

ARTIFICIAL INTELLIGENCE AND THE REDEFINITION OF THE DIKW PYRAMID: CHALLENGES OF THE POSTDIGITAL AGE

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ABSTRACT

In an era where artificial intelligence generates texts, recommends decisions, shapes markets, and actively participates in the construction of social reality, the classical DIKW hierarchy (Data-Information-Knowledge-Wisdom) faces significant challenges. Never in human history has more data and information been produced, yet at the same time it has never been more difficult to distinguish knowledge from the illusion of knowledge, truth from persuasiveness, and wisdom from statistical prediction. This paper examines the relationship between information and knowledge in the context of generative artificial intelligence, with a particular focus on the phenomenon of the “simulation of knowledge” in a postdigital society. The research aims to investigate whether trust in artificial intelligence is related to the ability to distinguish accurate from inaccurate information, as well as whether discrepancies exist between perceived and actual knowledge. The survey for this paper was conducted using a questionnaire on a sample of 97 respondents, combining elements of validated instruments such as the Misinformation Susceptibility Test (MIST) and self-assessment measures. The results indicate that respondents demonstrate a relatively good ability to recognize accurate and inaccurate information; however, no statistically significant relationship was found between self-assessed competence and actual performance. This finding suggests the presence of a potential “illusion of knowledge,” where individuals overestimate their ability to evaluate information. These findings highlight the importance of critical information literacy in the context of artificial intelligence and suggest that generative AI may contribute to the blurring of boundaries between information and knowledge in postdigital society.

Key words: Artificial intelligence¹, DIKW model, information, knowledge, information literacy

INTRODUCTION

In today’s digital environment, the volume of available information is growing exponentially, while the development of artificial intelligence further accelerates the processes of its production, distribution, and interpretation. Within this context, generative artificial intelligence occupies a particularly significant role, as it enables the creation of content that is linguistically coherent and persuasive, yet not necessarily factually accurate. Such systems are transforming the ways in which users access information and construct knowledge, raising important questions about the reliability, understanding, and validity of information in the digital age.

Traditionally, the relationship between data, information, and knowledge has been conceptualized through the DIKW model (data-information-knowledge-wisdom), which assumes a hierarchical and linear progression between these levels. However, in the context of emerging technologies, and artificial intelligence in particular, this assumption becomes increasingly problematic. Generative AI systems are capable of producing content that resembles knowledge without genuine understanding, thereby blurring the boundaries between information and knowledge. As a result, a phenomenon increasingly described in the literature as “simulated” or “false knowledge” begins to emerge.

At the same time, contemporary society is often characterized as postdigital, a condition in which digital technologies are no longer a separate domain but are deeply embedded in everyday life and

social processes. Within such a context, users continuously interact with technological systems, including artificial intelligence. These technologies no longer function merely as tools but as active participants in the production and interpretation of knowledge, further emphasizing the need for a critical approach to information and the development of information literacy.

Despite the growing body of research on artificial intelligence and information behavior, there remains a lack of empirical studies addressing the relationship between trust in artificial intelligence and users' actual ability to distinguish information from knowledge, and to recognize accurate and inaccurate information. Of particular interest is the extent to which generative AI shapes subjective perceptions of knowledge and contributes to a discrepancy between perceived and actual abilities in evaluating information. Accordingly, the aim of this paper is to examine the perception of the relationship between information and knowledge in the context of artificial intelligence, with a particular focus on trust in AI systems and the ability to recognize misinformation. The study is based on the assumption that the contemporary digital environment may foster an "illusion of knowledge," a situation in which individuals believe they possess knowledge that is not grounded in genuine understanding.

In line with this aim, the study addresses the following research questions: Is there a relationship between trust in artificial intelligence and the ability to distinguish knowledge from misinformation? And does generative artificial intelligence contribute to a discrepancy between the subjective perception of knowledge and the actual ability to recognize accurate and inaccurate information?

