NARODOWA AGENCJA WYMIANY AKADEMICKIEJ

STRATEGIC PARTNERSHIPS

Teaching guidelines

AI-Powered Insights: Transforming Literature Reviews

This work was supported by the Polish National Agency for Academic Exchange, Strategic Partnerships, “Higher Education for Resilient Economy”, grant number (BNI/PST/2023/1/00016)

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Material information

This teaching material demonstrates how to conduct a Systematic Literature Review (SLR) using modern AI-powered tools, tailored primarily for PhD students engaged in advanced research projects. It begins with a concise reminder of what SLR entails, outlining its purpose and significance in scholarly work. The material then defines the key stages of the SLR process - planning, searching, screening, data extraction, synthesis, and reporting - providing a structured framework for rigorous research.

To illustrate the approach, we use a practical example from supply chain management, showing how AI can be integrated at each stage. Students learn how AI tools can assist in automating literature searches, improving screening accuracy, and supporting data synthesis. The material critically examines limitations and challenges, such as algorithmic bias and the need for human oversight, while highlighting benefits like efficiency gains and scalability.

A unique feature of this resource is the comparison of success rates and efficiency between traditional and AI-assisted SLR methods, using the Adjusted Tversky Index as a benchmark for similarity and precision. This analytical perspective equips PhD students with both conceptual understanding and practical skills for leveraging AI responsibly in research workflows.

While designed for doctoral-level courses in research methodology, management, and data-driven decision-making, the material can also serve as supplementary content for master-level seminars in information systems and business analytics. Its adaptable structure allows instructors to tailor sessions to themes such as digital research ethics, methodological rigor, and innovation in academic practices.

Learning objectives and outcomes

This teaching material focuses on how AI-powered tools can enhance the process of conducting SLR, moving beyond traditional methods to improve efficiency and accuracy. Its core objective is to help students understand the integration of AI into established SLR workflows, including planning, searching, screening, data extraction, and synthesis, while critically assessing benefits, limitations, and ethical considerations.

Learning outcomes are categorized as follows:

Knowledge

- The student is able to explain the purpose of SLR.
- The student understands how AI tools can be applied at different stages of the SLR process.
- The student can identify limitations, challenges, and ethical issues associated with AI-assisted SLR.

Skills

- The student is able to incorporate AI tools into an SLR workflow for tasks such as automated searching and screening.
- The student can compare traditional and AI-assisted SLR approaches using metrics such as the Adjusted Tversky Index.
- The student is able to critically evaluate the efficiency and accuracy of AI-supported methods.

Social Competences

- The student is able to articulate informed opinions on the role of AI in academic research.
- The student can engage in discussions about responsible and transparent use of AI in literature reviews.

Overview

The provided teaching materials - comprising a PowerPoint presentation and a video lecture - are designed to support doctoral-level instruction on advanced research methods, specifically focusing on how AI-powered tools can enhance the process of conducting SLR. Both materials follow an identical structure, allowing instructors to deliver content in live sessions or through asynchronous learning.

The lecture begins with a short overview of how an SLR differs from a general literature review, emphasizing its systematic, transparent, and replicable nature. Next, it provides a reminder of the three main stages of a traditional SLR - planning, searching and screening, and synthesis and reporting - before offering practical insights into what is critical at each phase, such as defining inclusion criteria, managing large datasets, and ensuring methodological rigor.

The core section addresses the integration of AI into the SLR process. Using a real-world example - “Charting the Digital Shift: An SLR on AI Applications in Purchasing Processes” - the lecture demonstrates how AI can be applied across different stages. It starts by describing the research questions and strategy, showing that AI’s applicability in the initial planning phase is generally limited. The discussion then moves to the second phase - abstract and text screening - where AI tools offer significant usability gains. Here, the lecture introduces the Adjusted Tversky Index as

a metric for assessing the effectiveness of AI-assisted screening and presents comparative results between traditional and AI-supported approaches.
The session concludes with final remarks on what AI can realistically achieve in SLR workflows, highlighting both its benefits (efficiency, scalability) and its struggles (bias, interpretability, and the need for human oversight). This balanced perspective equips students with the knowledge and critical thinking skills necessary to responsibly incorporate AI into advanced research practices.

