critical thinking.

## Effort Expectancy

- Ease of use drives AI acceptance and critical engagement.

## Social Influence

- Academic culture and peer views shape perceptions of AI's role in information literacy

## Facilitating Conditions

- Institutional support is key for integrating AI while strengthening information literacy and critical thinking.

## Application to Study:

This study applies the UTAUT model to understand how user acceptance of AI in academic libraries impacts information literacy development and the cultivation of critical thinking skills in higher education settings.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Make today matter

[www.up.ac.za](http://www.up.ac.za)

# Definitions of Key Concepts

---

## Critical Thinking (CT):

- “A self-regulated judgement that results in interpretation, analysis, evaluation and inference, as well as an explanation of the evidential, conceptual, methodological, criteriological or contextual considerations on which the judgement is based” (Marcos-Vílchez et al., 2024)

## Artificial Intelligence (AI):

- It is a rapidly evolving field within computer science dedicated to developing intelligent agents that can mimic human cognitive abilities, such as learning, reasoning, problem-solving, and understanding language (Popenici & Kerr, 2017).

## Information Literacy (IL):

- According to the Association of College and Research Libraries (ACRL), information literacy involves recognizing information needs and locating, evaluating, and using information effectively.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Critical Thinking and Information Literacy in Higher Education

---

- The digital age demands critical thinking (CT) to navigate **vast online information**.
- CT and information literacy (IL) help users evaluate sources, create knowledge, and respond constructively.
- CT fosters critical evaluation and constructive responses, benefiting both individuals and society.
- Information literacy involves understanding digital media, distinguishing reliable sources, and creating knowledge.
- Developing CT through problem-solving and decision-making is a core goal in modern university curricula.
- Universities must design curricula that embed critical thinking as a lifelong skill.
- Modern universities must intentionally design curricula to build these lifelong skills, essential for the "Google Generation."



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Artificial Intelligence in Higher Education



## For Educators:

- **Task Automation:** AI handles grading and tracking, freeing time for teaching.
- **Curriculum Support:** AI identifies gaps and suggests resources.
- **Enhanced Research:** AI speeds up data analysis and trend identification.
- **Data Insights:** AI reveals learning patterns to refine teaching.
- **Personalized Instruction:** AI helps tailor teaching to student needs.



## For Students:

- **Personalized & Adaptive Learning:** AI tailors content and adjusts lesson difficulty to individual needs.
- **Immediate Feedback:** Students receive instant corrections to boost improvement.
- **Resource Access:** AI broadens access to quality learning materials.
- **Better Retention:** Customized learning enhances understanding and memory.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Role of AI in Academic Libraries

