

The impact of AI on discourse analysis: Challenges and opportunities

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This special issue delves into the influence of artificial intelligence on discourse studies, focusing on its effects on linguistic research, education, and academic communication. AI-driven tools, particularly those in natural language processing, have significantly improved the efficiency of text analysis through methods like sentiment analysis, topic modeling, and automated coding. However, challenges persist, such as AI's struggles with contextual understanding and ethical concerns related to bias and misinformation. Drawing from applied linguistics, pedagogy, and computer science, this issue critically explores how AI shapes digital language practices, academic authority, and knowledge creation. By combining theoretical insights with empirical studies, this collection sheds light on both the benefits and limitations of AI, encouraging researchers and educators to approach these technologies thoughtfully while making the most of their potential in discourse analysis and language studies.

Keywords: AI; Chatbot; Discourse Analysis; Large Language Models; LLMs

1. The impact of AI on discourse analysis: An overview

Coined by McCarthy et al. (2006) in 1955,¹ the term AI was initially used to indicate any human simulation made by machines, whereby “machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves” (p. 12). More recently, AI has been defined as “a system’s ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation” (Haenlein & Kaplan, 2019, p. 5).

As Cave et al. (2018) claim, the idea of intelligent machines is as old as Homer’s *Iliad* (ca. 800 BC), and has developed across time, resulting in various narratives about Artificial intelligence (AI). These narratives have been conveyed through fictional (such as science-fiction) or non-fictional (such as science communication about AI) genres. While fictional narratives about

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intelligent machines or AI are dystopian or utopian (or even both), and sometimes with an anthropomorphic representation of AI itself (Cave et al., 2018, p. 8), non-fictional narratives dealing with AI seem to inspire the work of researchers and stakeholders by showing alternative futures, triggering new debates. Narratives about AI, therefore, are perceived differently according to the genre but also to the audience they are targeting. Different audiences may have different perceptions of, and false expectations from, AI, which may result in (reporting) distorted narratives about AI itself: false fears may misdirect public debate (Cave et al., 2018). As claimed by Jones and Hafner (2021), the most worrying thing about AI is that it can change not only how we experience and think about reality but also our identities. In academia, for instance, the discourse on AI can be broadly categorized into two main perspectives: the discourse of imperative change, and the discourse of altering authority. The first perspective views AI as an unavoidable force that requires a response from all stakeholders. The second perspective emphasizes how AI-centric narratives are shifting traditional authority structures, weakening the role of the teacher and distributing authority to different entities, including staff, machines, corporations, and students (Bearman et al., 2023).

This suggests that an AI ethical approach must be assumed to fundamentally mitigate existential (and professional) risk (Graham, 2022), but it is clear that any narrative about AI emerging from it, or even debating about it, cannot be fully understood if new skills, new abilities and new competences that enable new ways of thinking and innovative methods of managing interpersonal relationships are not elaborated. In other words, these narratives require new literacies (Jones & Hafner, 2021). Indeed, AI and digital tools are affecting the way meanings are made, the way people relate each other, the types of social identities that can be enacted, and even the way people think (Jones & Hafner 2021).

In the field of natural language processing and machine learning,² AI is seen as a tool that mimics human cognition (Shneiderman, 2020) and enables predictive systems to learn from text examples and models (Jackson, 2019). As aptly recalled by Curry et al. (2024), AI has significantly improved linguistic research, going from automatic transcription (Blanchard et al., 2015) to data visualization (Hoorens et al., 2017), and has increased quality and efficiency in discourse analysis.

Discourse analysis focuses on language in action and investigates social, political, and cultural values embedded within texts (Baker, 2023), including the ideological assumptions and power relations constructed and communicated through texts (Fairclough, 1995). As underlined by Curry et al. (2024), advances in the field of artificial intelligence have had a positive impact on discourse analysis. Examples include automated data coding techniques

using tools such as ATLAS.ti (Paulus & Lester, 2016), methodological methods such as topic modelling (Brookes & McEnery, 2019) and sentiment analysis (Maci & Abbiati, 2023; Taufek et al., 2021). The inability of AI technologies to perform critical and contextualized analysis at the level of a human analyst is the main criticism of AI's capabilities for discourse analysis (Brookes & McEnery, 2019; Maci & Abbiati, 2023).

