

# AI tools for Education, Learning and Research

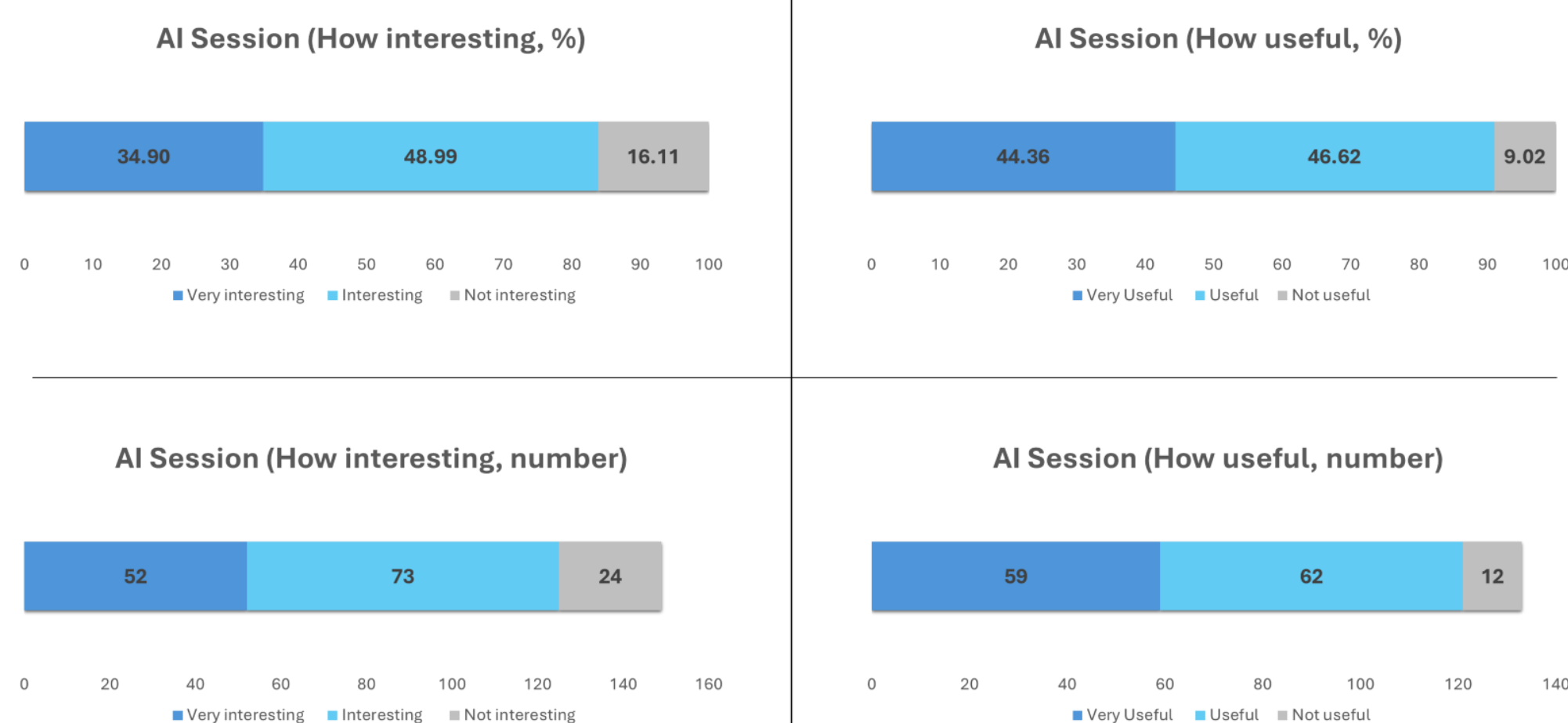
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## Introduction

In the past few years, the use, capabilities and applications of large language models (LLMs) has grown exponentially. To support this technological transition, I designed an interactive workshop to help students and staff develop Artificial Intelligence (AI) literacy and build skills in using and assessing output for generative AI for teaching, learning and research. The workshop is now embedded in various modules across the Faculty of Science and Engineering, from foundation to postgraduate level and was delivered within and outside Queen Mary University of London. It includes interactive discussions on the ethical, societal, and environmental impacts of AI, as well as hands-on exploration of AI-powered tools. By engaging participants in discussions and through Mentimeter, I assess their familiarity/command with AI to tailor the workshop accordingly. This work aligns with several Queen Mary University of London (QMUL) graduate attributes such as “Be AI and digitally literate”, “Engage critically”, “Apply expertise”, “Innovate and problem solve” and “Act ethically”. The session is not discipline specific, but it is skills based so it can be delivered to audiences from any background. Participants are encouraged to bring and use their own devices to engage with the tools showcased.

