DE GRUYTER

REPORT

⟶ Cautious but Curious: AI Adoption Trends Among Scholars

11th October 2023

DE GRUYTER INSIGHTS

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Key Research Insights

→ 1

There is limited knowledge among scholars about how AI tools work.

→ 2

The most popular AI tools among scholars are focused on language support.

→ 3

Willingness to pay for AI tools is low — for many because they believe it will exacerbate inequalities between scholars.

→ 4

Only few scholars are using ChatGPT/GPT-4 regularly for their work. A large proportion haven't used it at all or have only experimented with it for non-work purposes.

→ 5

Most scholars are not aware of any regulations by their institution regarding the use of ChatGPT/GPT-4. If they use it, they do so at their own discretion.

→ 6

Scholars' main concerns with using ChatGPT/GPT-4 are unreliability, plagiarism, fake news dissemination, copyright infringement, and questions of originality.

→ 7

Scholars support the future use of ChatGPT/GPT-4 with conditions: They want institutions and publishers to take a more active role in providing information and training on AI technology, and to clearly regulate its use in scientific work.

Synopsis

It's normal that any new and emerging technology takes time to bed in and gain the trust and confidence of its users. This new survey suggests the same is true of how research communities are approaching their adoption of AI tools and specifically ChatGPT/GPT-4.
It indicates that currently, there are only a few early adopters of the technology. Most academics are cautious with understandable worries and fears. But many are intrigued by the potential of the tool.

Methodology

This report presents the findings of a survey from 15 June to 26 July 2023, which was emailed to a sample of 58634 scholars and promoted on De Gruyter's social media channels on Twitter, Facebook and LinkedIn. The survey was conducted using Survey Monkey, scripted and hosted entirely in house and analyzed by the De Gruyter Insights team using SPSS. The survey was fully anonymous, no personal data was recorded, and participation was voluntary.

Scope

The purpose of the survey was to find out if and how scholars are using Artificial Intelligence (AI) technology in their scholarly work and what their attitudes are towards it. To do this, we looked at tools that deal with the entire research workflow from the initial generation of ideas to the final stages of writing and publishing.

This included, but was not limited to, AI-based citation management tools, text editors, translation tools, and research assistants. While all the technologies surveyed have AI components or use machine learning in some way, they all perform different roles and operate in different ways.

Given its particularly disruptive impact and the waves it has made, we took a special look at the large language model (LLM) ChatGPT/GPT-4.[1]

With this survey we wanted to understand the impact as well as perceived benefits and ethical issues of AI tools, so that we can react to new developments and provide appropriate support to scholars as a publisher.

1
Large language models (LLMs) are based on deep learning algorithms and trained on vast amounts of text data to understand and mimic human language. Open AI's ChatGPT (free base version 3.5 with paid option) and GPT-4 (newest, improved and paywalled version) are currently the most popular LLMs, which can be used in the form of a chatbot.

Results

Demographics

The emailing received a 1.3% response rate overall. 6 respondents were directed to the survey via social media. A total of 682 respondents completed at least one question and 748 completed the entire survey.

Scholars from 82 countries participated in the survey, including 46% from DACH, 25% from the rest of Europe, 14% from the Americas, and 11% from Asia Pacific. Of the respondents, 60% indicated to conduct research in the humanities and social sciences (HSS) and 33% in STEM fields. Most of the respondents were male (61%), over 45 years old (54%) and the most common workplace was a university or college (67%). Among different options, the majority of respondents were senior scholars describing their position as professor or head of department (39%).

Although the sample is not representative in terms of demographics, it is important to note that we discovered relatively few differences between scholars from different disciplines (HSS vs. STEM), countries, and seniority concerning their opinions or usage of AI.

Limited Knowledge of ChatGPT/GPT-4 and other AI tools

Our research indicates that scholars' knowledge about what may or may not classify as AI is still limited. More than half of the respondents (57%) described themselves as "somewhat familiar" with AI technology and how it works. A higher percentage of STEM scholars (28%) said they were "very familiar" with AI, compared to HSS scholars (19%).

A similar picture emerges when looking specifically at ChatGPT/GPT-4: 52% of respondents described themselves as being "quite familiar" with the tool, while 29% said they were not familiar with it at all.
Several HSS scholars commented that the use of ChatGPT/GPT-4 could be problematic in their field. There was less opposition among STEM scholars.

