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Presentation of the 2025 edition (V6), featuring international studies on AI in education.

About the Review of Artificial Intelligence in Education

Institutional Description

The Review of Artificial Intelligence in Education is dedicated to advancing **scientific** knowledge through the exploration of applications, implications, and innovations of **AI** in **educational contexts**. The journal aims to foster a multidisciplinary dialogue among researchers, educators, and policymakers in the fields of education, management, and technology.

Academic Impact

Seeking Q4 qualification in the SPELL ANPAD database - Impact 2025, reflecting our commitment to rigorous peer review and scholarly contribution.

Website Link

https://educationai-review.org/revista/index

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First Publications on ChatGPT in Brazilian Academia from the Perspective of Social Network Analysis

Henrique César Melo Ribeiro
*Universidade Federal do Delta do Parnaíba (UFDPar), Brazil

Theoretical Perspective

- **Key Concepts**: Scientific Publishing, Natural Language Processing (NLP), Generative AI, Social Network Analysis (SNA).
- **Frameworks**: Social Network Analysis (ARS), leveraging sociometric indicators like network density and betweenness centrality.

Methodology

- **Type**: Quantitative, Sociometric.
- **Sample**: 20 publications on ChatGPT indexed in the Scientific Periodicals Electronic Library (SPELL) database from 2022-2024.
- **Techniques**: Social Network Analysis (SNA) using UCINET and NetDraw software to map co-authorship, co-citation, institutional, and keyword networks.

Main Results

- The research network shows low density, indicating limited knowledge exchange.
- **Most Central Year**: 2024.
- **Most Influential Journal**: *Review of Artificial Intelligence in Education*.
- **Most Central Institutions**: UNINOVE and FGV-SP.
- **Key Citations**: OpenAI (2023), Rossoni (2022), and Lund & Wang (2023).

Contributions

- **Theoretical**: Provides a pioneering application of Social Network Analysis (SNA) to map the nascent academic production on ChatGPT in Brazil.
- **Practical**: Offers insights for new researchers to identify key authors, institutions, and publications.
- **International Relevance**: Maps the local academic response in Brazil to a global technological phenomenon, providing a national-level case study.

Glossary of Generative Artificial Intelligence for Education: A Conceptual and Pedagogical Framework

Jairo Alberto Galindo-Cuesta
La Salle University, Colombia

Theoretical Perspective

Key Concepts: Generative AI, Large Language Models (LLMs), Pedagogical Integration, Computational Semantics, AI Literacy.

Frameworks: Integrates perspectives from Vygotsky's social constructivism, Sweller's Cognitive Load Theory, Mishra & Koehler's TPACK model, Siemens' Connectivism, and Engeström's Activity Theory.

Methodology

Type: Mixed-Methods, Conceptual/Theoretical.

Sample: Over 500 academic and technical documents processed. A multidisciplinary panel of experts for validation.

Techniques: Systematic literature review (PRISMA), Natural Language Processing, and a three-round Delphi valldation process with experts.

Main Results

Produced a comprehensive glossary with operational definitions of key generative AI terms tailored for educational contexts.

Aligns technical AI terminology with pedagogical frameworks, providing accessible definitions and practical examples.

Terms are marked to indicate if they are evolving (evol) or have recommended readings (check).

Contributions

Theoretical: Creates a validated conceptual framework that connects AI concepts to educational theories (e.g., TPACK, Connectivism).
Practical: Provides a foundational vocabulary for educators, curriculum designers, and policymakers. Serves as a key resource for teacher training.

International Relevance: Addresses a universal need for accessible, validated resources to empower educators globally.

Artificial Intelligence and (Non)Vulnerable Students: Barriers and Challenges

Janete Fernandes Silva | Universidade Federal de Minas Gerais (UFMG) | Brazil
Cláudia Aparecida Avelar Ferreira | Pontifícia Universidade Católica de Minas Gerais (PUC Minas) | Brazil

Theoretical Perspective

- **Key Concepts**: Social Vulnerability, Higher Education, Digital Inclusion/Exclusion, Algorithmic Inequality, Pedagogical Mediation.
- **Frameworks**: Draws on sociological (Bourdieu), psychological (Bronfenbrenner), and educational theories (Vygotsky, Dewey). Proposes a hierarchical framework for "AI-Inclusion."