Nevertheless, AI continues to have an impact on discourse research as it combines discourse analysis with corpus linguistics. Indeed, manually analyzing discourse and its different rhetorical structures can be tedious and time-consuming. However, coupled with AI tools, discourse analysis could be performed in a manner that is both efficient and timely (Alawadh et al., 2023). For instance, AI tools based on Large Language Models (LLMs), such as ChatGPT, have generated significant interest and implications within the higher education sector (Bearman et al., 2023). The threats, challenges and opportunities for its use in teaching and learning continue to be discussed widely (Anand et al., 2023). The complexities of digital language practices become clearer when we try to theorize and understand our highly digitized language habits: it is difficult to have a unified understanding of our digital language habits because, firstly, they are so very personal, and secondly, digitalization is still dizzy progressing (Bhatt, 2023). It is probably for these reasons that the area of empirical research focusing on AI within applied linguistics is still limited and is mainly based on qualitative rhetoric and narrative analyses (Gu, 2023).

Doubtless, AI is changing academic, educational and professional systems profoundly; thus, reference to the possibilities that allow AI to progress in all areas, including discourse analysis, is extremely relevant. The collection of articles presented in this special issue of the *International Journal of Language Studies* aims to advance research in these areas by bringing together scholars from various strands of linguistics to examine the diverse ways in which AI functions from a discourse analysis perspective, in all its diversity, offering a wide array of analytical tools and approaches. More specifically, this volume intends to observe how AI and information technologies are redefining the way academic activities, such as researching, training and teaching, are conducted, by discussing some case studies in the field and critically observing the impact of AI and modern technologies on discourse analysis, as well as the challenges of AI in academic research and education. This will facilitate interdisciplinary dialogue, knowledge exchange and further exploration of the complex interactions between AI, discourse analysis, and education and technology, to present the most recent innovations, trends, and concerns, as well as any solutions already adopted in their professional areas.

This special issue of the *International Journal of Language Studies* offers a new approach to AI in the context of discourse analysis and uses case studies, sample analyses and practical examples to show how AI can be integrated with quantitative and qualitative approaches. It encourages critical engagement with the topic and invites the reader to consider different viewpoints, evaluate evidence and reflect on the impact of AI, technology and discourse analysis in different contexts. For this reason, the volume is an important resource for discourse analysts or for teaching applied linguistics, corpus linguistics and more generally language studies using AI and other tools, as students will understand the importance of critical thinking when using AI.

The contributions included address the challenges and opportunities posed by AI-generated texts and cover topics such as bias, misinformation and the need for human oversight. In addition, the volume explores innovative methods, tools and approaches to language teaching and learning. Their insights will converge in a multidisciplinary effort to devise and build advanced networks of knowledge to facilitate the interpretation of data in the field. With such an interdisciplinary perspective, the volume integrates findings from applied linguistics & discourse analysis, pedagogy, and computer science. It encourages critical analysis and reflection on the ethical considerations associated with AI.

The arrangement of contributions has been designed to create a logical progression of ideas that build on previous discussions. For example, papers dealing with theoretical frameworks or fundamental concepts precede studies dealing with practical applications or case studies. Given the diverse topics covered in this special issue, the interdisciplinary perspectives and cross-cutting themes are emphasized. This includes the integration of findings from different disciplines (i.e., applied linguistics & discourse analysis, pedagogy, and computer science) to provide a holistic understanding of the topic

2. Mapping this special issue

The contributions of this special issue discuss the main challenges and opportunities of AI in academic contexts. The authors delve into the effects of AI on research and education, including practical case studies, and the impact of AI on translation. Additionally, this issue examines the significant role that AI plays in the translation field, providing insights into its potential to transform academic practices.

This special issue begins with Roberta Facchinetti's contribution. The author analyses the development of discourse analysis in the context of AI advancements. This study traces the historical technological milestones, with AI representing the most recent leap, leading humanity into the so-called 'neural age'. Facchinetti's contribution looks specifically at chatbots such as ChatGPT, Bing Chatbot, and Google Bard, focusing on their conversational

capabilities. The author examines how these AI interfaces converse and whether their responses are consistent with human conversational norms. The analysis revealed that newer chatbots give more detailed, informative answers, but have different interaction patterns: Google Bard acts as a human-like companion, Bing Chat as a neutral helper that provides hints, and ChatGPT as a more directive tutor. The paper concludes that understanding the linguistic nuances of AI is crucial for humans and AI to coexist effectively and suggests that sociologists and linguists should work closely with AI experts to utilize the potential of AI responsibly.