## Evaluation

The session reached so far over 400 undergraduate and postgraduate students (from foundation to PhD level) and members of staff (postdocs, academics and professional services). The session has been very well received as proven by positive comments received, discussions during each session and evaluation data shown in figure 1.



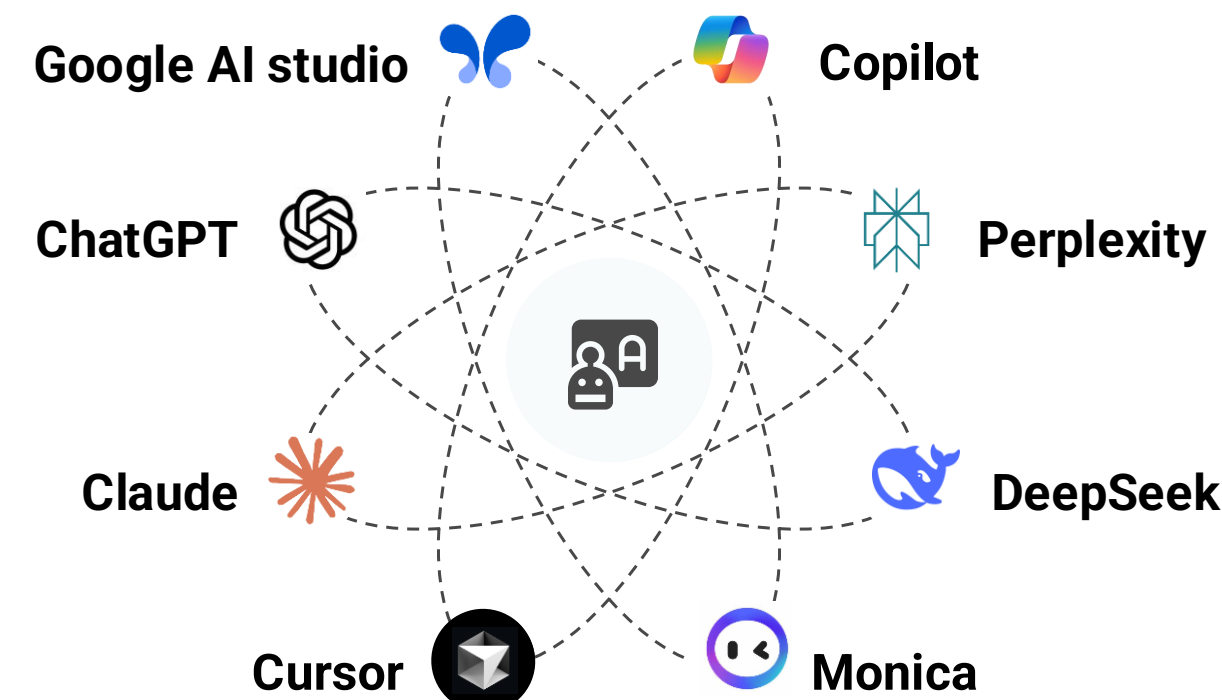
## The Session

The workshop is divided in four parts: 1) AI perception and use. 2) Understand potential and pitfalls of AI. 3) Use of AI tools and output analysis. 4) Final considerations and session evaluation.