Methodology

Type: Qualitative, Exploratory Case Study.

Sample: 46 students in the 5th semester of the Librarianship program at UFMG, Brazil.

Techniques: Structured questionnaire with demographic and open-ended questions. Content analysis of responses based on Bardin (2011).

Main Results

- Students have a predominantly positive perception of AI as a tool to optimize study time and promote autonomy.
- However, without skilled pedagogical mediation and equitable access, AI can reproduce or intensify pre-existing inequalities.
- Access to AI is mediated by socioeconomic status, digital literacy, and institutional support, creating a risk of "algorithmic inequality."

Contributions

Theoretical: Introduces the concept of algorithmic inequality in the context of student vulnerability and proposes a framework for achieving "AI-Inclusion."

Practical: Highlights the urgent need for educational policies that ensure AI is used to promote fair and emancipatory inclusion.

International Relevance: Findings from Brazil offer a critical perspective applicable to many nations grappling with social inequality and the digital divide.

Exploring AI in Education: Transforming Educators' Teaching and Learning in a Developing Country Bangladesh

Soiloor Nandini Arunima | University of Asia Pacific (UAP) | Bangladesh
Mily Akhter | University of Asia Pacific (UAP) | Bangladesh

Theoretical Perspective

Key Concepts: Teacher Attitudes, AI Readiness, Higher Education, Technology Adoption.

Frameworks: Based on the Theory of Planned Behavior (Ajzen, 2020), examining how individual and social factors influence attitude and behavior.

Methodology

Type: Quantitative Survey.

Sample: 272 educators from 50 public and private universities in Bangladesh.

Techniques: Partial Least Squares Structural Equation Modeling (PLS-SEM), Importance-Performance Map Analysis (IPMA).

Main Results

Attitude is the key driver: A positive attitude toward AI significantly impacts educators' learning and teaching of AI.

What shapes attitude?: Personal relevance, subjective norms, and self-transcendent goals are significant positive predictors.

What doesn't?: Confidence in AI did not show a meaningful effect on attitude.

AI readiness: Has a direct positive impact on learning and teaching outcomes.

Contributions

Theoretical: Integrates individual and social dimensions into a model of AI adoption, tested in the context of a developing country.

Practical: Provides actionable recommendations: focus on demonstrating personal relevance and fostering a supportive social environment.

International Relevance: Offers a valuable Global South perspective on AI adoption, revealing different influencing factors compared to developed economies.

Exploring the Role of AI in Higher Education: A Study of Usage by Students and Teachers in the Netherlands

Nynke Bos, Klaas-Jan Lammers, & Andrea Prince van Leeuwen
**Inholland University of Applied Sciences, Netherlands*

Theoretical Perspective

- **Key Concepts**: AI Literacy, Pedagogical Integration, Educational Technology, Ethics in AI.
- **Frameworks**: Uses the ISAR framework (Bauer et al., 2025) to distinguish between substitution, augmentation, and redefinition of learning processes.

Methodology

- **Type**: Quantitative Survey.
- **Sample**: 96 students and 71 teachers from a Dutch university of applied sciences.
- **Techniques**: Digital questionnaires with Likert-scale and open-ended questions, analyzed with descriptive statistics and thematic analysis.

Main Results

- AI is primarily used for practical support (text generation, editing) rather than transforming pedagogy. Its use is best described as **substitution** and **augmentation**.
- Both students and teachers report improved efficiency and work quality.
- Significant concerns exist regarding reliability ('hallucinations') and ethics.
- Most users develop AI skills on their own, highlighting a lack of institutional guidance.

Contributions

- **Theoretical**: Provides empirical evidence that current AI integration aligns with lower levels (substitution/augmentation) of the ISAR framework.
- **Practical**: Underscores the urgent need for structured AI literacy programs balancing technical skills with critical evaluation and ethical awareness.
- **International Relevance**: The Dutch case study offers a candid look at AI adoption in a technologically advanced country, providing a valuable benchmark.

The Role of the European Union in Shaping an Ethical and Legal Framework for AI in Education

Andreea-Nicoleta Dragomir | *Lucian Blaga University from Sibiu, Romania*

Theoretical Perspective

- **Key Concepts**: Ethical Regulation, Governance, Education Policy, Transparency, Human Oversight.
- **Frameworks**: Analyzes core EU policy documents, including the **EU AI Act**, the **Digital Education Action Plan (2021-2027)**, and the **Ethics Guidelines for Trustworthy AI**.

