

Research Cultures in the Modern University: Artificial Intelligence and Its Imperatives on Scientific Knowledge

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Abstract

The university is traditionally mandated with training generations of scholars on knowledge production and maintaining the integrity of the knowledge production system. However, the advent of artificial intelligence (AI) tools and their wide adoption by researchers may challenge this mandate by altering research processes. This article discusses the changing research cultures arising from the use of AI tools in academic research and how these may occasion retrogressive research cultures. It uses exploratory methodology, engaging with literature and pertinent theories. The article's main finding is that AI is widely used in various research stages. It also establishes the different viewpoints on AI usage, collating the wider African vision of scientific knowledge production. It concludes that AI affects cognitive-based learning and critical thinking, which may disrupt the succession of research cultures and divest the academe of its intellectual integrity. The article suggests an urgent review of AI use in universities to restore and maintain the integrity of knowledge production for the well-being of current and future societies.

Keywords: artificial intelligence; academic research; higher education; university education; education in Africa



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Knowledge Per Se

The Greek words *epistēmē*, meaning knowledge, and *logos*, meaning reason, are the etymology of epistemology, an age-long discipline concerned with studying knowledge. We start with these two terms because they provide a basis to philosophise knowledge: its nature (what counts as knowledge and why), origin (where it comes from and how), and limits (what is knowable or not). In the current times when artificial intelligence (AI) has registered a clear footprint in academic research, writing, distribution, marketing, metrics tracking, and market intelligence, the disconnect between traditional and current forms of knowledge production is evident. In this article, we are interested in how generative AI is influencing knowledge production in contemporary universities, beyond the acknowledged unease with “ethical concerns, between innovation and integrity” (Butson and Spronken-Smith 2024, 573). These have been elaborately studied and named: suspicions with data security (how large language models use the published materials in generating “new” research), intellectual property, confusion around the technology, reduced research quality, deteriorated critical thinking skills, and limited technological skills (Oxford University Press 2024). This unease is, however, contrasted with similar passion for AI adoption at various stages of academic writing: ideation, content, literature review, data analysis, editing (Khalifa and Albadawyd 2024, 1). It can be said that a healthy debate exists about how AI can be productively used in academic processes, from publications to teaching and learning. What we find missing, and what we discuss here, is how AI may detach us from the beneficial labours of knowledge production and lure us into a comfort incompatible with sustainable originality in scholarship. Our goal is not to philosophise on the post-truth aspects of AI and higher education but to highlight how the culture of knowledge production is changing (across evolving research cultures). We also pre-empt a consideration of the imperatives of such technologies in modern higher education research (what is at stake). We use the framework of cognitive labour for our discussion.

Cognitive effort refers to “[w]hen one is required to consciously engage in mental work” (Blumenthal and Sefotho 2022, 3). It may “reflect the extent to which cognitive resources are engaged (i.e., attention is invested) in a specific activity” (Chevalier 2018, 1283). We use the phrase “cognitive labour” to reference both the attitude towards intellectual effort and the expected cognitive gain associated with this effort. “[I]ntellectual labour not only has become a term used to explain a form of labour, but also has been established as a type of professional behaviour expected, demanded, and crudely measured” (Burnett, Rickard, and Terekhov 2018, 43). Academia cannot be dissociated from the “commitment to this form of work” (43), which is expected to be “(the?) primary duty of modern academics” (44), and may be tracked through parameters of excellence or impact (44). A subsequent caution is noteworthy here: “those occupations that consider themselves predicated on intellectual labour may incur grave losses when an obsession concerning its supply and demand displaces and depreciates other essential virtues, practices, or activities” (44). We pick the word “obsession” to cue the attitude towards intellectual labour (whether we honour virtues

of knowledge production or we can use any means to deliver intellectual products). This equivocally differentiates our “*belief* in a theory from *pursuit* of research designed to apply or extend that theory” (Kitcher 1990, 8; italics in original). *Belief* is geared towards individual rationality on how to mobilise for the adoption of less intellectually labour-intensive options such as AI, which allows for the delivery of intellectual products with less effort; *pursuit* rationalises communal benefit as the basis for how such an intellectual product will be achieved. “[W]hat the community cares about is the distribution of pursuit, not the distribution of belief” (8).

