



Leveraging AI to advance early career research in East Africa: a strategic dialogue

An online event to explore how artificial intelligence could unlock new support for early career researchers in East Africa

Convened by INASP, 28th November 2023

Key messages

1. AI tools can be used to overcome challenges in undertaking research. In addition to using general purpose tools like ChatGPT to get assistance with issues such as data analysis or coding, there are a number of specialist tools that can be used as for various purposes, from generating research ideas and questions, framing research papers, and overcoming writer's block.
2. AIs offer three key advantages for researchers: it is cost effective, it can save time, and it enables them to explore new research tools and methods, increasing capability. We should encourage early career researchers to use AI tools, so they learn from experience, and help them to navigate the challenges they pose.
3. AIs present a number of key ethical considerations, and we should be open when using it in research, include it in the protocols that are submitted to ethics review, and take care not to give it personal or sensitive data.
4. It is vital to understand AI's limitations and the continued need for human thinking and creativity, both to get the most from the tools, and to use them most effectively in research. AI won't replace humans in research but rather augment their capabilities, making it crucial for researchers to embrace AI and learn how to use it effectively.
5. We need to change the education system around this, to encourage critical thinking and the creative use of AI tools amongst students at undergraduate and postgraduate level.

Background

As part of our [AuthorAID](#) programme, INASP convened an online dialogue on 28 November to explore the potential of artificial intelligence (AI) to support early career researchers and to strengthen research systems in East Africa. It built on an earlier event, in July, which considered the impact on teaching and learning.

The event featured contributions from [Jon Harle](#) (INASP Director of Programmes), [Dr Kendi Muchungi](#) (INASP Associate and Aga Khan University), [Nafisa M. K. Elehamer](#) (AuthorAID Steward and Universities of Debrecen / Khartoum) and [Dr Robyn Read](#) (Mastercard Foundation and independent researcher).

While acknowledging the significant concerns around AI, including bias and exclusion, and the need for new policy and effective guardrails, we chose to focus on practical use cases in research, to assist participants to build understanding and familiarity.

The event included a discussion on broader issues facing researchers East Africa, and a live demonstration of ChatGPT to show how it could be used to address some of those challenges. The following report was compiled from the recording of the event, using AI tools to assist.

Summary of discussion

The event was opened by **Jon Harle**, Director of Programmes at INASP, who welcomed participants and introduced the session.

“We want to centre academics and researchers from the majority world to listen to how they are experiencing these changes in research in their careers, and the ideas and ambitions they have for the future.” Jon Harle, INASP

INASP's mission is to support research and knowledge systems across the Global South, so that they can produce the evidence and the ideas that the world urgently needs, and to support and develop the next generation of researchers and knowledge professionals for their research and teaching missions.

Our starting point was that if African academics and researchers have an opportunity to explore these tools and to see how they can shape their academic research practices, they can also to join the debate about AI in research and contribute to how AI is used in institutions.

To frame the discussion Jon gave a demonstration of the power of widely available AI tools. He shared his screen with participants and used OpenAI's ChatGPT, running GPT4, to generate an image using the following prompt:

Hi ChatGPT, I'm running a short online webinar today. The aim is to show how AI is and will continue to change the practice of research in Africa, and offer new ways to support researchers to develop their careers. We will focus specifically on how it is impacting young researchers in East Africa. To get us started I'd like to show the webinar participants an example of what AI can do. Can you create an image for me that shows a group of early career African researchers, from the different countries of East Africa, working together to undertake a piece of research? Make sure that they are at least 50/50 women and men, and make sure that some (but not all) can clearly be identified as scientists. Thanks.

 ChatGPT



The image showcasing a group of early career African researchers from East Africa working together in a modern research laboratory has been created. It represents both men and women collaborating on a scientific project, with some in white lab coats and others in business casual attire, surrounded by advanced research equipment. This visual can serve as an example of AI-generated content for your webinar on the impact of AI on research practices in Africa.

ChatGPT's first attempt is shown above. While there were some African researchers in a lab, it was clearly not drawing on a large library of African university imagery. We tried a new prompt:

Thanks. Can you: keep some of the people that you already have, but make it more clearly East African? And can you make it represent a group working in an East African university today? Let's say somewhere in Tanzania.

 ChatGPT



The updated image now includes a group of early career researchers at an East African university in Tanzania, reflecting the local culture and the modern scientific environment.

Finally, we tried a third prompt, asking to change the image to reflect research in a specific field:

Thanks. Can you keep the same people, but make it clear that they are researching agriculture?



The image has been updated to reflect the researchers' focus on agriculture, showcasing them engaged in fieldwork and analysis related to agricultural research in Tanzania.

Jon noted that there are questions to ask around how it creates these images, and that the LLM has been scraping the internet and taking copyrighted material from artists so we should use these images with caution.



Nafisa M.K. Elehamer

PhD candidate/Public Health and Epidemiology
at University of Debrecen (Hungary)
Lecturer at University of Khartoum (Sudan)
Director at ReachSci University of Cambridge
AuthorAID Foundational Steward



Nafisa explained that, as a researcher from Sudan, she encountered many challenges. Her research training was more theoretical than practical, and when she became a teaching assistant she had to work very hard, because her students expected her to know much more than they did. That process was very time consuming, she explained.

"I can say that, like AI tools are really game changer." Nafisa M.K. Elehamer

- When Nafisa began her PhD, she found herself with students from many different countries, and their skills were 'far away from my skills and I needed to work hard'. A significant problem was dealing with data, so she began to use ChatGPT to help her learn about techniques such as regression analysis, and to teach herself to use the software package R.
- From here she began to explore [Bard](#) and [Bing](#), a tool called [Scite](#), and a search tool called [Elicit](#). She used ChatGPT to suggest 'hot topics' in her research area, refining them through further prompts,

and then takes these to Elicit to create outlines of a research paper, and to Cite to generate research questions. Other tools she noted included: [Monica](#), an AI assistant that connects to ChatGPT, Bard and Claude; [WiseOne](#), that allows you to cross check information as you read and browse; [Scholarcy](#), which allows you to generate summaries of research papers; [Grammarly](#), which helps with writing; [Paperpal](#) which she uses to help with paraphrasing; [Trinka](#) which specialises in academic and technical writing; [Cohesive](#) which helps to generate text and image content for social media; [Canva](#), a tool for generating graphics and presentations which includes an AI assistant; and [Evidence Hunt](#), which is specifically designed to locate clinical and biomedical evidence

- Nafisa has also incorporated these tools to mentor students – setting them a task and advising them to go and use one of these tools to generate research questions they can bring back to a discussion.

“When I started my PhD... most of the students, who came from different countries, their skills were way far from my skills and I needed to work hard. Dealing with data was a big problem. So I started using ChatGPT... it helped me a lot in my data analysis, specifically, when I had to learn more about regression.... I was learning using R and R is very sensitive, and if I faced any problem, I had to return to ChatGPT and just copy paste that error. I explained to ChatGPT ‘I did that and that, and that it gave me this error, please explain to me why this error and give me the alternative’... with the help with GPT I was able to analyse my data” Nafisa M.K. Elehamer



Dr Kendi Muchungi

INASP Associate
Instructional Designer in Blended and
Digital Learning with the Brain and Mind
Institute at the Aga Khan University,
Nairobi



Kendi explained that AI has already been incorporated into many tools that we are using on a daily basis. She noted that AIs are full of bias, based on the data they draw on, and that one way for users in East Africa to correct this is to use them more, and to contribute to the data. Kendi talked about work that her institute at the Aga Khan University is doing to experiment with AIs in various areas of research – as a diagnostic tool in neuroimaging, to model investments in mental health to identify new financing, and to undertake individual risk analysis for personalised medicine.

“I think right now the conversation is should we use it should we not? But the best way to encourage are to get students or early career researchers out of that funk or to get them started would be to use something like ChatGPT?” Kendi Muchungi

How can researchers use AI?

- Kendi noted the challenges to using AI, but argued that rather than discussing whether we should or shouldn't use it, we should be encouraging early career researchers to use it and help them to navigate the obstacles they encounter.
- Kendi then gave a live demonstration of using ChatGPT to help a novice researchers understand the how to go about planning a piece of research, from an initial prompt, through a series of steps to generate a more useful response, including asking ChatGPT to advise on how to generate a more nuanced prompt, and providing more contextual information.
- She went on to describe a specific research project, working with staff at the city mortuary to understand mental health needs, and a particular challenge the research team was facing, asking ChatGPT to suggest a way forward. This generated a list of 11 possible approaches for the team to take, from ethnographic work to digital storytelling to photovoice.
- Kendi's demonstration emphasised the importance of expertise – far from AI replacing the skills and knowledge of experienced researchers, it is exactly this expertise that allows them to provide more nuanced prompts, and to contextualise and interrogate the response.

K You

2. I am a novice in the field of psychology and would like to carry out research pertaining to Mental Health, how would I go about this?

G ChatGPT

Carrying out research in the field of psychology, particularly in mental health, requires careful planning and adherence to ethical standards. As a novice, here's a step-by-step approach you can follow:

1. **Educate Yourself in the Basics of Psychology:** Before diving into research, it's crucial to have a good understanding of basic psychological concepts and theories, especially those related to mental health. Consider taking courses, reading textbooks, or attending workshops.
2. **Identify a Specific Area of Interest:** Mental health is a broad field. Narrow down your focus to a specific aspect, such as anxiety disorders, depression, coping mechanisms, etc. This specificity will make your research more manageable and focused.
3. **Conduct a Literature Review:** Search for existing research in your chosen area. This helps you understand what has already been studied, the methodologies used, and the gaps in the research. Use academic databases like PsycINFO, JSTOR, and Google Scholar.
4. **Formulate a Research Question or Hypothesis:** Based on your literature review, develop a clear research

K You

3. How could I make my prompt more nuanced?

G ChatGPT

To make your research prompt more nuanced, especially in the context of mental health research in psychology, consider the following strategies:

1. **Specify the Population:** Define the demographic or clinical characteristics of the population you are studying. For example, rather than researching "anxiety," study "anxiety in adolescents aged 12-18 with a history of social isolation."
2. **Focus on a Particular Aspect or Variable:** Instead of a broad topic, focus on a specific aspect. For example, instead of studying "depression," you could examine "the role of social media in the development of depressive symptoms in young adults."
3. **Include Contextual Factors:** Consider how environmental, social, or cultural factors might impact your research. For instance, you could explore "the impact of urban living on the prevalence of PTSD symptoms" instead of just "PTSD."
4. **Consider the Intersectionality:** Look at how different aspects of identity (like race, gender, socio-economic status) intersect and impact mental health. For

K You

4. As a computational neuroscientist at Aga Khan University's Brain and Mind Institute, my work involves collaboration with a diverse team, including a Communications and Stakeholder Engagement Manager, a Medical Anthropologist, a Clinical Anthropologist, and professionals from the Ministry of Health's Mental Health and Substance Use Disorder Unit. Our current focus is engaging mortuary attendants in Nairobi County. The goal is to understand and address the cultural stigma linked to their profession and the challenges they face in seeking mental health support due to the nature of their work. We're looking for the most effective research methods to engage with them, considering all these aspects.

G ChatGPT

Your interdisciplinary research project at the Brain and Mind Institute, involving collaboration with professionals from various backgrounds and focusing on engaging mortuary attendants in Nairobi County, is both complex and impactful. Given the sensitive nature of the topic and the diverse expertise in your team, a multi-method approach would be most effective. Here are some research methods to consider:

1. **Qualitative Interviews:** Conduct in-depth, semi-structured interviews with mortuary attendants. These interviews can provide rich, detailed data about their experiences, perceptions, and the stigma they face. Ensure that these interviews are conducted in a sensitive and respectful manner, considering the potentially traumatic nature of their experiences.
2. **Focus Groups:** Organize focus group discussions with small groups of mortuary attendants. This setting can encourage participants to express their views and

Screenshot of Kendi's prompts and ChatGPT's responses – the black dots indicate that it is still generating the rest of its answer.

Robyn Read

Knowledge mobilization specialist
PhD in Comparative and International Development
Policy and Leadership in Education from the
University of Toronto.
Former instructor at the University of Western
Ontario, the University of Toronto, and Queen's
University.
Currently works with the Research Team at
Mastercard Foundation as Lead, Knowledge
Mobilization and Knowledge Products.



Robyn discussed her experience of using AI as a researcher, how she had learnt how to use it, and how she thought it could assist researchers to advance their work. She also noted some of its risks and the ethical considerations it poses.

Why use AI?

- Robyn gave three reasons why she used AI in her work: (1) It is less expensive than other ways available to research to learn some of the ‘tools of the trade’ of a researcher; (2) that it speeds things up, including overcoming the ‘blank page’ when writing; (3) that it opens up new methods that she can use in research, by enabling her to learn about new tools.

“As academics, as researchers, we’re constantly having to write. I don’t know about you, but I actually hate writing. For me, it’s painful. It’s something that takes so much practice to get good at. And the blank page really paralyzes me. And so I often use [AI] to help me think of ways to frame my research paper, or as a writing partner where I can put in my ideas, and it can shoot out full coherent, beautiful paragraphs that I can then start to revise and edit” Robyn Read

- She noted, for example, that learning how to do social network analysis as part of her PhD had required her to travel to the US and spend several thousand dollars, and she had had to pay for Excel support to produce a very technical file that she needed to produce her final dissertation.
- For participants who still hadn’t taken the first step with AI, Robyn encouraged them to try using an AI like ChatGPT for something more day to day – a recipe for a meal, or suggestions for a vacation.
- You can also learn about AIs limitations, Robyn suggested, by giving it a task – like writing an essay – and critically appraising the quality of what it produces.
- As Robyn was keen to stress, while AI can provide short cuts and speed up the process, we still have to do the hard work of thinking – even if it feels like there’s an expert on the other end, there really isn’t.
- Other uses for AI could be to help create a title that has more of a hook for a reader, or to help you write a speech – even to include jokes, or proverbs.

*“We have to always remember that ‘artificial’ part of the ‘artificial intelligence’.
And so while it might seem like there’s a living thinking exert on the other end of
that computer, or your phone, there isn’t one. And you still have to do that hard
work of thinking”* Robyn Read

Using AI ethically

- Robyn then turned to consider the ethical questions that AI raises for research. Linking AI to a researcher's personal integrity she argued "as researchers and scholars, what we really have is our own personal integrity. And we have to be always authentic and honest about how we're doing our work in order to gain that respect and legitimacy as experts in our field".
- Just as any method or tool should be explained in a research protocol, that goes to an ethics review board, so AI should also be declared too. Review boards, she suggested, could help to identify concerns we've not identified ourselves. Robyn also
- Robyn also argued that we should declare the use of AI in our work, to be clear how we have generated a piece of writing, or an image – especially given that AIs may begin to impact the livelihoods of African artists and illustrators.
- She also noted that it is important to let it know when it got something wrong, and especially when it makes a racist comment, or says something that's inappropriate, because it will improve through that feedback.

Taking care with data

- While it feels like an individual that you're talking to, we shouldn't forget that it is storing all that data and tracking what we say, so we should be careful what we put into the AI and how. That shouldn't stop us from using it – as researchers we know we need to take care with our data, and we just need to apply the same applies to AI.

Will AI replace us?

- Many people are concerned that AI will increasingly displace humans – able to do the tasks that humans do, and in the process take their jobs. Robyn fervently disagreed, generally, and in research particularly. We won't be replaced by an AI, but by someone who knows how to use AI, which makes it all the more important to start using it, to learn how to use it well, and start to train it.
- Robyn explained that if she was to show her prompts, they would be very long – sometimes several paragraphs – because she knows that the AI can't do the thinking for her, and she needs to provide the information.

Questions and comments from participants

Will AI increase the rate of plagiarism, and as supervisors should we be discouraging it?

- **Robyn:** we can still put our work through plagiarism checkers, and the most important thing is that we are honest about our use of AI. We also need to teach students how to use these tools ethically rather than banning them altogether, and that's our job as educators to make sure that that happens.
- **Kendi:** the key is how we as facilitators use the technology: if we're not creative in terms of how we're using it in the learning spaces, and also not creating space for students to experiment with it, we're not encouraging them to think critically. If we deny the use, a lot of students will find ways to use it negatively. But if we start using it actively and creatively in our learning spaces, I think it will change the dynamic.

"The problem with the education system right now is we grade for the result, as opposed to the process. So if we change our thinking about what learning should look like, the process of acquiring knowledge, then it changes how we leverage or use the AI tools." Kendi Muchungi

A note on this report

This report was partly generated using AI with some human guidance. We uploaded the recording of the event (created by Zoom) into the Otter.ai application. This produced a full transcript of the event. It identified different speakers, and we then assigned names to each speaker. The transcript had many

mistakes, which would have taken a long time to correct. Instead, we used the transcript to identify the key points made, replaying the sound file and correcting it where the meaning of a specific line was unclear and to check the quotes. We then used ChatGPT to help generate the key messages, from the text included in the body of the report.

Contacts and further information

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Summary of our July dialogue event on AI in teaching: [Exploring the potential of AI for teaching and learning in East Africa](#)

INASP's learning community for early career researchers: www.authoraid.info

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