Main Results

- The EU is building a framework for "trustworthy AI," classifying educational AI systems as "high-risk" under the AI Act.
- This implies strict obligations for transparency, human oversight, and protection of fundamental rights.
- The case study of Romania reveals a significant discrepancy between high-level EU intentions and the practical preparedness of a Member State.

Methodology

- **Type**: Normative-Institutional Analysis, Documentary Analysis, and a National-Level Case Study.
- **Sample**: EU-level policy and legal documents; national-level data and strategies from Romania.
- **Techniques**: Analysis of legal texts and policy documents to compare supranational goals with national implementation capacity.

Contributions

- **Theoretical**: Connects the broad field of AI governance directly to the education sector, analyzing supranational regulation and national policy.
- **Practical**: Provides policy recommendations for EU institutions and Member States to bridge the implementation gap.
- **International Relevance**: Offers a critical examination of the world's first comprehensive legal framework for AI, with lessons for other regions.

Amplifier and Risk: A Theory-Building Extension of the Community of Inquiry (CoI) for Student AI Use

Sharlene Baksh
Concordia University (Canada) & The University of the West Indies (Jamaica), Caribbean

Theoretical Perspective

Key Concepts: AI in Education, Cognitive Amplifier, Ethical Risk, Teaching Presence, Global South.
Frameworks: Extends the **Community of Inquiry (CoI)** framework (Garrison, Anderson, & Archer, 2000) by theorizing two new student-derived constructs.

Methodology

Type: Theory-Building, Secondary Qualitative Analysis.
Sample: 68 open-ended narratives from a larger mixed-methods study of 114 tertiary students in the Caribbean.
Techniques: Deductive coding using CoI categories and inductive coding to identify emergent themes.

Main Results

Students experience AI as a **Cognitive Amplifier**: it enriches meaning-making by clarifying ideas and generating examples.
Students also perceive strong **Ethical Risk**: anxieties about misinformation, plagiarism, and policy ambiguity weaken collaboration.
Teaching Presence emerges as a key moderating factor, influencing whether AI is experienced as supportive or stressful.

Contributions

Theoretical: Refines the CoI framework to address AI-mediated learning by introducing 'Cognitive Amplifier' and 'Ethical Risk' as cross-cutting mechanisms.
Practical: Suggests actionable strategies: develop transparent policies, embed AI literacy into curricula, and use integrity-by-design assessments.
International Relevance: Advances a more globally representative understanding by foregrounding underrepresented Caribbean student perspectives.

Artificial Intelligence in Business Process Management: Challenges, Opportunities and Strategies for Alignment with ISO 42001

Darci de Borba | Instituto de Pesquisa Econômica Aplicada (IPEA) | Brazil
Rafael Brinkhues | Instituto Federal de Educação Ciência e Tecnologia do Rio Grande do Sul (IFRS) | Brazil

Theoretical Perspective

- **Key Concepts:** Business Process Management (BPM), Algorithmic Governance, Explainable AI (XAI), Compliance.
- **Frameworks:** Integrates Business Process Management (BPM) principles with the requirements of the ISO/IEC 42001 standard for AI Management Systems (AIMS).

Methodology

- **Type:** Qualitative, Integrative Literature Review.
- **Sample:** A final corpus of 22 articles from Scopus and Web Web of Science (2015-2025).
- **Techniques:** Structured review according to the PRISMA protocol, with content analysis based on Bardin (2008).

Main Results

- Aligning AI-driven BPM with ISO 42001 requires focus on three axes: (1) governance and transparency, (2) data and semantic infrastructure, and (3) sociotechnical adoption factors.
- Highlights the concept of 'dual transparency' (technical for auditors and operational for users).
- Proposes a layered compliance architecture: design-time, run-time, and post-hoc monitoring.

Contributions

- **Theoretical:** Presents one of the first frameworks connecting BPM to the ISO/IEC 42001 standard.
- **Practical:** Provides organizations with a concrete roadmap for embedding AI governance into process design.
- **International Relevance**: Advances the global debate on algorithmic governance by demonstrating how process-oriented methodologies can build ethical, transparent, and compliant AI systems.