AI’s arrival within academia thus occasions a moment where debates about the conversion from fully mind-dependent to augmented knowledge production, and speculation about the extent to which thinking can be outsourced to algorithms while retaining the cognitive benefits associated with intellectual labour (Chevalier 2018, 1283), are due for discussion. Our main proposition is that the adoption of especially generative AI in academic “research and writing” aids the illusion of mass intellectuality while depriving the academic of any cognitive benefit from the process, which benefit is the *summum bonum* of academia (Burnett, Rickard, and Terekhov 2018, 44).

Cognitive labour is a traditional factor of knowledge production: “science’s truth-seeking mission requires reason”, which is “predicated upon the individual scientist applying observable methodologies” (Tomaselli 2024, 71). The purpose of knowledge is in improving human cognitive understanding, a tedious process requiring prolonged mentorship on methods of thinking and how to become knowledgeable.

This arrangement, originating from post-medieval scholarship, emphasised the mastery of a more humanist approach to knowledge at a time that, up to this point, had been dominated by the logic skills and philosophical argumentation of the medieval era (see Novaes and Read 2016). This shift meant a departure from the systematised formalist doctrines of thinking, in favour of philology and eclecticism, and adopting logic to theories of language, semantics, linguistics, stoicism, and so on. Of this transition, Ashworth (1974, 1) says:

[A]t the end of the fifteenth century, logic entered upon a period of unchecked regression, during which it became an insignificant preparatory study, diluted with extralogical elements; and the insights of such men as Burleigh into the crucial importance of propositional logic as a foundation for logic as a whole were lost.

As post-medieval scholars straddled medieval nodes of logic and post-14th-century impetus of arts and literary cultures (see Ashworth 1974), they jostled for re-theorising medieval knowledge and adapting it to the realities of the day. Much of this process revolved around the very popular Scholasticism, which involved ardent scholars who had spent lengthy times studying under the mentorship of more experienced scholars, ranging from earlier philosophers to religious intellectuals. Underlying the obvious profusion of knowledge in the form of new books associated with this period was a method of knowledge production that had several benefits.

First, it allowed those knowledgeable to train their students to acquire the suitable knowledge production skills. It was invaluable for followers of philosophers to acquire the mental aptitude necessary to become knowledgeable and practise long enough to become efficient thinkers. A noteworthy outcome here is the understanding that knowledge tends towards plethora rather than scarcity, as was the case with the post-medieval profusion of publications on logic and literature. That some of these “knowledges” were dismissed or revised suggests that our thinking must be constrained by yet another form of knowledge about how we think (our cognitive aptitude), which is necessary to validate our specific knowledge from its origin to its limits. As such, not all mental efforts lead to knowledge as a cognitive product, for it is possible to detach an idea from the knower, or what has been termed belief versus its pursuit, in which case, no knowledge is acquired.

Second, cognitive labour was involved in training one’s mind to access the faculty of logic and apply it in creating knowledge. As a baseline, we can think of the Socratic method (also seen in his student, Plato), where the method of knowledge acquisition was through questioning (inductive reasoning) (Benson 2011). This method also sought to clarify the origins of knowledge: that it is not something out there to be “found” but rather a tedious method of finding one’s way around mental inefficiencies, which prevent one from improving or acquiring cognitive aptitude. What was important was not the questioning process but the ability to originate and pose questions that matter. In other words, not all questions would pass the Socratic criteria, meaning that not all questions lead us to the origins of knowledge. Learning how to question how you question phenomena was always fundamental to the knowledge-seeking goal of this enterprise.

Third, because the laborious process could not continue indefinitely, it meant knowledge had “endpoints”. We use the term “endpoint” not to designate an edge beyond which something can become unknowable but to mean that the goal of a specific epistemological enquiry is met. Philosophical enquiry—read as knowledge production—is not an endless process. It is bounded by the goal for which it is initiated. It has a point of completion but not termination. The limit of knowledge (understood from the learner’s point of view) is thus to designate an endpoint, both in the external process of interacting with phenomena and in the cognitive realm of learning from this process. The endpoint is achieved through actively verifying information that one comes across in the process of enquiry and building one’s cognitive faculties to exceed mere observability of the process, and become dialectical.