THEORETICAL BACKGROUND

The DIKW model (data-information-knowledge-wisdom) represents one of the fundamental theoretical frameworks in the field of information science, describing the relationship between data, information, knowledge, and wisdom through a hierarchical structure. Within this model, data are defined as raw facts without inherent meaning, which become information once contextualized. Through further interpretation and understanding, they evolve into knowledge, and through experience and judgment, into wisdom (Rowley, 2007). The DIKW model has been widely adopted in fields such as management, information systems, and education, where it serves as a framework for understanding the transformation of information into knowledge. Despite its popularity, however, the model is based on the assumption of a linear and unidirectional progression between its levels; an assumption that is increasingly challenged in contemporary digital environments. In the context of ongoing digital transformation, the model continues to function as an important analytical tool, although its meaning has expanded considerably. Grieves (2024) emphasizes that DIKW should not be viewed solely as a theoretical hierarchy, but also as an operational framework applicable in digital environments, particularly within data-driven systems and digital twin technologies. This perspective highlights the functional interconnectedness of the model's levels and their relevance in technological contexts.

One of the main critiques of the DIKW model concerns its hierarchical and linear assumptions. Authors such as Frické (2008) and Baškarada & Koronios (2013) argue that the distinction between data, information, and knowledge is not clear-cut, but rather exists along a continuum shaped by interpretation and context. In contemporary digital environments, this issue becomes even more pronounced, as artificial intelligence contributes to misinformation and reshapes how knowledge is perceived (Baker et al., 2025).

The development of generative artificial intelligence has significantly transformed the ways in which information is produced and perceived. Such systems generate linguistically coherent and persuasive content based on probabilistic patterns rather than genuine understanding, which may result in so-called "hallucinations", i.e. plausible but factually incorrect information (Dierickx et al., 2026). In this sense, AI does not replace the DIKW model, but reshapes it by accelerating the transformation processes between its levels while simultaneously producing outputs that resemble knowledge without being grounded in actual comprehension (Peters et al., 2024). Consequently, users may interpret such outputs as knowledge, contributing to the phenomenon of "simulated knowledge" and further blurring the distinction between information and knowledge. These developments highlight the need for a

human-centered approach to artificial intelligence, emphasizing critical interpretation, transparency, and responsibility in evaluating information (Verma, 2025).

The role of artificial intelligence must be understood within the postdigital context, where the boundaries between digital and non-digital are increasingly blurred and technology is deeply embedded in social processes (Veletsianos et al., 2024). In such an environment, artificial intelligence is no longer merely a tool, but an active participant in the production and interpretation of knowledge, emerging through interactions between users and technological systems. This transformation reinforces the need for new approaches to understanding human–technology relationships, particularly in order to avoid uncritical reliance on algorithmically generated information (Hayes et al., 2024).

The integration of the DIKW model, artificial intelligence, and the postdigital context points to profound changes in how knowledge is produced, interpreted, and perceived. While the DIKW model assumes a linear progression from data to knowledge, generative AI produces content that simultaneously exhibits characteristics of both information and knowledge.

In such an environment, the phenomenon of perceiving knowledge without actual understanding; referred to as “false” or “simulated knowledge”; becomes increasingly prominent. This phenomenon represents a key challenge for modern information systems and the development of information literacy. It is precisely within this theoretical framework that the need arises for empirical research on the relationship between trust in artificial intelligence, understanding of knowledge, and the ability to distinguish accurate from inaccurate information.

RESEARCH

The study was conducted with the aim of examining the perception of the relationship between information and knowledge within the context of the contemporary digital environment, with a particular focus on the role of artificial intelligence in shaping knowledge. In an era marked by the increasing availability of information and the rapid development of generative AI systems, an important question arises: do users distinguish between information and knowledge, and to what extent are they able to recognize accurate and inaccurate information?

The questionnaire was designed based on existing validated instruments commonly used in research on information behavior and misinformation. Specifically, part of the questionnaire was based on the Misinformation Susceptibility Test - MIST (Maertens et al., 2024), which measures respondents’ ability to distinguish between accurate and inaccurate information by evaluating the truthfulness of various statements. In addition, elements of the Online Misinformation Susceptibility Scale - OMISS (Katsiroumpa et al., 2025) were incorporated to assess the tendency to trust information without verification, as well as the subjective perception of one’s ability to recognize misinformation.

