Workshop: Academic Writing with AI

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Morten Misfeldt, Center for Digital Education, Department for Science Education and Department of Computer Science, University of Copenhagen. misfeldt@ind.ku.dk

Purpose

This workshop explores how generative AI can be used in academic writing. I will focus on three perspectives:

1. **Ethics, rules and regulations** (academic integrity and professional values)
2. **Self-awareness in the writing process** (understand you thinking and problem-solving)
3. **Practical tips and tricks** (efficient, ethical and fun use of AI tools)

Me as facilitator

I worked with media and mathematics learning for more than twenty years. My PhD focused on mathematical writing processes, and throughout my career I have explored how writing, representation, and thinking are intertwined. I have also collaborated with L1 teachers on literacy. In recent years, as part of the computational thinking debate, I have returned to the concept of literacy, understood as the interplay between tools, materialities, and meaning making. Recently I have worked for University of Copenhagen making AI rules/principles for education. I know nothing about academic writing (apart from practicing it).

Part 1: Ethics, Rules and Regulations, Academic Integrity and Institutional Rules

Main message: AI does not change the principles of academic integrity, but since practice of writing change, we need to re-visit the principles and check if we still comply. Ethics in scientific writing used to be relatively straightforward (avoiding plagiarism, self-plagiarism, authorship disputes, citation issues, and outright fraud). But with AI, ethical challenges have become far more fine-grained, with many new and subtle risks emerging throughout the writing process.

Academic Integrity (quote from EU policy paper, reference below)

- **Reliability** in ensuring the quality of research, reflected in the design, methodology, analysis and use of resources. This includes aspects related to verifying and reproducing the information produced by the AI for research. It also involves being aware of possible equality and non-discrimination issues in relation to bias and inaccuracies.
- **Honesty** in developing, carrying out, reviewing, reporting and communicating on research transparently, fairly, thoroughly and impartially. This principle includes disclosing that generative AI has been used.
- **Respect** for colleagues, research participants, research subjects, society, ecosystems, cultural heritage and the environment. Responsible use of generative AI should take into account the limitations of the technology, its environmental impact and its societal effects (bias, diversity, non-discrimination, fairness and prevention of harm). This includes the proper management of information, respect for privacy, confidentiality and intellectual property rights, and proper citation.

- **Accountability** for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider societal impacts. This includes responsibility for all output a researcher produces, underpinned by the notion of human agency and oversight

European Commission. (2024*). Living guidelines on the RESPONSIBLE USE OF GENERATIVE AI IN RESEARCH* (s. 18) [ERA Forum Stakeholders' document]. https://research-and-innovation.ec.europa.eu/document/download/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en?filename=ec_rtd_ai-guidelines.pdf

Exercise: think of one of these principles (your choice) what does this principle mean in the context of the project you bring to the conference.

Institutional rules

Publishers, funding agencies and universities have developed guidelines and rules – they differ in detail, and these details can be important. As an example: a few years ago there was much debate about whether AI could be considered an author. Some places still allow this under certain conditions, but the general trend is to treat generative AI as a tool, not an agent. Human authors remain fully responsible for all content in almost all cases. Another example of differences: while openness and honesty are key principles everywhere, practices differ. Some institutions only require disclosure when AI contributes substantially, while others expect full transparency, even for minor tasks such as grammar correction or language polishing.

Examples:

Springer rules (they are mainstream, short and well written): https://www.springer.com/in/editorial-policies/artificial-intelligence--ai-/25428500?srsltid=AfmBOoohMEepLQ1Ubjs7v_TUXUvVLOC1oNf4mOgFLUdWP6Ui7l4ZPp5S

Brill (the publisher of IRME – key journal for this conference) refers to the COPE Council. COPE position - Authorship and AI - English. https://doi.org/10.24318/cCVRZBms© 2024 Committee on Publication Ethics (CC BY-NC-ND 4.0) https://publicationethics.org

COPE position

The use of artificial intelligence (AI) tools such as ChatGPT or Large Language Models in research publications is expanding rapidly. COPE joins organisations, such as **WAME** and the **JAMA Network** among others, to state that AI tools cannot be listed as an author of a paper.

AI tools cannot meet the requirements for authorship as they cannot take responsibility for the submitted work. As non-legal entities, they cannot assert the presence or absence of conflicts of interest nor manage copyright and license agreements.

Authors who use AI tools in the writing of a manuscript, production of images or graphical elements of the paper, or in the collection and analysis of data, must be transparent in disclosing in the Materials and Methods (or similar section) of the paper how the AI tool was used and which tool was used. Authors are fully responsible for the content of their manuscript, even those parts produced by an AI tool, and are thus liable for any breach of publication ethics.

In Practice, This Means

- You can use AI to help with grammar, coherence, summarizing, or structuring drafts, but you must remain transparent about how you have been helped. Most institutions do not ask you to declare simple editing help.
- For data analysis or other critical parts of the argument, ALWAYS be super transparent and check rules as they differ widely.
- In general, it is a good idea to check your institution or publisher's rules and regulations before using AI in writing.
- Don't copy other people's work into a chatbot or other high level AI tools without being very sure about what you are doing.
    - Risk of copyright violation.
    - Risk of plagiarism.
    - Risk of losing track of the actual reasoning or meaning in the text.
- Safer practice: Work from your own rough sketches or drafts and let AI help clean up and clarify.
- Accountability matters:
    - A robot cannot be held accountable.
    - For example: copying text into a chatbot to get an automated review is both a potential copyright violation and it could be compromises your own professional responsibility.

Exercise: Think of a practical use of AI for writing that is just on the borderline of complying with the ethical principles (it could be writing a discussion based on some notes). Look in the springer rules and try to plan for how to do this according to these rules.

Part 2: Knowing Your Own Learning and Writing Process

Main message: Stay in the loop of your own academic work.

Writing Process Theory – Three Perspectives

Last time we saw big changes to writing processes was with the text processer. Research from the 1980s–2000s highlighted how writing is more than producing text: it is a central process in learning and thinking. Three major perspectives help us understand this:

1. **Writing as Discovery**
    - Writing supports divergent thinking and idea generation.
    - When you articulate your thoughts, the text "feeds back" and helps you see new connections.
    - Writing becomes a way to develop arguments and refine ideas through interaction with your own words.

Galbraith, D. (2009). Writing as discovery. *British Journal of Educational Psychology*, 2(6), 5-26.

2. **Writing as Rhetorical Problem-Solving**
    - Writing is a matter of convincing an imagined reader.
    - You test the strength of your arguments against the perspective of this "invisible other."
    - Scardamalia & Bereiter distinguish between:
        - **Knowledge telling:** simply putting existing thoughts into words.
        - **Knowledge transforming:** reviewing and reshaping your ideas through dialogue with an imagined audience.

    Scardamalia, M., & Bereiter, C. (1987). Knowledge telling and knowledge transforming in written composition. *Advances in applied psycholinguistics*, *2*, 142-175.

3. **Writing as Self-Presentation**
    - Writing is also about performing identity and expressing voice.
    - Linked to new literacies and the New London Group's work on literacy as social practice.
    - Writing shapes how you present yourself in academic communities, and how you develop your academic voice.

Ivanič, R. (1998). Writing and Identity: The Discoursal Construction of Identity in Academic Writing. Amsterdam: John Benjamins Publishing. https://doi.org/10.1075/swll.5

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60–92

Takeaway: Writing helps you get new ideas, see your arguments through the eyes of others, and shape your identity and voice as a scholar. These phenomena are critical for your development as an academic – be aware of long-term consequences of your outsourcing practice.

Implications for AI writing: The three perspectives on writing help us see these consequences clearly.

Writing as discovery: Tools and media can support creativity, but are you staying actively engaged in the process? Are you still in control of your own divergent thinking and creative direction, or have you handed that power over to the tool?

Writing as problem-solving: Are you using AI to transform knowledge or merely to tell it? Are you aware of when you do which? There is a real risk of losing the linguistic and conceptual transformation that is so closely tied to writing. Reflect on how you solve problems—do you understand your own inferential processes, or have you started trusting the machine to do them for you?

Writing as self-presentation: Are you handing over identity-related choices to the tool, or are you aware of when and how this happens? And in which cases does that actually matter?

Exercise: think about a recent writing project you have worked on. Identify these three perspectives in your work. When are which aspects most prominent?

Media, Technology, and Thinking – instrumental genesis ☺

Writing has a material component and the medium influences how you think.

- **Mediated thinking:** Technologies and notations structure thought like theoretical lenses does. Examples:
    - Algebra allows you to see quantitative relations dynamically and compress complexity into formulas.
    - Mind maps let you see relations/connections and supports overview
    - Word processers let you write iteratively and hence supports a more non-linear thinking process
- **Bidirectional influence:** Media and tools shape your thinking. In the francophone tradition of "cognitive ergonomics" this is seen as the generation of a personal instrument through the processes of instrumentation (influencing and changing the designer's intentions) and instrumentalization (being influenced by the tool).
- **Implication for AI in writing:**
    - The medium (AI) can change how you express yourself, what you focus on, and even how you conceptualize ideas.
    - I see for example a risk to start thinking in very abstract and rough chunks (prompts)
    - You must remain aware of how tools both afford and constrain your thinking, learning and voice.

Key references:

DiSessa, A. A. (2000). *Changing minds: Computers, learning, and literacy*. Mit Press.

Rabardel, P., & Bourmaud, G. (2003). From computer to instrument system: a developmental perspective. *Interacting with computers*, 15(5), 665-691.

Vérillon, P., Rabardel, P., (1995) - Cognition and Artefact: a contribution to the study of thought in relation to instrumented activity, *European Journal of Psychology in Education*,Vol. IX, n°3.

Overall takeaways:

- Outsourcing problem-solving aspect of writing to the tool can reduce engagement with your own thinking.
- If you are not involved in discovery, rhetorical testing, or identity formation, you risk losing the learning scholarly potential of engaging in writing.

Therefore:

- Understand what parts of the process you hand over to AI.
- Stay engaged in discovery, argumentation, and forming your own voice, when supported by technology.

Part 3: Tips, Tricks, and Practices

Main message: AI can help you write faster and smarter – if you use it wisely.

1. **Speak-to-text for writing**
   Use voice input or dictation to draft your paper. Speaking your thoughts can support flow and idea generation, especially in early stages. Let AI perform minimal edits for clarity, always review the work. Good prompt is to end or start your message with ”minimal edit” or ”minimal edit for clarity”
2. **Speak-to-text for feedback**
   When reviewing or commenting on a paper, describe your impressions orally and let AI turn them into structured, written feedback. Here you can play with either “minimal edit”, or “write up as list of concerns” or similar. Always check and correct, the more open the prompt (eg. “Write a review based on my orally communicated impressions” there more crazy suggestions you will get. Always check.
   Remember: Never upload unpublished or identifiable material; summarize issues in your own words.
3. **AI for reflective conversation**
   Use AI as a dialogue partner to think through theoretical or analytical challenges. Treat it as discovery writing, a way to clarify your reasoning by explaining it to another “mind.” Avoid sharing raw data; work from your own notes.
4. **Automate the boring work**
   Use AI or small agents to handle repetitive tasks like formatting, consistency checking, or verifying references. Automation saves time and frees your attention for thinking and writing. Google this e.g. “agents to handle references in academic writing”.
5. **Programming and data analysis**
   Let AI help you write small scripts (e.g., in Python or R) to analyze data or visualize results. Run them locally to ensure data safety and ethical compliance.

Exercise: Pick one of the approaches above and apply it to your current writing project. Reflect briefly on what part of the writing process it supported; idea generation, feedback, reflection, or efficiency, and how it influenced your way of thinking.