From this treatise on cognitive labour in knowledge production, we also realise that knowledge is foremost *a priori* to the cognitive process through which it is acquired. A phenomenon is knowable only if one follows the correct method of enquiry (or experimentation with thinking methods). In this cognitive training process, our reasoning evolves towards improved awareness of thought, allowing us to generate ideas through which we interact with phenomena—such is the Ramist philosophy upon

which contemporary knowledge systems, such as Cartesianism, evolved. While there is a relation between knowing, the knower, and the known, this triad is superseded by developing the mind to become aware of things sensorially and the pathways of thought with which we realise these things. This triad is thus characterised by a constantly changing internal dialectic between our cognitive field and the signals that it permits to enter our consciousness and with which we interact with the world. This idea of knowledge was pivotal in the design of early universities and curricula.

The Old Research Cultures

The idea of university education took shape in monasteries, synagogues, and mosques (Imenda 2006, 245) and was led by distinguished thinkers spread across different regions of the world. Most notable examples include Plato's Academy of 360 BC (Europe) and the University of Salamanca of 1218, associated with Christopher Columbus (Spain). In Italy, the University of Bologna, founded in 1088, is most notable. Other early universities were established in China, India, Persia, and even in Africa, where Al-Azhar University in Egypt, founded in 975 AD, became the oldest university (Imenda 2006, 248). These universities emphasised communication to the learner, imitation, internship, and analytic and speculative learning as the preferred learning methodologies (Imenda 2006, 250). This intensive epistemological effort underscored the mastery of epistemological frames: nature, origin, and limits of knowledge, across various study disciplines. The early university proliferated, to a considerable extent, the traditional practices of Scholarism: "pedantry and abstractionism" (*Oxford English Dictionary* 2025). The idea of the university thus arrived at us as a laborious and purposeful process towards mastery and application of pedagogy rather than aggregation of information.

The 1988 Magna Carta of the European Universities (Observatory Magna Charta Universitatum 2022, 1)—signed in Bologna, Italy, on 18 September 1988—highlighted three core roles for the university of the future. First, it indicated that "knowledge and research as represented by true universities" was one of the pillars of "the future of mankind". Second, it specified that "the universities' task of spreading knowledge among the younger generations ... requires, in particular, a considerable investment in continuing education". And third, "that universities must give future generations education and training that will teach them, and through them others, to respect the great harmonies of their natural environment and of life itself". The charter further stipulated several key principles towards this goal. One of these was that "[t]eaching and research in universities must be inseparable if their tuition is not to lag behind changing needs, the demands of society, and advances in scientific knowledge". Further, "a university is an ideal meeting-ground for teachers capable of imparting their knowledge and well equipped to develop it by research and innovation and for students entitled, able and willing to enrich their minds with that knowledge". This was followed by the 1999 Bologna Declaration (Observatory Magna Charta Universitatum n.d.), which stressed cultural integration among European populations through educational cooperation and

the universities' role in realising this competitiveness. One of its emphases was that "[t]he degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification" (3).

We highlight the above aspects of this charter and its context to map out the original ideas of the university as the custodian of research—and knowledge—for the societal good. We also use the charter as a stepping ground to propose the gaps that remained unspecified in the charter, especially concerning operational aspects of this knowledge enterprise. In many Western universities, knowledge is often integrated alongside skills, meaning it originates in a mentorship context and is embedded in the skill-learning process fashioned in these medieval and post-medieval traditions (see Lucas 2006). For early European universities, these include training students "to work on challenges in a holistic way, across disciplines, and how to support students' critical thinking, problem-solving, creative and entrepreneurial skills" (European Commission 2022, 8). We could interpret this to mean that the universities aim to educate their students with emphasis on *acquiring real knowledge* of the world, which *they* could then apply to generate pragmatic solutions for society: "teaching and awareness raising actions, they support anchoring European values in society, and by upholding scientific rigour they help to strengthen trust in science" (10).