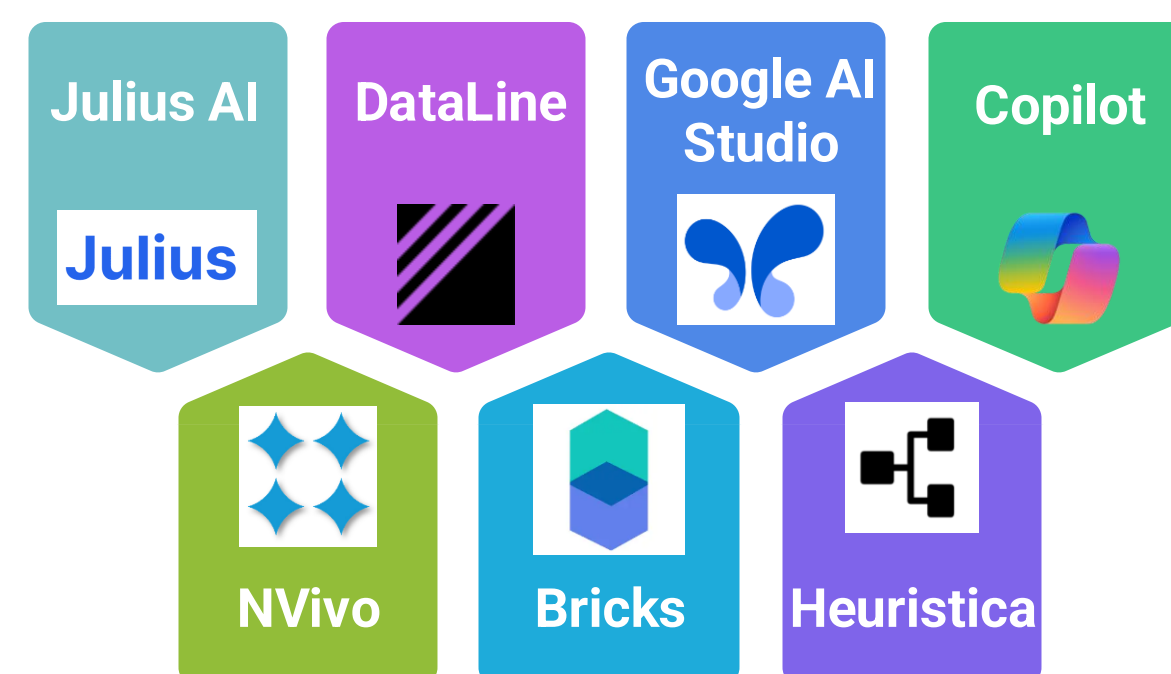
Depending on the audience a different set of tools is showcased and tested. AI tools can be powerful aids, but users must develop the skills to verify information and understand AI limitations.

As the technology is constantly evolving many tools are continuously added or replaced. The following infographics show main current generative AI software grouped by application.