→ "In the case of transparent evaluation of data sets in the natural sciences, I could imagine [the use of ChatGPT/GPT-4]. The publisher would have to specify the rules. In my field, the humanities, I don't see any ethical use of these tools and therefore you should contractually forbid your authors to use them."

→ "I think that especially in the field of humanities (but perhaps in other areas as well), the extensive use of AI removes exactly that human element, which is one of the key components of this academic venture. If unchecked, ChatGPT will soon destroy most of what we call humanities or deform it to an unrecognisable extent."

Language Tools Are Most Popular

AI is a rapidly evolving field, with a number of complex and varied technologies working together at the backend to give us intelligent and seemingly human-like responses. When asked what AI technologies scholars commonly use in their scholarly work, the results show that the primary focus is on language and translation tools. More than half of the respondents (59%) use the translation tool DeepL[2]. About a third (36%) use the writing assistant Grammarly[3].

We found slight differences between HSS and STEM scholars, which might be attributed to their differing needs. HSS scholars have a higher reliance on DeepL for translations, while STEM scholars use Grammarly more often for text corrections.

When asked about any 'other' tools they might be using, the results included referencing tools, design tools, statistical analysis tools and search engines. Evidently, the perception about what constitutes as an AI tool is quite varied.

2
DeepL translates texts from currently 31 languages using artificial neural networks. It exists as a free version as well as a paid subscription service called DeepL Pro with additional features and benefits.

3
Grammarly is a writing assistant (free and premium versions) that checks the grammar and language of texts and makes suggestions for improvement. It's based on machine learning combined with various natural language processing approaches.

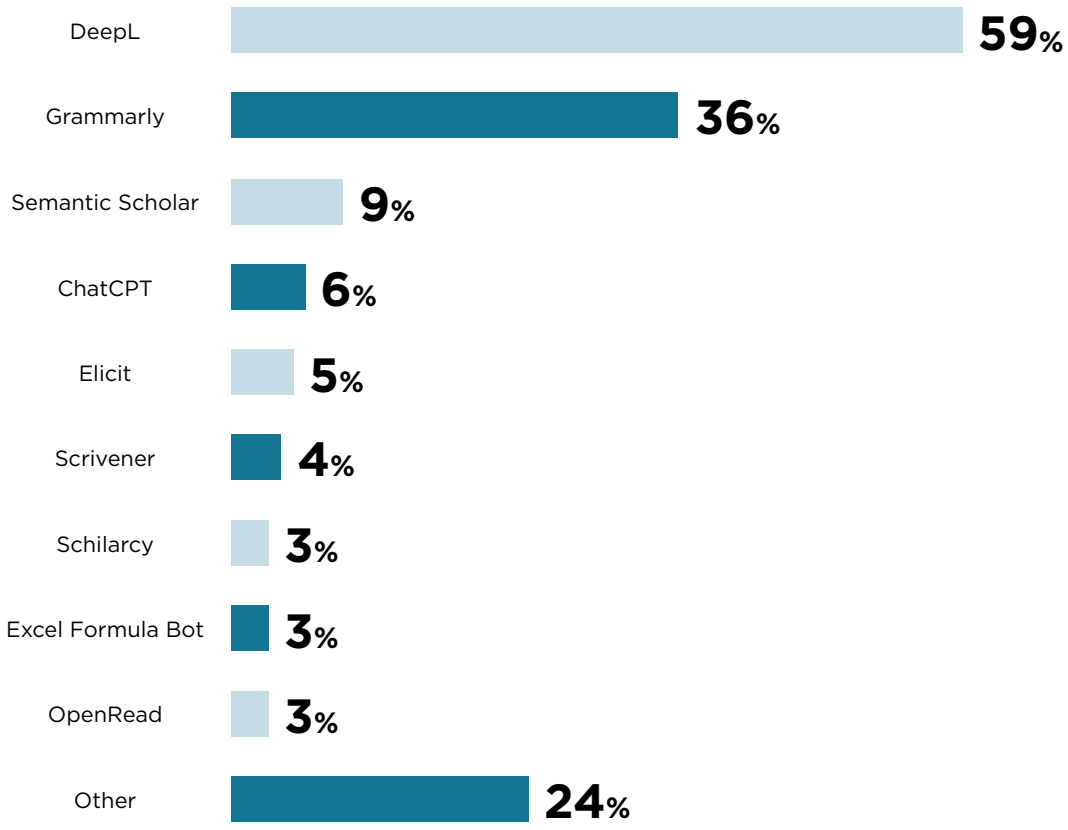
→ **“As a non-native English speaker, I am particularly interested in ChatGPT’s ability to propose different versions of the same sentence. I can then mix and match and use the specific phrasing that I believe suits best what I intend with that sentence.”**