The Africa Research Charter presents a comparable aspiration. It was established in 2023 through the Association of African Universities (AAU), the African Research Universities Alliance (ARUA), the African Academy of Sciences (AAS), the Council for the Development of Social Science Research in Africa (CODESRIA), and the International Network for Higher Education in Africa (INHEA) (Association of African Universities n.d.). On its own, ARUA's goal is to "enhance research and graduate training in member universities through a number of channels, including the setting up of Centres of Excellence (CoEs) to be hosted by member universities" (African Research Universities Alliance n.d.). AAS's mandate involves "recognising excellence ... providing advisory and think tank functions for shaping Africa's Science, Technology and Innovation (STI) strategies and policies and implementing key STI programmes addressing Africa's developmental challenges" (AAS n.d.). CODESRIA aims to build a "strong and vibrant African social science and humanities research community. It serves to mobilise a greater understanding of the challenges facing Africa and the world in order to overcome these challenges" (CODESRIA n.d.). INHEA works with a "community of scholars, experts, practitioners, policy makers, funders, development workers, graduate students, and others engaged in research, teaching, learning, and policy advocacy on African higher education" (INHEA n.d.). The collective efforts of these organisations map out Africa's larger aspirations for higher education as a resource for the citizens' development. They also provide a context in which we can understand the original thought of what higher education should achieve through African scholarship—now espoused in the Africa Research Charter.

The Association of African Universities' (2021) website defines the Charter as “an Africa-centred framework for the pursuit of *transformative* research collaborations as an entry and leverage point for advancing and upholding the continent’s place in the global production of scientific knowledge”. This is upheld by many African universities and scientific organisations, which stress the need to ratify knowledge production processes, if only to maintain the integrity of the knowledge production system. The Academy of Science of South Africa (ASSAf) is a case in point. Per its website, it “aims to provide evidence-based scientific advice” and facilitates, among others, “public understanding of the nature, scope and value of the scientific and technological enterprise”. Further, one of its mission statements is appreciation of “achievement and excellence in the application of scientific thinking for the benefit of society” (ASSAf n.d.). Clearly, the Academy’s agenda is congruent with that of the Africa Research Charter and embraces the core values envisioned in the Magna Charta of the European Universities. All these organisations emphasise scientific thinking in knowledge production, which is the basis for global university research cultures, and what we address in this write-up.

This vision of knowledge production is, however, changing.

The New Research Cultures

AI has changed “various facets of academic life, from research methodologies to administrative procedures. The pressing question now is not whether to integrate AI, but how to do it in a way that aligns with our core academic values and ethical commitments” (Butson and Spronken-Smith 2024, 574). This statement ushers us into the new technological world where the traditions of knowledge production are both enhanced and challenged by new innovations. The university of today finds itself in a quandary: How can its optimism for efficient teaching and learning, integrity for scientific knowledge production, and need for higher academic productivity be actualised through its transient cohorts of postgraduate students, postdoctoral research fellows, and the relatively overstretched research staff? It thus appears sensible to set off our discussion of what we see as a basis for rethinking new research cultures in Africa today: the competing perspectives on *how* the university should produce knowledge in the new operational environment. While the pressures are broadly two-fold: high productivity and high quality, we specify generative AI tools focused on academic research writing as a new threat that is catalysing new (perhaps detrimental) research cultures.

There are already studies legitimising the role of the university as “the main locus of knowledge production” (see Godin and Gingras 2000). There are also studies on the “changes in the universities as knowledge producers”, which evaluate “how they are situated in a wider social political context of changing power relationships, changing ideas about knowledge and its uses, and changing links between universities and society” (see Bleiklie and Powell 2005, 2). Other efforts have discussed indigeneity and decolonisation of knowledge (see Akena 2012), reflexivity between academia and social

service (see Waghid 2002), competing centres of knowledge (see Green 2009), and many others. Obscured by these debates about the universities' perpetuity in the knowledge production ecology is a rather urgent issue: As the university is discussed alongside its competing forces, its core mandate of maintaining the integrity of knowledge production infrastructure is at risk. Some of the risks emanate from internal policies, while others are occasioned by new realities in the academic ecosystem. The modern university combines learning with other parameters of productivity, such as administrative and community service. Alongside the emphasis on scientific achievements, the knowledge ecosystem may have shifted towards commercialising experience and qualifications through managed transactional relations rather than the unequivocal advancement and transfer of expertise for the society's present and future good. We will not discuss the teaching side of the university here; we lean towards research and knowledge production, which largely comprise the bulk of the university's postgraduate and staff priorities.