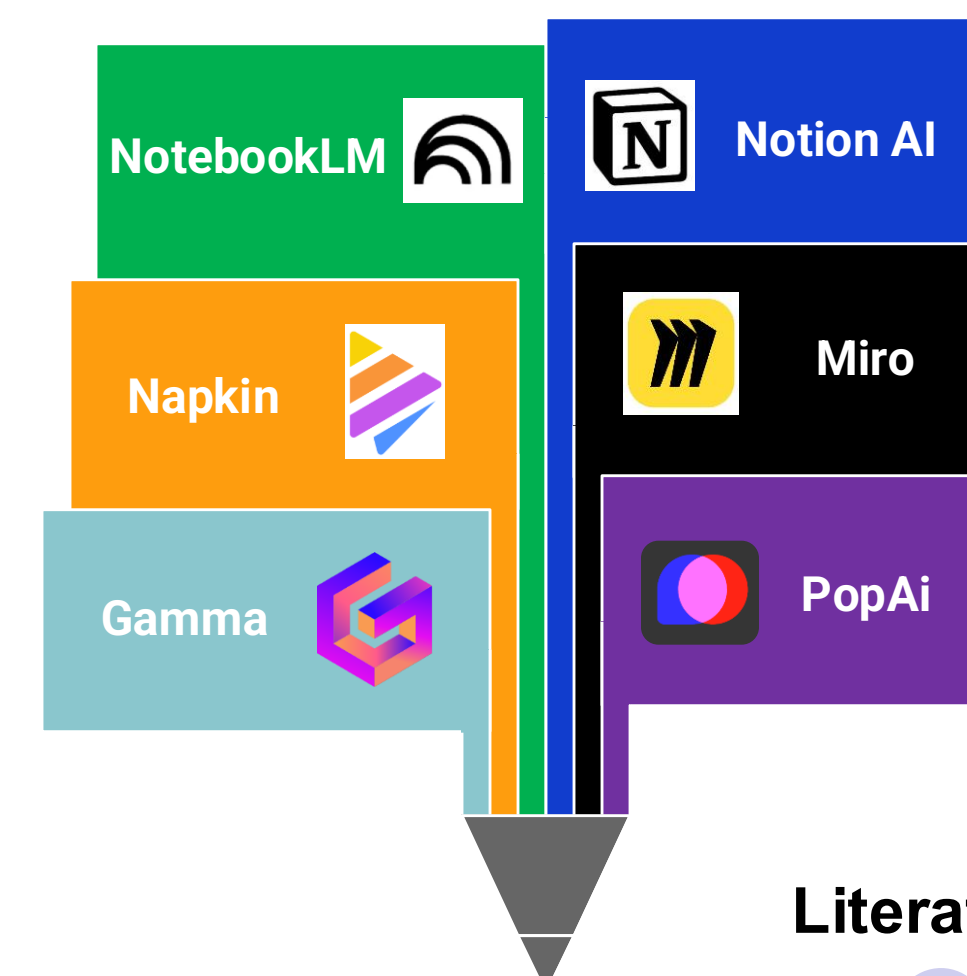
### General Chatbots



### Data Analysis and Mind Maps



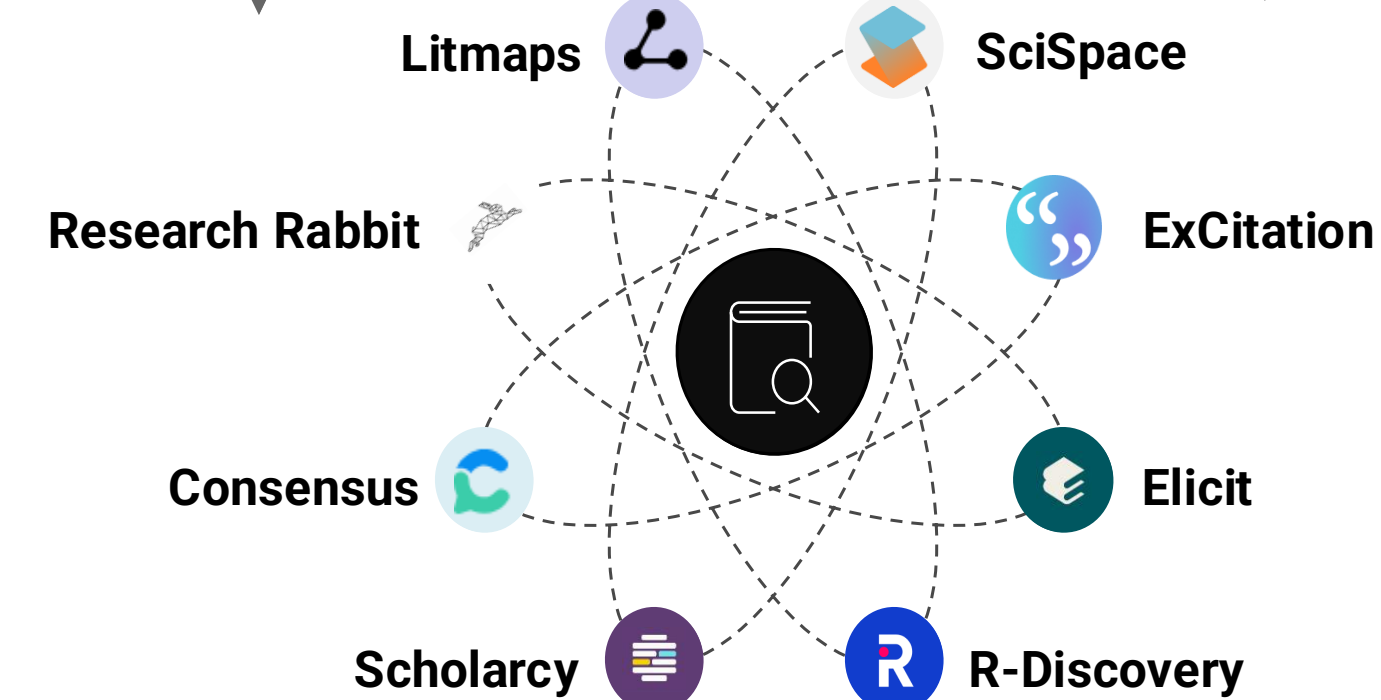
### Organisation, Notes, Doc. Interaction and Presentation



### Writing Support, Referencing and Plagiarism Check



### Literature Search



## Final Considerations

Most AI tools require subscriptions, potentially creating disparities among users. If we do use AI activities in our teaching/research or encourage students to use it to support their learning, we need to ensure that all have the same opportunities. However, we should note that universities should consider providing AI tools' licenses to ensure equal access for all. The integration of AI in education is not about replacing traditional learning/research methods but enhancing them. By using AI strategically and discussing its strengths, weaknesses and other considerations, educators/researchers can foster research skills, improve efficiency, and help students develop a critical approach to AI-generated information.

**Fig .1** Data by number and percentage of usefulness and enjoyment of the session (response rate around 35%)