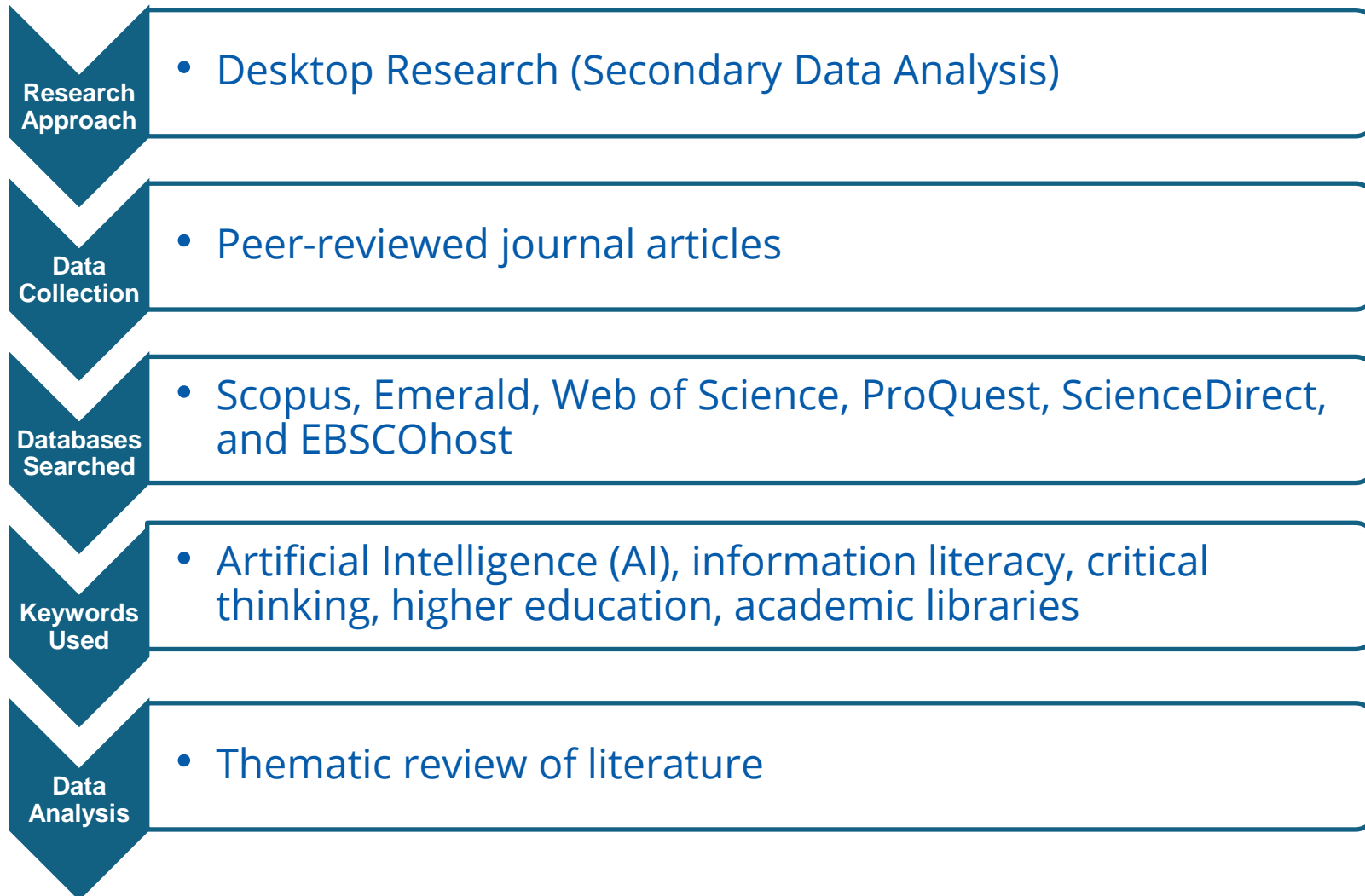
---

- AI enhances knowledge management through improved precision in information retrieval.
- Natural Language Processing (NLP) systems streamline management of vast information resources.
- AI-driven data integration connects external databases, digital and institutional repositories, encouraging interdisciplinary collaboration.
  
- Challenges include:
  - Evaluating data quality and AI bias
  - Managing resource-intensive AI systems
  - Ensuring ethical and equitable AI deployment