Global conversations on university and scientific advancements, briefly highlighted in the two charters discussed earlier, are based on the idea of academic integrity. This is evident in their emphasis on continental knowledge alliances and harmonisation of collaborative knowledge production, from the mobilities of students and their research trainers to the mobility of research cultures. The call for commensurate appreciation of excellence across borders imagines a harmonised and prescribed research environment where learning and mentorship are standardised. What the charters did not presage was the disruption of this expectation by new frames of knowledge and scientific research, and the welcome but disruptive AI technologies.

New Knowledge Terrains

Arguably, then, "the value of science and scientific truth is understood to be under threat, a consequence of identity politics that is underpinned by discourses of legitimisation that characterise the post-truth era" (Tomaselli 2024, 72). This era is characterised as one "whereby objective facts have lost their currency in political and public debate" (O'Callaghan 2020, 339). Commenting about scientific endeavours, Mike Lambert (2016, 63) says: "Scientists need to guard against the abuse of the scientific process, which occurs when they publish in predatory journals. There also needs to be a concerted effort to educate non-scientists on how to understand scientific claims." In context, then, the integrity of scientific research is endangered by opening debates that aim to question and thus reshape truths. The established scientific norms and science policy, which underpin sound knowledge ethics, are also at risk from overt and covert malpractices. A case of the former is the predatory publishing ecosystem, which continues to attract outcry among the academic society for promoting unsound scientific practices in knowledge production, thus compromising the shared expectation for standardised methods of realising scientific truths. The verdict is that such work should be shunned by academic journals and should never be cited as a valid source of knowledge. The latter is, however, taking place in a more subtle way, posturing as a benefit while equally advancing predatory practices in the methods of scientific

knowledge production. Here, the overreliance on AI tools would be a case in point. Its adoption channels all artificial thinking through a centralised database, which has no real-time awareness of the needs of the real world, nor can it distinguish between fact, fiction, and the faked. Further, its misapplication through generative capabilities would harm the original purpose of knowledge production, understood as the development of higher cognitive and critical thinking skills on the learner's side.

One of the principles of the Africa Research Charter states: "Collaborations must actively redress the multi-layered underlying power imbalances that arise through the dominance of 'Western' epistemologies, languages, theories and concepts, and the development framework employed in the knowledge generation in/for/about/with Africa" (Association of African Universities 2021). This is mirrored in the ASSAf key objective: "to promote and apply scientific thinking in the service of society" (ASSAf n.d.). These aspirations are representative of the high regard for knowledge production, and the integrity of the pertinent processes, some of which are entrusted almost exclusively with the University. These include training young scholars to become proper researchers in the service of humanity. Here, we will propose notable practices that advance post-truth paradigms in the scientific knowledge enterprise: the entanglement of the university with national politics and the shift in focus from advancing knowledge systems to economies of knowledge production, in particular.

The former comes as a call for universities to generate "new knowledge"—"new" being an add-on parameter that rationalises *the* knowledge. It could mean knowing something for the first time, or knowing something in an original way, or talking about something differently, or going to a new place to know the same thing, and so on. Postgraduate scholars liberally interpret the term "new" in many ways, often leading to narrow and incomplete interpretations of phenomena, even at the post-doctoral level. It is also the case that the publishing world is overwhelmed by all "new" knowledge being produced, as journals receive many different versions of this interpretation. Clearly, it would be more helpful to locate the "new" in the knowledge producer rather than the product, as the latter is increasingly being detached from the former through new parameters of truth or new artificial writing tools.

In South Africa, this has taken the form of an enduring tussle between caution against ambitions in restructuring university education towards indigenous knowledge (Green 2009) and calls for curriculum indigenisation and decolonisation (Knowles et al. 2023). These irreconcilable positions have tended to prioritise "what" should be taught in universities and "how" it should be taught, a prescription that may burden the scope of the "new" knowledge as it leans towards the larger national debates. To put this into perspective, we can revisit the Observatory Magna Charta Universitatum (2022), one of whose key pillars is quoted below:

The university is an autonomous institution at the heart of societies differently organised because of geography and historical heritage; it produces, examines, appraises and

hands down culture by research and teaching. To meet the needs of the world around it, its research and teaching must be morally and intellectually independent of all political authority and economic power. (2)

Thus, a university caught between its obligation for cultural succession and political interests is trapped by the risk of entropy, as this fixation overshadows the need for knowledge integrity and legitimacy. This scenario also sets up an important probe: how the entanglement of the university policy with national politics may interfere with the former's intellectual mandate.