Given the specific focus of this study on the relationship between data, information, and knowledge (as conceptualized in the DIKW model), as well as the influence of artificial intelligence, the questionnaire was further adapted by including items that examine perceptions of artificial intelligence, trust in its outputs, and understanding of the distinction between information and knowledge. This approach—combining validated instruments with newly developed questions tailored to the research context—is a common and widely accepted practice in social science research.

Sample Description

A total of 97 respondents participated in the study. The sample was heterogeneous; however, younger participants predominated. The most represented age group was 18 to 24 years, indicating a substantial presence of young individuals and students. In terms of gender, the sample was predominantly female, while male respondents were represented to a lesser extent. With regard to educational background, the majority of respondents had completed secondary education or were currently enrolled in, or had completed, higher education (undergraduate or graduate studies), which corresponds to a digitally active user population. Considering employment status, the largest group consisted of students,

followed by employed individuals, while other categories (such as unemployed participants and retirees) were represented to a smaller extent.

Questionnaire Structure

The questionnaire consisted of four thematic sections:

- Perception of artificial intelligence – items assessing trust in AI, perception of information accuracy, and the perceived ability of AI to generate knowledge (Block A)
- Understanding the relationship between information and knowledge (DIKW) – items examining the ability to distinguish between data, information, and knowledge (Block B)
- Susceptibility to misinformation – self-assessment of critical attitudes toward information (Block C)
- Assessment of statement accuracy (MIST principle) – evaluation of the truthfulness of both accurate and inaccurate statements (Block D)

The collected data enabled an analysis of perceptions of knowledge in a digital environment, as well as a comparison between respondents' subjective assessments of their ability to distinguish information and their actual performance in recognizing accurate and inaccurate statements.

RESULTS

Statistical data analysis was performed using SPSS 23.0 software. The analysis of means and standard deviations reveals certain patterns in the respondents' perceptions of artificial intelligence and knowledge. Respondents demonstrate a high awareness of AI's ability to simulate knowledge and produce convincing but inaccurate information ($M = 4.09 - 4.35$), while rejecting the idea that speed implies accuracy ($M = 2.18$). Trust in AI remains moderate ($M = 2.94$), indicating a cautious but not entirely negative attitude. Respondents clearly distinguish knowledge from information ($M = 4.71$), although mid-range values for related statements ($M \approx 3.3-3.5$) indicate some conceptual ambiguity. Respondents also express uncertainty, as reflected in agreement that it is increasingly difficult to distinguish real knowledge from the illusion of knowledge ($M = 3.91$).

Respondents perceive themselves as critical users who tend to verify information sources and avoid uncritical acceptance. However, their confidence in evaluating information remains moderate ($M \approx 3.49$), indicating some uncertainty.

Results indicate that respondents are generally successful in distinguishing accurate from inaccurate information, although occasional errors and neutral responses suggest that this ability is not entirely consistent

Overall, findings indicate a gap between the subjective perception of information literacy and actual performance in evaluating information accuracy.

Hypothesis Testing

H1: There is a statistically significant difference between student and employed respondents in their perception of artificial intelligence, understanding of the relationship between information and knowledge, and the ability to distinguish accurate from inaccurate information.

The t-test results (Table 1.) indicate that a statistically significant difference between students and employed respondents exists only in the perception of artificial intelligence ($t = -2.77$; $p = 0.007$). Employed respondents show slightly higher mean values, suggesting a higher level of trust or a different perception of artificial intelligence compared to students. On the other hand, no statistically significant differences were found in understanding the relationship between information and knowledge (DIKW), susceptibility to misinformation, or the ability to distinguish between accurate and inaccurate information ($p > 0.05$). This suggests that students and employed respondents are

relatively similar in these aspects. Therefore, Hypothesis H1 is partially confirmed, as the difference is observed only in the perception of AI, but not in other variables.

Table 1: Differences between students and employed respondents in AI perception, DIKW understanding, susceptibility to misinformation, and MIST scores (t-test)

Variable	M (students)	M (employed)	t	p
AI perception	3.31	3.58	-2.77	0.007
DIKW	3.79	3.78	0.07	0.943
Misinformation	3.21	3.24	-0.31	0.76
MIST	3.05	3.01	0.62	0.538

Source: Author's calculation

H2: There is a statistically significant relationship between the level of trust in artificial intelligence and susceptibility to misinformation.