Key Themes and Global Perspectives in this Edition

Transversal Trends

A consistent dialogue across the studies reveals three dominant trends:

1. **The Governance Imperative**: A strong focus on the need for ethical frameworks, transparent policies, and clear governance structures (Dragomir on the EU AI Act; de Borba & Brinkhues on ISO 42001; Baksh on Ethical Risk).
2. **Pragmatism Over Transformation**: Current AI use in higher education is largely pragmatic, focused on enhancing efficiency rather than radical pedagogical change (Bos et al.; Silva & Ferreira).
3. **Equity and Vulnerability**: A critical concern that AI, if not implemented thoughtfully, will exacerbate existing social and digital divides (Silva & Ferreira; Baksh).

Theoretical Convergences

The articles frequently build upon or extend established theoretical foundations:

- **Technology Adoption Models**: Theory of Planned Behavior is used to model educator educator attitudes in Bangladesh (Arunima & Akhter).
- **Learning Theories**: The Community of Inquiry (CoI) framework is extended to account for AI's dual role in the Caribbean (Baksh), while TPACK and Cognitive Load Theory inform a new pedagogical glossary (Galindo-Cuesta).

International Relevance & Participating Countries

This volume brings together diverse global perspectives, with research rooted in:

- Brazil
- Bangladesh
- Caribbean
- Colombia
- Netherlands
- Romania (EU)

A Diverse Methodological Landscape

The studies in Volume 6 employ a rich variety of research methods to investigate AI in education from multiple angles.

Qualitative Methods	Quantitative Methods	Conceptual & Theoretical Methods
Integrative Literature Review (PRISMA) (de Borba & Brinkhues; Galindo-Cuesta)	**Partial Least Squares (PLS-SEM)** (Arunima & Akhter)	**Glossary Development** (Galindo-Cuesta)
Exploratory Case Study (Silva & Ferreira; Dragomir)	**Surveys & Questionnaires** (Bos et al.; Arunima & Akhter)	**Normative-Institutional Analysis** (Dragomir)
Content Analysis (Silva & Ferreira; de Borba & Brinkhues)	**Social Network Analysis (ARS)** (Ribeiro)	**Theory-Building** (Baksh)
Secondary Qualitative Analysis (Baksh)	**Importance-Performance Map Analysis (IPMA)** (Arunima & Akhter)	

Scientific Contributions of Volume 6

This volume collectively advances the field of AI in Education by providing critical insights across four key areas:

1. Advancing AI Ethics and Governance

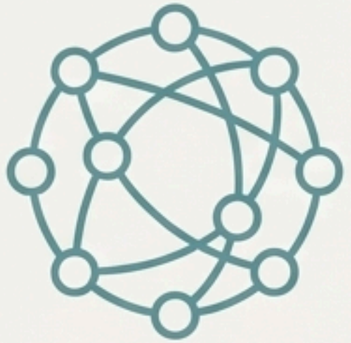
The edition provides crucial frameworks for responsible AI. Studies analyze the implementation of the **EU AI Act** (Dragomir) and offer strategies for aligning organizational processes with the new **ISO 42001** standard (de Borba & Brinkhues), moving the conversation from abstract principles to actionable governance.

2. Mapping AI's Role in Higher Education

Empirical studies from the **Netherlands** (Bos et t al.) and **Bangladesh** (Arunima & Akhter) offer a grounded view of how AI is actually being adopted. They reveal that social factors and the drive for efficiency are currently more influential than the pursuit of radical pedagogical transformation.

3. Centering Student Vulnerability and the Global South

The volume brings equity to the forefront. Research from **Brazil** (Silva & Ferreira) highlights the risk of AI deepening existing social divides, while a study from the **Caribbean** (Baksh) extends a major learning theory (CoI) to include the unique perspectives and anxieties of students in underrepresented contexts.



4. Driving the Internationalization of Research

By featuring studies from six different countries and regions, this volume creates a global dialogue. It juxtaposes policy analysis from the EU with on-the-ground realities in developing nations, fostering a more nuanced and internationally representative understanding of AI in education.

Editorial Note

“We thank the authors, reviewers, and partner institutions for the collective construction of the 2025 (V6) edition. This volume reinforces the journal’s commitment to open science, AI ethics, and the internationalization of educational research. We continue to move forward to strengthen our scientific impact and our global presence.”

Altieres de Oliveira Silva

Executive Editor – Review of Artificial Intelligence in Education