On the latter, the university policy now prioritises knowledge products as commercial entries. The demands for productivity and the systems created for incentivising constant and superfluous publishing have created a scenario where the focus is on meeting the quota of publication points, which is necessary for the university to meet its economic baseline. This is also a case where emphasis on economic benefit overrides the knowledge agendas associated with the universities of before, where funding would be through government endowments and such. The new cohort of researchers, determined to capitalise on the windfalls associated with high publication points—including monetary compensation and career mobility—have caught up with the system. One can easily plan one's productivity to register a positive entry in the corresponding performance indicator, and the equation seems to balance as universities also benefit economically from this arrangement. As we appreciate this mutually demanding scenario, we also use the occasion to highlight that this is producing a new research culture of massification and artificialisation of publications rather than the actual production of usable knowledge. Our claim is grounded on the reality of rapid iteration and deployment of AI tools to aid this massification by substituting the human researcher with algorithm-based writing software.

AI Ecosystem and the Academic Enterprise

In Africa, many countries are still in the early stages of formulating policies on how to approach AI and the role it should play in, among other sectors, education. South Africa's National Artificial Intelligence Policy Framework (DCDT, Republic of South Africa 2024) and Rwanda's National AI Policy (MINICT, Republic of Rwanda 2022) are useful examples. In the continental context, AI usage, especially in the education sector, has come with caution. The African Union's Continental Artificial Intelligence Strategy (2024, 39) states: "AI must also not threaten teachers' rights and undermine learners' thinking processes and creativity, which in turn negatively affect innovation. Africa is a young continent where innovation plays a central role in establishing an African-owned and African-driven solution." It further gives a fuller scope of adapting AI in the education sector:

AI is being integrated into Tutoring Systems (ITS), which tailor and present learning content and personalised learning pathways based on data-informed analytics and learning processes. There is also a potential to use AI for assisting students with

disabilities, but the design and development of assistive algorithms and AI tools must be incentivised. Examples include voice assistants that allow students with reading difficulties to search for books using only voice commands, AI-powered screening tools that can help identify dyslexia at an early stage, and AI and augmented reality applications that can help children with hearing difficulties to read by translating text into sign language. AI applications have the potential to support administrative tasks for teachers, such as automating the recording of attendance, marking assignments and using chatbots to repeatedly answer standardised questions. (39)

These are largely assistive roles where AI is foreseen to enhance the learner experience and modes of delivering knowledge. There is also an emphasis on training human capital in computer skills to produce or support AI infrastructure. Primary schools should focus on “introducing basic coding, foundational mathematics, logical and critical thinking, and utilisation of basic open source or robotics” (39–40); secondary schools should “integrate coding and AI into the curriculum. Children should be taught computational thinking, coding, applied logic and creative approaches to problem-solving” (40). In higher education, this means “integrating AI into computer science and mathematics education and establishing advanced research in various AI domains” (40). From the above, Africa foresees itself becoming future-ready by producing foundational manpower to enhance the study and production of AI tools for its markets and needs. Beyond this, the AI document remains vague on the specifics of AI adoption *in the process* of knowledge production.

South Africa’s Council on Higher Education (CHE) (2024) has dedicated a lengthy document to discuss AI in education. The contributors to the Council on Higher Education’s journal (2024) debate the question: What exactly should AI do in an educational setup? In the foreword, Whitfield Green (2024), the Chief Executive Officer, states:

[A]s a human tool, the value of AI to human beings depends on how it is used. When a tool of any kind is used whimsically without following rules or protocols of its proper use, it could cause harm to the user and other human beings. As a tool, AI is no exception to this fact of life. When it is employed in any human activity without following rules or protocols, it may pose risks to human beings and compromise the values that human beings hold dear. (3)