→ **“As for non-native speakers, [ChatGPT] is a great language tool.”**

Despite the “media hype”, it appears that only few scholars use ChatGPT/GPT-4 regularly (at least daily or weekly) for academic work purposes (14%). About a quarter of the respondents (24%) have experimented with the tool outside of the work environment. A large proportion (39%) have not used it at all.

Most popular AI tools on the market.

(N=534)



Most Common Uses of ChatGPT

In line with the functions of the most popular AI tools, scholars mainly use ChatGPT for text- and language-related tasks. Correcting (52%) and translating text (47%) top the list, followed by finding meaning and definitions (41%) and simplifying text (40%).

Again, we can see differences between subject areas. STEM scholars are more interested in simplifying complex statements/definitions etc., whereas HSS scholars have a greater need for language translation. In addition, STEM scientists use AI more extensively to write code (40% compared to only 15% for HSS scholars).

When asked about specifically research related tasks, scholars differentiate ChatGPT/GPT-4 from other text-based AI tools such as Grammarly by its unique ability to synthesize large amounts of data. We found out that researchers are turning to ChatGPT/GPT-4 to help with the tedious and time-consuming task of creating summaries of published papers (31%) and literature reviews and syntheses (27%).

→ "While often discussed as a text generation tool, its best applications are brainstorming, summarization, information extraction, etc. I use it mainly as a heuristic tool."

→ "AI has the potential to summarise existing knowledge in a quick and convenient way. If used responsibly, it will free up resources for scientific innovation."

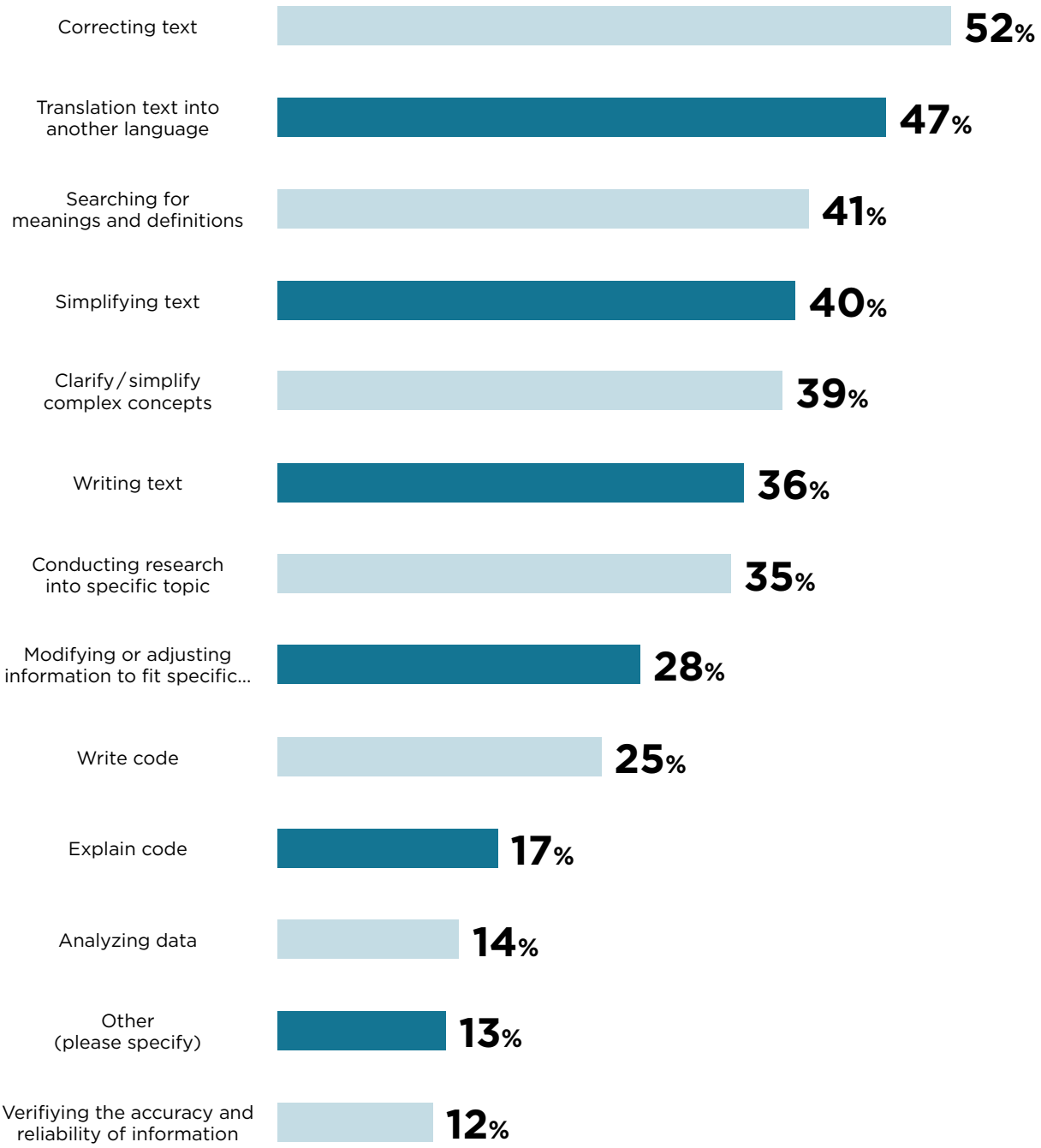
Many scholars are already using ChatGPT/GPT-4 in other creative ways such as brainstorming and fact checking.

→ "It is an interesting tool for brainstorming and testing arguments, especially for early stages of work in a new field – therefore, it can be a good sparring partner for new students."

→ **“I see GPT as a Tutor, Colleague, and Mentor who is always open to discussion: no negative comments or insinuations and enormous help in brainstorming the idea.”**

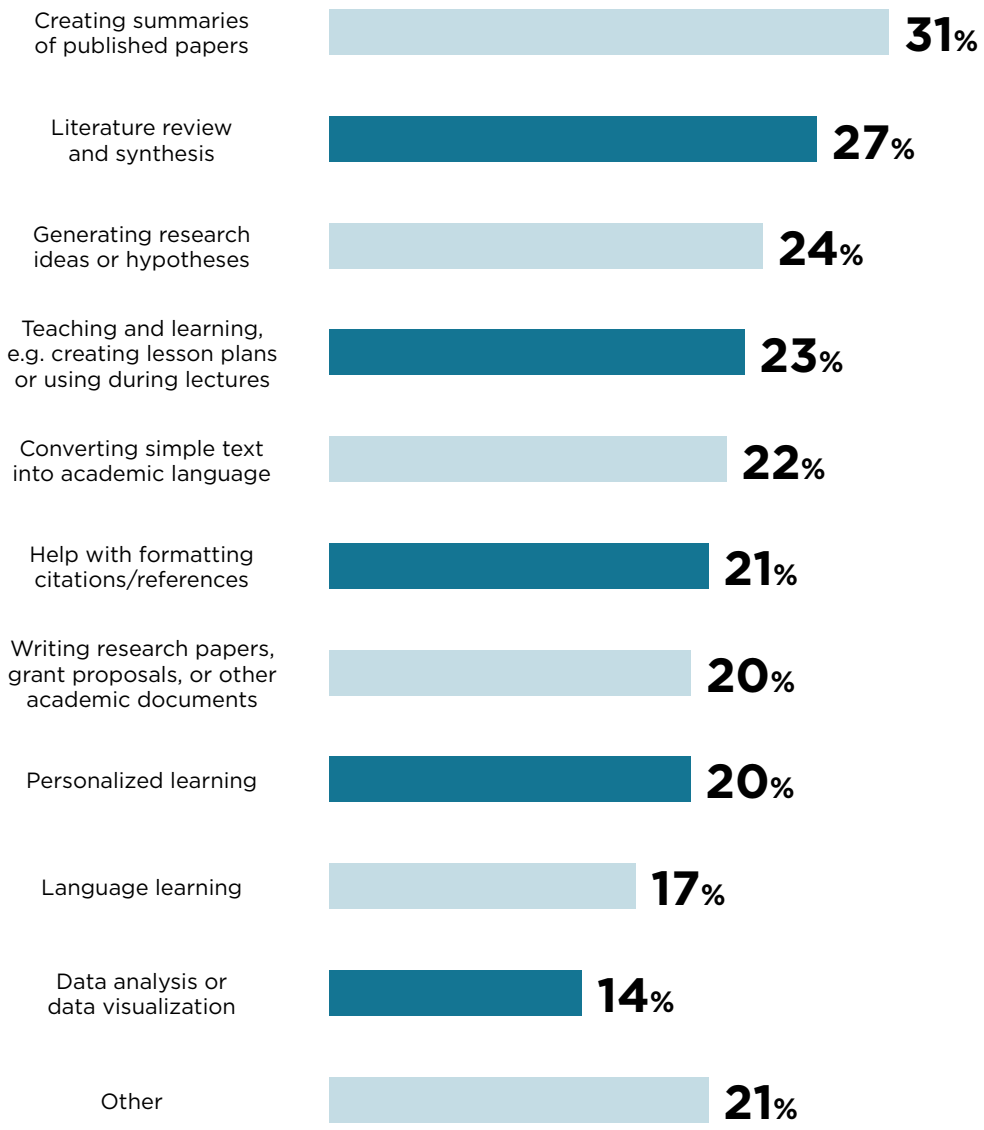
Most common tasks using ChatGPT.

(N=289)



Most common research tasks using ChatGPT.

(N=294)



Missing Rules and Ethical Issues

When asked about the main problems with ChatGPT/GPT-4 results, unreliability and the need for cross-checking emerged as the biggest concern of the scholars surveyed (78%). Plagiarism and academic misconduct (75%), false information dissemination (71%), concerns about originality (61%) and potential copyright violations (61%) occupy the further "top positions."

Almost every researcher who uses the tool verifies and edits the output to varying degrees before they work with it further (99%). STEM scholars appear to be slightly more concerned about copyright violations than HSS scholars (67% vs 56%, respectively.)

Most scholars (81%) are not aware of any rules on ChatGPT/GPT-4 set by their institution and use the tool at their own discretion. At the same time, many noted that they expect guidelines to be developed soon or are aware that this is currently in progress.

Existing guidelines mostly refer to plagiarism, asking students and scholars to indicate the use of ChatGPT/GPT-4 in the methods or reference section. Only few reported the use of ChatGPT/GPT-4 at their institution to be completely forbidden or very limited, e.g. because of conflicts with data protection laws.

→ "My university prohibits us from using GPT but I do not adhere to this as our competitors are using it as well. I thoroughly screen the results delivered by GPT for mistakes, violations of copyright and so on. With some more modifications, the results can truly be seen as my results, and I will label them as such."

→ "The regulations are garbage and show total ignorance of the technology."

→ "ChatGTP is mostly too imprecise and unsuitable for my research, as the information is not usable and sometimes wrong upon verification."

→ **“I see major problems in the question of what can still be considered personal achievement and competence and who is scientifically (and legally) responsible for texts.”**

→ **“I used it once for literature research to find suitable sources: The literature references looked quite great but turned out to be completely fictitious. I think more attention should be paid in future publications to whether the authors’ source information really exists.”**

Several respondents also mentioned the implications for teaching – with widely differing opinions.