The second contribution by Paola Catenaccio, "AI and discourse analysis: Implications for ESP genre pedagogy in EFL settings," examines the impact of discourse analysis and AI-generated texts on English for Specific Purposes (ESP) teaching in English as a Foreign Language (EFL), highlighting the particular challenges and opportunities offered by AI tools such as ChatGPT in relation to genre pedagogy. These tools are capable of producing high-quality, standardized genre texts, which presents both an opportunity and a challenge for teachers. On the one hand, they can outperform human novice writers, providing useful support for content creation. On the other hand, the rise of AI prompts concerns about the future relevance of the competences currently being taught and the potential loss of human creativity and quality. The effective use of AI in genre pedagogy requires the development of higher critical skills, such as metacommunication and metalinguistic abilities, which allow users to prompt, evaluate and refine AI-generated texts. The paper suggests that integrating AI tools into the classroom can help to foster the critical and reflective skills required for genre writing. Far from diminishing the role of language experts, AI text generators require a different set of competences that focus on understanding and manipulating AI outputs to achieve specific communicative goals, thus enriching ESP pedagogy.

Marina Bondi's "AI and Writing: Challenges and Opportunities for ESP and Professional Communication" discusses the evolution of AI in writing and its implications for English for Specific Purposes (ESP) and professional communication, exploring its use in various writing phases and presenting survey results on millennials' attitudes towards AI. The author highlights that in academia, challenges include authorship, accessibility, bias, and accuracy. In particular, in supporting ESP and professional writing, AI can generate content, suggest style improvements, and provide feedback through pre-writing, while-writing, and post-writing phases. However, writers must critically evaluate AI-generated content and maintain their unique voice. Bondi's survey reveals skepticism about the creative abilities of AI and concerns about job displacement, with students expressing varying degrees of openness toward AI's use in writing. In conclusion, AI is reshaping professional and ESP writing, offering benefits and posing ethical, equity, and authenticity challenges. AI can

serve as a tool to aid in writing, but it is crucial to foster digital literacy and ensure that human element persists in communication.

The second part of the issue offers some insights into the relation between AI, research and education and opens with a discussion of the key features of emerging AI technologies and the corpus linguistic response to them offered in Vaclav Brezina's contribution, "Visualizing statistics." The topic is timely, as the new technologies, large language models, and AI will have an impact on working practices, research, and everyday life. The article is divided into a philosophical and a practical part. In the former, Brezina takes a look back at the 1950s and the rise of early computer technology. In the latter, Brezina explains how corpus linguistics and other linguistic methods, including discourse analysis, play a crucial role in distinguishing between meaning and form: Meaning arises from the social use of words in context, which is only possible when people interact naturally. When people rely solely on computerized technologies, meaning can be lost. Only by analyzing the use of words in context can their meaning be understood. Simply matching forms or relying solely on a large language model cannot always provide the answer. This means that researchers must distinguish between data and interpretation in their (social) scientific endeavors. Without this distinction, the research process lacks validity. Interpretation is crucial because it takes into account the broader contexts and the different purposes for which the data can be used. Computer technology can assist the researcher in this, but it cannot replace the crucial role of the human analyst doing the interpretation. Understanding the meaning and purpose of the analysis should therefore be left to the human analyst.

In her paper, "Integrating computational and statistical methods into the humanities: Investigating multimodal tourism discourse with empirical social semiotics and SRI tagging software," Elena Mattei investigates AI and multimodality. It is argued that rigorous analyses of how profit-driven narratives and ideologies are legitimated in the current digital sphere may greatly benefit from the use of empirical multimodality frameworks. Such an approach, particularly, becomes key to the development of analytical skills to interpret and produce signs with an *informed* and *active* social understanding (Pflaeging et al., 2021). By describing the reasons and procedure behind the data-driven manual annotation, computational analysis and statistical modelling of persuasive, visual features in tourism discourse, this paper shows how the testing of previous theoretical assumptions through categorization and inter-annotation data may lead to evidence-based, sociological interpretations of patterns of data clustering. The study also reveals how emerging generic trends on digital media such as Instagram prioritize the stimulation of imagination and channeling of emotional responses over providing detailed information. In conclusion, this paper highlights how manual annotation

allows for greater customization and control over data classification and analysis, consequently raising awareness of how biases and misinformation in automatic and unsupervised content analysis and entity recognition are generated, perpetuated and may be challenged in the digital world.