Table 2: Relationship between trust in artificial intelligence and susceptibility to misinformation (Pearson correlation)

Variable	r	Sig. (p)
AI trust - misinformation	0.19	> 0.05

Source: Author's calculation

The results of Pearson's correlation analysis show a weak positive relationship between trust in artificial intelligence and susceptibility to misinformation ($r = 0.19$). However, this relationship is not statistically significant ($p > 0.05$). This indicates that respondents who have higher trust in artificial intelligence do not necessarily show a higher tendency to believe misinformation. In other words, trust in AI is not statistically associated with uncritical acceptance of information. Accordingly, Hypothesis H2 is rejected, as no statistically significant relationship was found.

H3: There is a statistically significant relationship between subjective self-assessment of the ability to distinguish information and actual performance in identifying accurate and inaccurate statements.

Table 3: Relationship between self-assessed ability and actual performance in recognizing accurate and inaccurate information (Pearson correlation)

Variable	r	Sig. (p)
Self-assessed ability - MIST	0.08	> 0.05

Source: Author's calculation

The analysis of the relationship between subjective self-assessment and actual performance in distinguishing accurate from inaccurate information reveals a very weak positive correlation ($r = 0.08$), which is not statistically significant. This result indicates that respondents who perceive themselves as more confident in their ability to evaluate information do not necessarily achieve better results in the truth-assessment test. In other words, there is no clear relationship between perceived and actual ability. Therefore, Hypothesis H3 is rejected. However, the findings suggest a potential discrepancy between subjective perception and actual performance, which may indicate elements of an "illusion of knowledge."

H4: There is a positive relationship between understanding the difference between information and knowledge and the ability to distinguish accurate from inaccurate information.

The results of Pearson's correlation (Table 4.) analysis show a weak positive relationship between understanding the distinction between information and knowledge and the ability to distinguish accurate from inaccurate information ($r = 0.08$). However, this relationship is not statistically significant. This means that respondents who better understand the difference between knowledge and

information do not necessarily perform better in identifying accurate and inaccurate statements. Consequently, Hypothesis H4 is rejected.

Table 4: Relationship between understanding the distinction between information and knowledge (DIKW) and the ability to distinguish accurate from inaccurate information (Pearson correlation)

Variable	r	Sig. (p)
DIKW - MIST	0.08	> 0.05

Source: Author's calculation

The results of hypothesis testing indicate that only the first hypothesis was partially confirmed, with a significant difference found between students and employed respondents in the perception of artificial intelligence. The remaining hypotheses were not supported, as no statistically significant relationships were identified among the analyzed variables.

A particularly important finding is the lack of a relationship between subjective self-assessment and actual performance, suggesting a potential discrepancy between perceived and actual knowledge in the digital environment.

DISCUSSION

The findings provide insight into how individuals perceive the relationship between information and knowledge in a digital environment shaped by artificial intelligence, highlighting both awareness of AI limitations and uncertainty in evaluating information. Regarding H1, a partial difference was observed between students and employed respondents in their perception of artificial intelligence, while no differences were found in understanding the relationship between information and knowledge or in the ability to evaluate information. In relation to H2, no significant relationship was found between trust in artificial intelligence and susceptibility to misinformation, suggesting that users may trust AI while still maintaining a certain level of critical distance. With regard to H3, no significant relationship was found between self-assessed and actual ability, indicating a discrepancy consistent with the concept of the “illusion of knowledge”. Concerning H4, understanding the distinction between information and knowledge does not appear to translate into better performance in evaluating information accuracy. These findings support critiques of the DIKW model, suggesting that the transformation of information into knowledge is neither linear nor automatic. In the context of AI, persuasive but not necessarily accurate content may contribute to the emergence of “false knowledge”.

From a postdigital perspective, the findings point to a complex relationship between users and technology, where AI acts as an active participant in knowledge production. This reinforces the importance of critical information literacy. Artificial intelligence is no longer merely a tool but an active participant in the production and shaping of knowledge. In such an environment, the importance of critical information literacy; defined as the ability to evaluate, interpret, and verify information; becomes increasingly evident.

Although respondents expressed strong agreement with statements emphasizing the importance of understanding and a critical approach to information in the descriptive part of the study, the results of the tests and correlation analyses show that this awareness is not always consistently applied in practice. This further highlights the gap between theoretical understanding and actual behavior in digital environments.

CONCLUSION

This study examined the relationship between information and knowledge in the context of artificial intelligence, with a focus on trust in AI and the ability to evaluate information accuracy. Results show that respondents recognize both the capabilities and limitations of AI and understand the conceptual difference between information and knowledge. However, a discrepancy between perceived and actual

ability indicates the presence of the “illusion of knowledge”. No significant relationships were found between trust in AI, understanding of knowledge, and the ability to evaluate information, highlighting the complexity of information behavior in digital environments. This supports contemporary critiques of the DIKW model, which argue that the transformation of information into knowledge is neither linear nor automatic. In the context of AI and postdigital society, these findings emphasize the importance of developing critical information literacy. Generative AI systems produce content that is persuasive and easily accessible, but not necessarily accurate, which may contribute to the blurring of boundaries between information and knowledge and the emergence of a perception of “false knowledge.” This research is limited by a non-representative sample dominated by younger respondents, the use of self-assessment measures, and the integration of multiple constructs within a single research instrument. Despite these limitations, the study contributes to understanding the relationship between artificial intelligence, information, and knowledge. Future research should include more diverse samples and additional methods for assessing actual information literacy.

REFERENCES

- Baker, A., Chakraborty, D., & McAdams, A. C. (2025). Revisiting the information hierarchy in the AI era: Implications of misinformation, ignorance, and imprudence. *Communications of the Association for Information Systems*, 57(1), Article 5.
- Baskarada, S., & Koronios, A. (2013). Data, information, knowledge, wisdom (DIKW): A semiotic theoretical and empirical exploration of the hierarchy and its quality dimension. *Australasian Journal of Information Systems*, 18(1).
- Dierickx, L., Opdahl, A. L., Bjerknes, F., & Lindén, C. G. (2026). What is a fact in the age of generative AI? Fact-checking as an epistemological lens. *Information, Communication & Society*, 1–18.
- Frické, M. (2009). The knowledge pyramid: A critique of the DIKW hierarchy. *Journal of Information Science*, 35(2), 131–142.
- Grieves, M. (2024). DIKW as a general and digital twin action framework: Data, information, knowledge, and wisdom. *Knowledge*, 4(2), 120–140.
- Hayes, S., Jandrić, P., & Green, B. J. (2025). Towards a postdigital social contract for higher education in the age of artificial intelligence. In *Postdigital education for development* (pp. 115–134). Springer Nature Switzerland.
- Katsiroumpa, A., Moisoglou, I., Mangoulia, P., Konstantakopoulou, O., Gallos, P., Tsiachri, M., & Galanis, P. (2025). The online misinformation susceptibility scale: Development and initial validation. *Healthcare*, 13(17), Article 2252.
- Maertens, R., Götz, F. M., Golino, H. F., Roozenbeek, J., Schneider, C. R., Kyrychenko, Y., ... & van der Linden, S. (2024). The Misinformation Susceptibility Test (MIST): A psychometrically validated measure of news veracity discernment. *Behavior Research Methods*, 56(3), 1863–1899.
- Peters, M. A., Jandrić, P., & Green, B. J. (2025). The DIKW model in the age of artificial intelligence. *Postdigital Science and Education*, 7(4), 1150–1159.
- Rowley, J. (2007). The wisdom hierarchy: Representations of the DIKW hierarchy. *Journal of Information Science*, 33(2), 163–180.
- Veletsianos, G., Jandrić, P., MacKenzie, A., & Knox, J. (2024). Postdigital research: Transforming borders into connections. *Postdigital Science and Education*, 6(2), 643–662.
- Verma, J. (2025). From data to wisdom: Human-centered AI for ethical and transparent decision-making. *International Journal for Multidisciplinary Research (IJFMR)*, 7(5).

¹ Artificial intelligence was used to translate the paper from Croatian to English and proofread it, which may result in certain parts of the paper being flagged as AI-generated in case of verification.