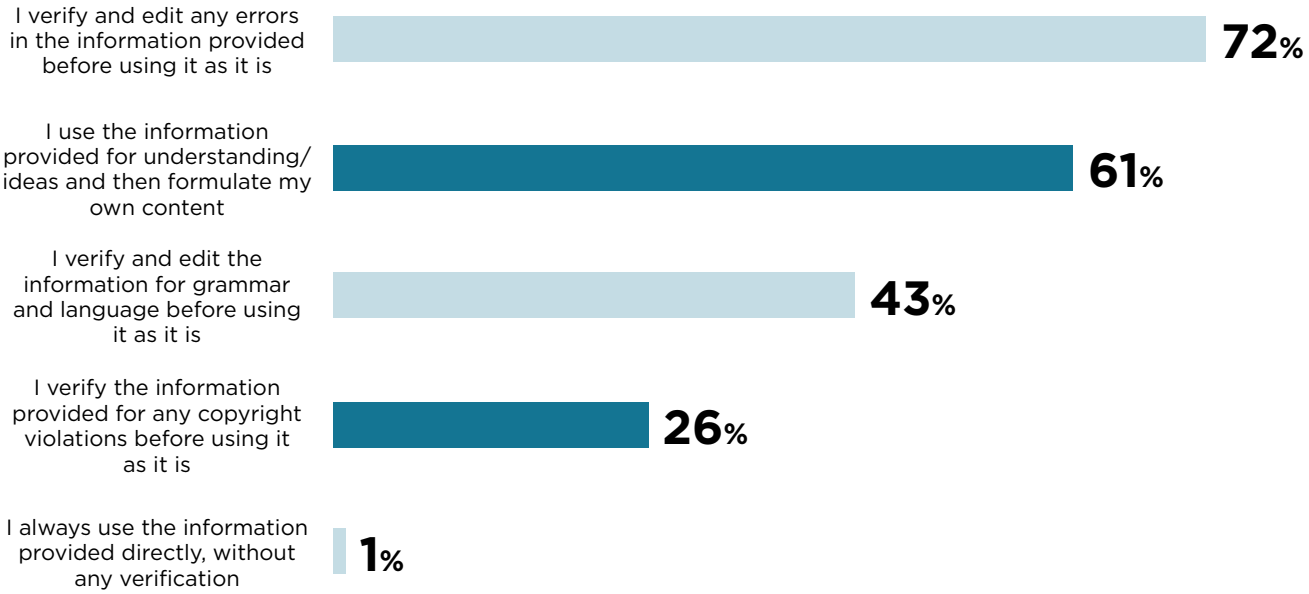
→ **“I encourage my students to use ChatGPT. I see AI as a terrific support for students, as it allows future teachers-in-training to focus more on their core business – future teaching and working with learners – and helps them with the tedious task of writing papers.”**

→ **“Through the experiments with my students, I found it to be very helpful in some phases (i.e. brainstorming, tutoring, programming, just a conversation on random topics, simplifying complex textual material etc.)”**

→ **“Sure, it would be useful for some fields, but it's a disaster for teaching. Scholarship was doing just fine without this tech, which will help make young people even more illiterate than they are today. I say this after more than 3 decades of college teaching.”**

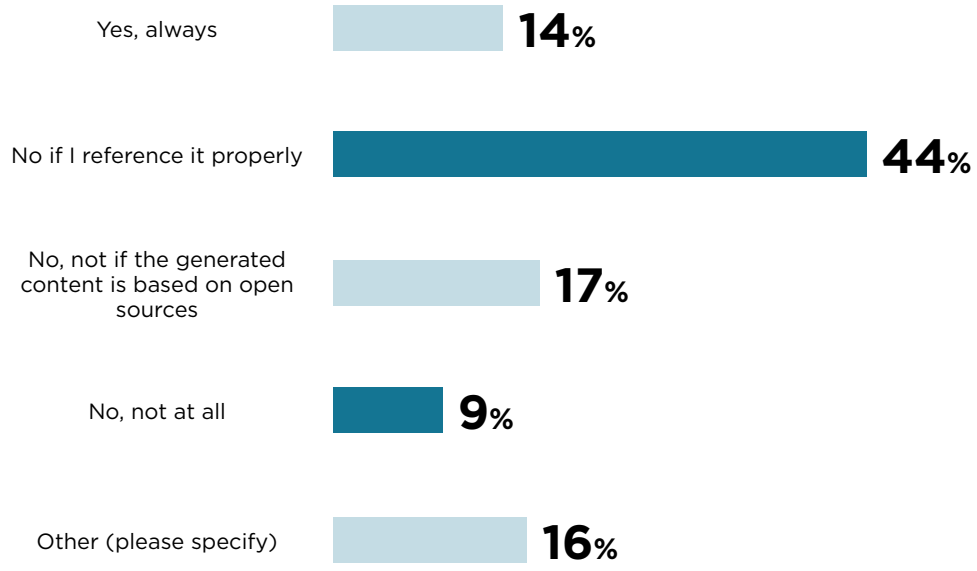
Methods used to verify ChatGPT/GPT-4 information.

(N=294)



Answers to the question of whether referencing is a solution to the ethical concerns associated with ChatGPT/GPT-4.

(N=484)



AI in a World of Structural Inequalities

An intriguing issue raised unprompted by several researchers was that of structural inequalities present in the scholarly world. When asked whether scholars would pay for AI tools, most of the respondents (84%) said they would not. Similarly, most users of ChatGPT/GPT-4 did not see the need to pay for the extended version and pointed out that paid versions potentially exacerbate inequalities between scholars.

Expecting scholars to pay for access to resources such as AI seems to undermine the drive towards open access and further marginalise scholars from underfunded disciplines and/or developing countries.

→ "[Subscribing to the paid version of ChatGPT] exacerbates discrimination against poor scientists who can't afford it because everyone is expected to have it."

→ "The cost obligation is problematic in that it makes certain sciences with higher budgets better off."

→ "I think this is a problem. It will quickly change from 'I'll try for a month' to 'I can't afford to pay for this, while others can.'"

→ "I think this is problematic because access to knowledge is through the wallet."

Scholars also point out that while AI tools are an excellent resource for language translation and text writing, especially in English, the fact that they are such a big requirement points to the dominance of English language in academia.

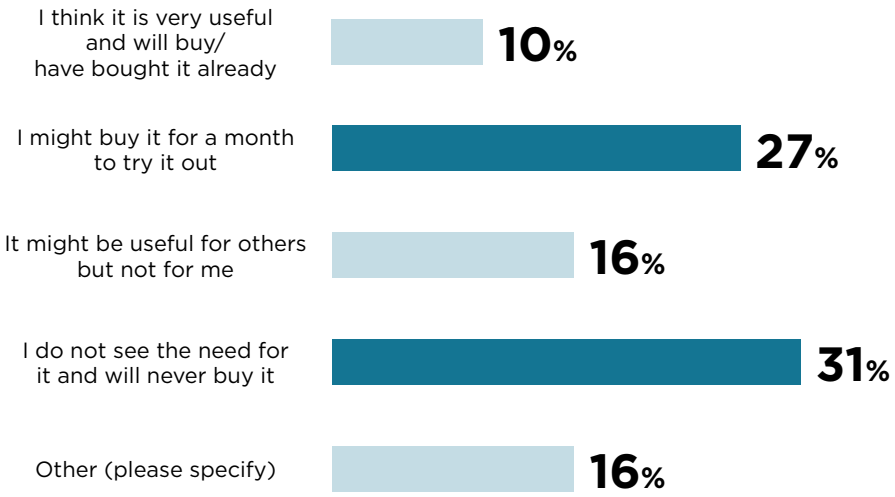
In this regard, ChatGPT/GPT-4 and other AI tools help "level the playing field" for non-native English speakers. Therefore, as the scholarly world deliberates over usage restrictions and subscription versions, it would be important to take into account how linguistically and financially marginalized groups may be affected.

→ **"[ChatGPT] is particularly useful for non-native English speakers, since English is the hegemonic language of academia and that creates structural inequalities."**

→ **"…Nowadays, the modern world treats English as a tool that measures intelligence, not as a language…"**

Attitudes towards paying for ChatGPT/GPT-4.

(N=502)



Future Use of ChatGPT/GPT-4

Most scholars (62%) who are aware of ChatGPT/GPT-4 support its use in the future, with limitations. More than half of the respondents (58%) would like to see more transparency about how ChatGPT/GPT-4 works and what data it has been trained on. They think that the use of ChatGPT/GPT-4 in academic writing should be clearly acknowledged (57%). They also want training and education on the ethical use of the tool (56%).

→ **"It is a powerful and unavoidable tool that current legislation does not address. We need to set up legal frameworks and answer urgent questions like copyright."**

→ "University guidelines restrict the use of GPT in the academic context, however, this only triggers me to use it even more. If we refrain from using it, others will do without any barriers, so a guideline-based use is way better than no use at all."

→ "[We need to] change the publishing culture to find more effective ways of communicating beyond the current print culture modeled after 19th century practices."

Scholars are broadly in agreement in arguing that AI tools such as Chat-GPT/GPT-4 are "here to stay." It marks the beginning of a new era, **"It's a bit like the day the computer was invented; most people thought it was the end, but with time it's just a tool you must know how to use."** Rather than dismissing them, it would be smart to find effective ways to optimize their use. In fact, many scholars are excited about the new advances that AI could potentially bring to their respective fields, for example:

→ "Over time, teachers will find a new teaching method using ChatGPT/GPT4."

→ "I am interested in digital text analysis/distant reading as a different approach to historical textual/qualitative data and am certain that Chat-GPT will be a fixed part of the toolkit not too long from now."