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Methodology

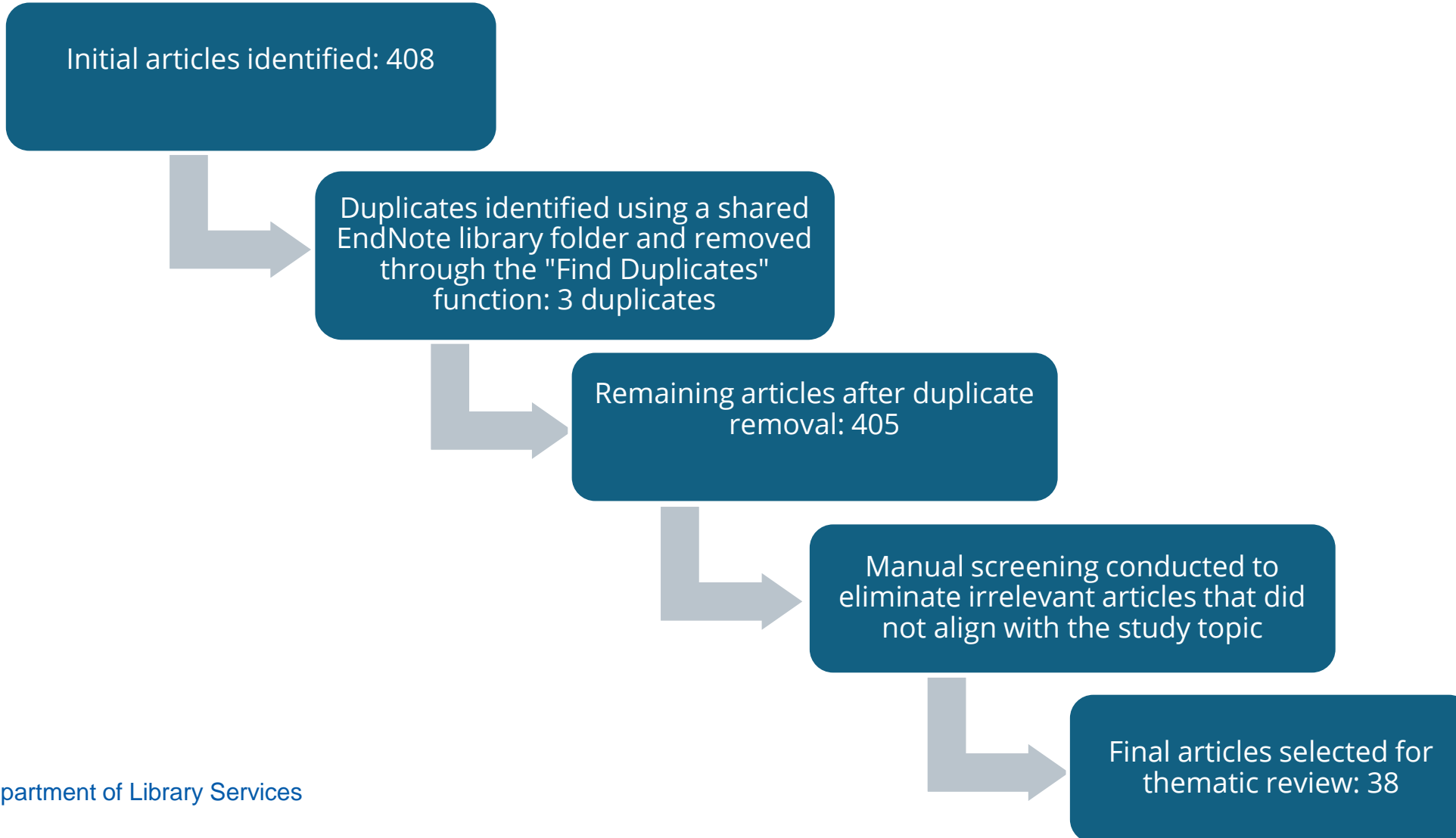


UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Methodology Cont.:

---

## Screening Process:



# Limitations

---

- No primary data collection
- Such as interviews, surveys, or observations
- due to time constraints
- Possible biases or gaps in the existing literature



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Findings

## AI is Transforming Information Literacy and Critical Thinking

- AI tools (e.g., ChatGPT) provide immediate access to information, assist with research tasks, and offer content generation.
- However, the ease of information retrieval risks diminishing students' ability to evaluate sources critically, recognize biases, and practice reflective judgment.
- Literature indicates a growing reliance on AI tools without sufficient scrutiny, leading to surface-level understanding rather than deep learning.

## Opportunities for Personalized Learning and Support

- AI enhances academic libraries' service delivery by offering **personalized guidance**, immediate responses to information queries, and the automation of repetitive tasks (e.g., cataloging, metadata generation).
- Academic libraries using AI-driven tools are better able to customize information literacy programs tailored to individual student needs, increasing engagement and effectiveness.

## Challenges of Integrating AI into Academic Libraries

- **Bias and reliability issues:** AI-generated content can perpetuate biases and misinformation if not critically evaluated.
- **Data quality management:** Librarians need to develop new skills to assess the quality of AI-curated data.
- **Ethical considerations:** Overreliance on AI could undermine the educational goals of fostering critical independence in students.

## AI Enhances but Does Not Replace Critical Thinking

- Successful integration of AI requires librarians and educators to **explicitly teach critical evaluation skills** alongside AI usage.
- Students must be trained to **interrogate AI outputs**—asking where the information comes from, how it was produced, and whether it is trustworthy.

## Library Leadership is Crucial

- Academic libraries must lead initiatives that **balance AI adoption with traditional information literacy education**, ensuring students are empowered, not replaced by technology.
- Libraries must redefine their role within universities, positioning themselves as **centers for critical inquiry and digital citizenship education**.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

Make today matter

[www.up.ac.za](http://www.up.ac.za)

# Discussion

---

- AI enhances access, personalization, and retrieval, but risks reducing deep critical thinking.
- Libraries must **integrate AI tools while reinforcing critical thinking skills**.
- Librarians should act as **mediators** between AI technology and knowledge development.
- Strategies include:
  - AI literacy modules
  - Promoting bias awareness
  - Using AI outputs for evaluation exercises
  - Faculty-library collaboration

**Research gap:** Little empirical data on how students engage with AI in academic settings.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Conclusion and Recommendations

---

- AI offers major benefits for higher education and libraries but also challenges critical thinking and information literacy.
- Academic libraries must **balance AI integration with strong critical thinking education.**
- Libraries should lead efforts to teach **AI literacy, bias detection, and ethical information use.**

The future of higher education depends on using AI to **enhance**, not replace, deep critical engagement.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

# Thank You



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA