

The Impact of Large Language Models on Author Editing in Japan

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Despite almost universal Japanese literacy and at least 6 years of required classes in English as a major subject in junior and senior high schools in Japan, most students graduate with little or no confidence in their ability to communicate in spoken or written English, and English proficiency scores have been declining for over a decade.¹ Limited English skill is a serious impediment to communication of the extensive scientific research conducted at the many top-notch laboratories at public and private research institutions across Japan. For presubmission editing of research manuscripts intended for submission to English-language peer reviewed journals, many Japanese researchers have contracted with language service companies. The number of such companies has grown, and competition among them has intensified in the 3 decades since I entered the editing business.

Nevertheless, demand for English-language author editing remained strong until recent years. Since 2022, demand has declined rapidly. This decline coincides with the release and rapid evolution of artificial intelligence (AI), in particular, large language models (LLMs). The speed of recent improvement in general capabilities of LLMs has been astounding: for example, see the results over time for various LLMs on Humanity's Last Exam.² Although I am unaware of direct evidence, I attribute the recent decline of demand for author editing in Japan to the increasing use of LLMs to generate text for research papers, edit drafts, translate Japanese into English, or a combination of these.³ Most of my thoughts about such use of LLMs written below are relevant across the world, particularly in countries where

the native language is not English. Before considering LLM use in production of research manuscripts, let's examine the environment for AI in Japan.

AI Policy and Adoption in Japan

Development of an official AI policy in Japan was accelerated in 2023 by deliberations at the G7 Hiroshima Summit, which produced the Hiroshima AI Process.⁴ In September 2025, Japan fully implemented the Act on Promotion of Research and Development, and Utilization of Artificial Intelligence-related Technology.⁵ This act encourages use of AI to enhance science, the economy, and national security; to manage AI-related risks, it largely relies on existing laws and regulations. This approach is more supportive of AI use compared with other regional legal frameworks regulating AI development. For example, the 2024 European Union Artificial Intelligence Act bans certain "unacceptable risk" uses (such as social scoring and manipulative or harmful biometric practices) and imposes strict obligations on "high-risk" systems that affect safety or fundamental rights.⁶

The Japanese government has directed major funding to development of science-related uses of AI, including efforts that preceded the release of ChatGPT in November 2022. Research institutions in Japan have implemented official policies and practices to encourage staff to use LLMs. The Digital Agency of Japan has worked with Preferred Networks, Inc, to develop a secure LLM for use throughout the government and beyond for translation to and from Japanese.⁷ A University of Tokyo spinoff company, Elyza, has adapted Meta's Llama LLM for improved translation to and from Japanese.⁸

AI and Author Editing

For author editing, LLMs are extremely useful for a range of purposes. My most frequent LLM use is to find background information to get up to speed on the research topic of a paper that I am editing and to supplement information from cited references, Google Scholar, and Wikipedia. Such searches can be done as a browser search of key terms; increasingly browsers incorporate LLMs to enhance

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or replace standard search. For deeper dives, LLMs find and generate summaries of key references. Many LLMs have been developed for exactly this purpose. Here are a few examples (in no particular order): Elicit,⁹ Research Rabbit,¹⁰ Scite,¹¹ Consensus,¹² and Scholarcy.¹³ Indeed, since AI tools can quickly generate reviews based on the latest publications, the future of published reviews is being questioned.¹⁴

Author use of LLMs to generate, edit, or translate text in academic papers involves extensive ethical and substantive issues. For example, when authors upload unpublished research results into an LLM on the cloud, do they know how their results will be used by the AI company or shared with others? Although some language service providers upload client manuscripts into cloud-based LLMs without disclosing this to clients, my company cannot compromise on the confidentiality required by our terms-of-service, which precludes uploading of client documents to cloud-based LLMs. Aside from abstaining from LLM use, data security and confidentiality concerns can be addressed by either obtaining client permission to upload content to a cloud-based model or using a local implementation of an LLM that avoids uploading client content to the cloud.

Another serious concern with using LLMs to generate text for research manuscripts is hallucinations. The most powerful models continue to fabricate credible falsehoods and the frequency of such hallucinations seems to be increasing: A recent study found hallucination rates between 67% and 94% for Chat-GPT, Gemini, DeepSeek, and Grok3.¹⁵ In contrast to research authors who must qualify assertions based on the strength of available evidence and take responsibility for the veracity of their writing and the cogency of their reasoning, LLMs present seemingly credible fabrications, without any hedging, as if they correspond to reality. For example, see this amusing recent exchange between one editor I work with and Anthropic's Claude.¹⁶ I particularly like Claude's reaction when called out for a blatant lie: "Making up plausible-sounding but potentially false information is exactly the kind of thing that erodes trust." LLMs fabricate not only "facts," but also citations. LLMs plagiarize some of the text they are trained on.

Fabrications, misrepresentations, miscitations, and plagiarism each constitute misconduct for which authors, not LLMs, can be held accountable. Publication of such material is already polluting the scientific literature. Notwithstanding these issues, for researchers not fluent in English, LLMs provide irresistible value by leveling the language playing field.¹⁷ Indeed, LLMs like Chat-GPT are being customized for editing of primary research reports.¹⁸

Some journals (e.g., *Cancer Research*) offer free AI-powered language quality and technical compliance

checks.¹⁹ An LLM tool similar to the tool provided by *Cancer Research* is being promoted in clinical medicine departments at Kyoto University to translate, proofread, paraphrase, and reduce word counts, thereby facilitating research publication.²⁰

Author editing services have thrived as clients in need of language services prefer excellent quality, rapid delivery, and low prices. Although I have yet to see substantive editing by an LLM that matches the quality of a top-level human editor with appropriate subject expertise, the differences in quality are narrowing, and LLMs are already drastically faster and cheaper. Use of LLMs in research communication will continue to grow.

The Future of Author Editing?

As in many other fields, AI is revolutionizing scientific publishing, including author editing. For the time being, clients who prioritize quality will continue to employ skillful substantive editors, but how much longer will these editors perform better than continually improving LLMs? A need will remain for checking AI generated or revised content for errors of fact or reason, miscitations, and fabrications of any kind. These can be difficult to spot and the process of spotting them may be less intellectually satisfying than manual editing of writing by humans. Although I do not recommend manual presubmission editing as a career path for young people, perhaps a harmony will be found with AI tools being developed to partially automate these tasks and hybrid workflows may evolve to leverage the power of AI while mitigating some of the problems.

Regardless of future AI technological developments, it is important to remember that research writing is not merely communication of research: It is the final and indispensable part of the research process that requires rigorous thinking and analysis. In 1985, the media theorist Neil Postman wrote, "To engage with the written word means to follow a line of thought, which requires considerable powers of classifying, inference-making and reasoning."²¹ Long term, reliance on AI for analysis of written texts and important aspects of writing and editing them will have serious consequences for science and the abilities of scientists.

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