Pre-lecture preparation

To get the most out of this lecture, students should refresh key concepts in strategic management and international business that underpin the discussion. In particular, they should review governance modes and structures of multinational enterprises (MNEs), the primary motives behind foreign direct investment (FDI), and the specifics of equity-based entry modes. These elements form the foundation for understanding how regulatory changes influence global strategy. Familiarity with these topics will enable students to critically assess how sustainability-driven disclosure requirements affect internationalization decisions and compliance strategies. Reviewing recent case studies of MNEs adapting to new EU regulations will further help connect theoretical models with real-world practice.

Suggested usage

To get the most out of this lecture, students should have a solid understanding of the fundamentals of SLR and, ideally, prior experience completing related exercises or assignments. They should be familiar with the typical stages of an SLR - planning, searching, screening, data extraction, and synthesis - as this session builds on those foundations rather than introducing them from scratch.
In addition, students should know how to navigate the most common academic databases in their field (e.g., Scopus, Web of Science, and similar platforms). This includes understanding how to set search fields, combine queries, apply filters, and manage challenges such as incomplete metadata or inconsistent indexing. Familiarity with these practical aspects will enable participants to critically engage with the discussion on integrating AI tools into the SLR process.
Since the lecture focuses on extending existing knowledge, students will benefit from reviewing their previous SLR work and reflecting on common difficulties - such as balancing precision and recall, handling large datasets, and maintaining methodological rigor. This preparation ensures they can fully appreciate the advantages, limitations, and ethical considerations of AI-assisted approaches presented during the session.

Engagement activities

This lecture can be supplemented with a range of interactive activities designed to enhance student engagement and deepen understanding of the topic. These activities are flexible and can be used either before the lecture to activate prior knowledge, or after to reinforce key concepts and encourage critical thinking. They are suitable for both live and asynchronous teaching formats.

Activity	Description
How to ask me?	**Objective:** Enable students to see how AI-tools respond to different wording and prompts used in SLR **Activity**: Provide students with a small dataset of abstracts (e.g., 25-30) and ask them to come of with the most efficient prompts for analysing the materials with specific aims in mind.
AI vs traditional SLR Challenge	**Objective: Compare efficiency and accuracy of AI-assisted screening versus manual screening.** **Activity:** Provide students with a small dataset of abstracts (e.g., 50–100). Split them into two groups: one uses an AI tool (e.g., ASReview, Rayyan), the other screens manually. After screening, calculate Adjusted Tversky Index to compare overlap and precision.
Metric Interpretation & Debate	**Objective**: Understand and interpret performance metrics. **Activity:** Provide students with results comparing traditional vs. AI-assisted SLR using metrics like Adjusted Tversky Index. Ask them to interpret what the numbers mean for reliability and efficiency.: **Discussion:** Should AI replace manual screening in SLR?

Post-lecture activities

Following the lecture, students can deepen their understanding by exploring how current research addresses the integration of AI into SLR. Post-lecture activities should include searching for and reading recently published papers on AI-assisted SLR methods across different disciplines. Students are encouraged to compare the tools, workflows, and evaluation metrics proposed in these studies with those discussed in class.
They should identify:

- Alternative AI solutions for screening, data extraction, and synthesis.
- Challenges and limitations highlighted in the literature, such as bias, reproducibility, and interpretability.
- Suggested best practices for combining traditional SLR rigor with AI-driven efficiency.

Students should critically assess whether these approaches improve success rates and methodological transparency compared to conventional methods. This comparative analysis not only strengthens theoretical knowledge but also develops practical skills in evaluating emerging research practices and technological innovations. By engaging with these activities, students gain insights into how AI is shaping evidence-based research and what ethical and methodological considerations remain unresolved.
