



# Chapter 7

## Data Literacy and Artificial Intelligence in Higher Education

**Aulia Puspaning Galih**

 <https://orcid.org/0000-0003-0264-6916>  
Eötvös Loránd University, Budapest, Hungary

**Ágnes Hajdu Barát**

 <https://orcid.org/0000-0002-6774-5440>  
Eötvös Loránd University, Budapest, Hungary

### ABSTRACT

*In the big data era, we generate, use, and share data from many sources. Quantitative survey or experiment results are no longer the only data in academia. Data collection using artificial intelligence is common in academic and research settings, especially in meta-analysis. Data literacy involves understanding, analyzing, and communicating data. Everyone in higher education needs data literacy. Students must understand statistics to correctly interpret data, communicate research findings, and build evidence-based arguments. Artificial intelligence could help solve complex practical and academic problems in sustainable development research. Data literacy must be taught to stakeholders to help them analyze research data for sustainable higher education research. Additionally, higher education institutions must teach artificial intelligence to sustain their research. Transliteracy is another data literacy and AI education future concept. Transliteracy offers a new perspective on how higher education stakeholders with knowledge of education and academic communication can collaborate to better serve future generations.*

DOI: 10.4018/979-8-3693-1054-0.ch007

## **INTRODUCTION**

In today's modern society, data is an element that is present in every aspect of daily life. The amount of data that is produced by humanity every day is 2.5 quintillion bytes (Farrell, 2023). Data has a value that is inherently limited when taken alone. The process of providing value entails analyzing and making sense of one or more datasets concerning the particular circumstances currently being considered. Consequently, people frequently use data to assist them in making decisions regarding their lives (Hanegan, 2021). Data helps people create and enhance knowledge, evaluate and analyze development, estimate results, assist decision-making, and guide our actions and choices in the present and future. Efficient data collection and analysis assist decision-makers in confirming, comprehending, and measuring intricate issues that require logical and perceptive solutions (Farrell, 2023).

In the big data era, we constantly produce, utilize, and share data from and to various sources. The world we live in is referred to as a "datafied" society (Aradau, 2023) because almost everything is constantly converted into data, which is being measured and analyzed. It becomes increasingly crucial for individuals to comprehend the data presented in the reports, whether from the internet, government, academic publications, or other sources. Furthermore, data and technologies increasingly influence decisions made by businesses (Wei, 2023) and governments (Gu, 2023). Individuals lacking data literacy skills may be more likely to accept biased interpretations of data as truth, which can result in erroneous understandings or potentially harmful choices.

The significance of data development and interpretation has been elevated due to a more expansive definition of its meaning. There is a wealth of data available in the digital world in this age of the Fourth Industrial Revolution (4IR or Industry 4.0), including data from the Internet of Things (IoT), data from cybersecurity, data from mobile devices, data from businesses, data from social media, data from medical histories, etc. The understanding of artificial intelligence is an essential component for performing intelligent analysis of these data and developing innovative and automated applications that correspond to them (Sarker, 2021).

In the academic field, quantitative findings derived from surveys or experiments are no longer the sole domain of data (Wallwey & Kajfez, 2023). Through the utilization of meta-analysis techniques, which search through massive textual databases for recurring themes and trends, text can also be converted into data in digital settings. This is possible through the use of meta-analysis techniques. Because of the new ways that numerical results can be visually represented, researchers, students, and librarians need to modify their approaches to handling data to adapt to these new possibilities. In academic and research settings, artificial intelligence is not rarely

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/chapter/data-literacy-and-artificial-intelligence-in-higher-education/346002](http://www.igi-global.com/chapter/data-literacy-and-artificial-intelligence-in-higher-education/346002)

## Related Content

---

### The Role of AI in Revolutionising Risk Management for Moving and Handling Tasks

Tiago Manuel Horta Reis da Silva (2025). *Cases on AI Innovations in Occupational Health and Safety* (pp. 333-356).

[www.irma-international.org/chapter/the-role-of-ai-in-revolutionising-risk-management-for-moving-and-handling-tasks/382319](http://www.irma-international.org/chapter/the-role-of-ai-in-revolutionising-risk-management-for-moving-and-handling-tasks/382319)

### Integrating Blockchain With AI

Radha Madhu Seekar Vedula, Robin Singh Bhadoria and Manish Dixit (2021). *Multidisciplinary Functions of Blockchain Technology in AI and IoT Applications* (pp. 1-25).

[www.irma-international.org/chapter/integrating-blockchain-with-ai/265391](http://www.irma-international.org/chapter/integrating-blockchain-with-ai/265391)

### A Comprehensive Guide to Optimization Algorithms in Modern Computing

Pooja Dehankar, Aditya Shrivastav and Susanta Das (2026). *Encyclopedia of Modern Artificial Intelligence* (pp. 1-22).

[www.irma-international.org/chapter/a-comprehensive-guide-to-optimization-algorithms-in-modern-computing/404025](http://www.irma-international.org/chapter/a-comprehensive-guide-to-optimization-algorithms-in-modern-computing/404025)

### Multi-Agent Simulation Collision Avoidance of Complex System: Application to Evacuation Crowd Behavior

Mohammed Chennoufi, Fatima Bendella and Maroua Bouzid (2018). *International Journal of Ambient Computing and Intelligence* (pp. 43-59).

[www.irma-international.org/article/multi-agent-simulation-collision-avoidance-of-complex-system/190632](http://www.irma-international.org/article/multi-agent-simulation-collision-avoidance-of-complex-system/190632)

### Technology Studies and the Sociological Debate on Monitoring of Social Interactions

Francesca Odella (2016). *International Journal of Ambient Computing and Intelligence* (pp. 1-26).

[www.irma-international.org/article/technology-studies-and-the-sociological-debate-on-monitoring-of-social-interactions/149272](http://www.irma-international.org/article/technology-studies-and-the-sociological-debate-on-monitoring-of-social-interactions/149272)