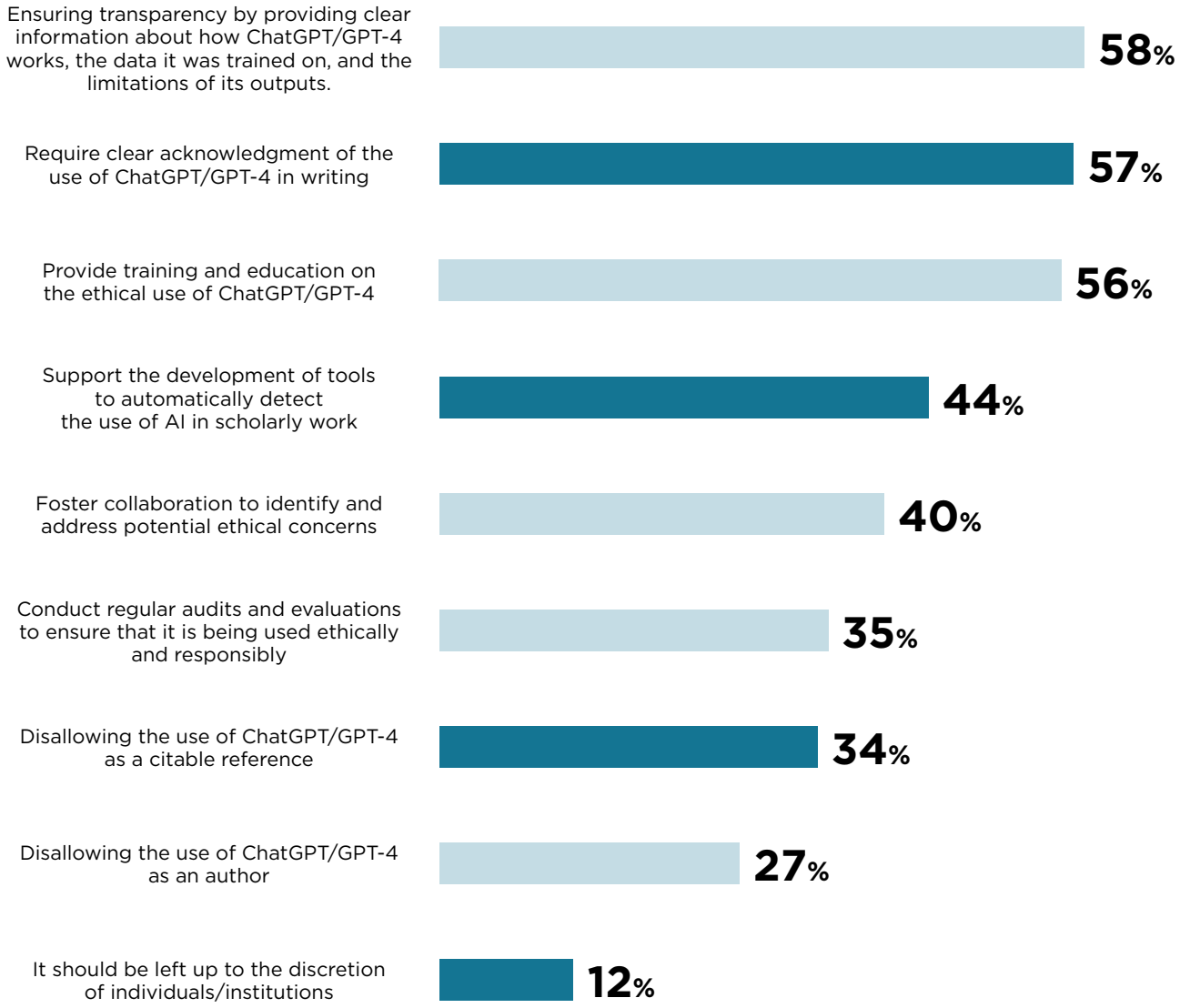
→ "I believe the functions offered will be more or less integrated in all future systems for research."

→ "I think it can be useful for things like diagnosing disease."

It seems safe to say that the space is wide open for publishers and other institutions to step in and create protocols that will shape the future use of not only ChatGPT, but other new AI tools, as we can only expect further advances in technology from here.

Requirements of scholars to publishers regarding the use of ChatGPT-/GPT4.

(N=481)



By Ramlah Abbas, Manager Insights & Analysis, and
Alexandra Hinz, Digital Communications Manager
at De Gruyter.

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Walter de Gruyter GmbH
Genthiner Straße 13
D-10785 Berlin / Germany
Tel: +49 30 260 05-0
Email: insights@degruyter.com

degruyter.com