Simone Abbiati's investigation, "ChatGPT as a writer: Understanding the risks of AI-generated text" examines how artificial intelligence, specifically language models like ChatGPT, is impacting journalistic writing and the risks involved. It uses a pipeline to collect and summarize articles from eight newspapers in different languages. The study identifies two main risks: biased information in AI-generated summaries affecting journalistic integrity, and AI's lack of a clear informational hierarchy, affecting content quality. Biases from the original sources and the AI's training data can lead to distorted summaries. The research also notes the inefficiency of current AI-generated text detection tools and emphasizes the importance of human oversight and critical analysis when using AI for journalistic purposes. The study calls for responsible AI integration and a critical approach to AI applications in journalism.

Stefania M. Maci's paper, "The impact of artificial intelligence (AI) on translation: An overview" opens with a diachronic overview of AI and machine translation, and then compares various chatbots to examine their strengths and limitations in translating specialized texts. Although these chatbots, trained on vast datasets ranging from books to the Internet, generate contextually relevant text by analyzing and predicting language patterns, consistent accuracy remains a challenge.

Cinzia Spinzi's paper focuses on one particularly challenging aspect of AI's role in communication: the translation of metaphors in tourism discourse. Building upon previous research on metaphor translation in sustainable tourism, this study explores the potential of neural machine translation (NMT) systems, with a special focus on GPT-4, the latest and most sophisticated iteration of the GPT model. It examines the capabilities of AI in translating metaphors accurately and meaningfully, comparing its efficiency to that of human translators. Additionally, the study considers the broader implications of AI-driven translation on intercultural communication within the tourism industry, assessing whether these technologies enhance or hinder the nuanced and culturally rich language that is essential for engaging international audiences.

3. Concluding remarks

As can be seen from this brief synopsis, some relevant features make the volume worth reading; the volume covers a wide range of topics related to AI, discourse analysis and immersive learning technologies, which offer an interdisciplinary approach and at the same time allow readers to gain insights

into various aspects of these fields, from theoretical frameworks to practical applications for researchers, educators, policy makers and practitioners. As such, the volume encourages critical analysis and reflection on the opportunities, challenges and ethical considerations associated with AI, technology and discourse analysis. It also addresses current debates and issues in the field, such as bias in AI-generated content, privacy concerns in immersive learning technologies, and the role of technology in shaping teaching practices (Anesa, 2025). The volume also emphasizes practical relevance by discussing innovative methods, tools and approaches for language teaching and learning, such as virtual reality (VR), augmented reality (AR), and AI-powered analytics. It also offers insights into the potential applications of AI in journalism, professional communication and discourse analysis.

This special issue will be of interest to researchers because it shows what the fields of AI are and consequently the ways in which one can conduct research from the perspective of discourse analysis; it will help researchers to plan the best research methods to apply in a study on AI as a tool of discourse analysis to be disseminated. As a form of public engagement, the contributions presented in this volume will also enable MA and PhD students and early career researchers to engage in an accessible way with research in the broad field of discourse analysis, but also in subfields such as specialized discourse, intercultural communication—or even genre analysis, sociolinguistics, and pragmatics—where theories and abstract principles will benefit from the quantitative dimension that this volume offers.

Overall, the volume serves as a valuable resource for researchers, educators, policy makers and practitioners seeking to understand the transformative impact of AI on discourse and education in the digital age. It offers theoretical insights, practical implications and innovative approaches to navigate the complex landscape of AI-enhanced language learning and discourse analysis.

The aim is to provide a forum for dialogue and to encourage further research on the challenges and opportunities AI offers and, at the same time, to create chances for an integration of the work of the linguists, computer scientists, scholars, and educators.

Notes

1. It is not the scope of this introduction to offer a history of AI, for which we direct to the investigations carried out by Cave et al. (2018) and Haenlein and Kaplan (2019). However, it can be briefly explained that the rise of AI as a science can be dated to the 1950s, and that US and UK governmental investments stopped in the 1970s-1980s because of the high costs of AI research, and mainly due to the failure of AI to be operationalized in non-

formalized environments (in other words, AI could work if the instruction given followed the *if-then* pattern, but could not do it when the instruction was not formalized—as in face-recognition patterns). The awareness of non-formalized operation brought to the creation of Artificial Neuron Networks that developed in the form of Deep Learning in the 2010s, which nowadays form the basis of most AI applications (Haenlein & Kaplan, 2019).

2. Natural language processing involves the interaction between computers and human language (Shoenbill et al., 2023) to support tasks such as text analysis and translation (Deng & Liu, 2018), while machine learning automates these processes by training machines to learn and develop themselves (Fogel & Kvedar, 2018)

Authors' Statement

Stefania M. Maci contributed to section 1 and Patrizia Anesa worked on section 2. Both authors worked on section 3 and on the 'References' of the article.

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