This perspective does not differ from the ideals advocated by the African Union’s Continental Artificial Intelligence Strategy (2024). Both high-level institutions central to formulating AI policy in Africa agree that AI should be used to improve teaching and learning but are reluctant to have AI become *the* researcher or intrude into the framework of scientific research methods. But there are still dissensions over this. Olutoyin Olaitan (2024, 25) advocates for AI adoption as an assistive tool “to address specific issues related to equity and inclusive access, such as language barriers, infrastructural challenges, and remote learning opportunities”. Olaitan further highlights a lengthy rota of AI assistive roles in educational setup (28–30) and its shortcomings in

these roles (31–32). Pro-generative AI advocates suggest customising AI text output “to fit your situation” (Makina 2024, 126) as a workaround for its possible interference with critical thinking. Elsewhere, there is an outright campaign for allowing generative AI for its “utility in enriching various facets of critical thinking, such as academic research and theory scrutiny” (Darwin et al. 2024, 1).

Yet, the AI ecosystem emerging today significantly deviates from the anticipated usage envisioned in the African Union’s Continental Artificial Intelligence Strategy, or South Africa’s Council on Higher Education, among other bodies. Instead, AI has found many applications in aiding academic research and writing rather than supporting the learning process.¹ There are applications touted to find research gaps,² mind-mapping,³ database-focused AI,⁴ search engines for researchers,⁵ reading assistants,⁶ chat-based PDF access,⁷ notes-to-audio conversion,⁸ thematic clustering,⁹ writing assistants,¹⁰ text generative AIs,¹¹ data analysis,¹² text-to-graphs/charts conversion,¹³ literature aggregation and review,¹⁴ citations,¹⁵ referencing,¹⁶ copyediting and proofreading,¹⁷ and even mock peer review.¹⁸ But even with all these promises of optimised research ecology, with numerous technical possibilities specifically tailored to attend to the research needs at different levels of research, AI, it turns out, has spawned a new unforeseen problem.

A SWOT analysis of ChatGPT reported as follows:

[Its] strengths include using a sophisticated natural language model to generate plausible answers, self-improving capability, and providing personalised and real-time responses. As such, ChatGPT can increase access to information, facilitate personalised and

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- 1 The examples that follow are derived from the X posts of Mushtaq Bilal, PhD (@MushtaqBilalPhD) as of 4 February 2025. They appear in this article not necessarily in the order they appear in Bilal’s post. Our citation of these tools is not an endorsement.
 - 2 Research Kick Start
 - 3 ClioVis
 - 4 Undermind, The Literature, Research Kick Chart, Search Smart, OpenScholar, OpenRead, and Storm
 - 5 OpenRead, Semantic Scholar, The Literature, Scite Assistant, Sourcely, Evidence Hunt, Lumina, Consensus, OpenScholar, Scinapse, System Pro, Search Smart, Undermind, and Storm
 - 6 SciSpace Copilot, Scholarcy, JSTOR AI Research Tool
 - 7 ChatPDF, NotebookLM, SciSummary, AskYourPDF, and Humata
 - 8 AudioPen
 - 9 Lateral and My RA
 - 10 Yomu, Jenni, and Unriddle
 - 11 Google Gemini, Claude, Microsoft Copilot, ChatGPT, Perplexity, Pi, Qwen, and Deep Seek
 - 12 Julius
 - 13 Napkin AI and Map This
 - 14 Elicit, Dimensions, Keenious, Litmaps, Inciteful, SciSpace, Research Rabbit, R Discovery, and Connected Papers
 - 15 Scite
 - 16 Mendeley, Zotero, EndNote, and PaperPile
 - 17 Paperpal
 - 18 Paper Wizard

complex learning, and decrease teaching work-load, thereby making key processes and tasks more efficient. The weaknesses are a lack of deep understanding, difficulty in evaluating the quality of responses, a risk of bias and discrimination, and a lack of higher-order thinking skills. Threats to education include a lack of understanding of the context, threatening academic integrity, perpetuating discrimination in education, democratising plagiarism, and declining high-order cognitive skills. (Farrokhnia et al. 2024, 460)

The strengths and weaknesses all point to the tool's performance towards realising human-like cognitive productivity. As such, the reference is not on training its users to become better researchers but on training the tool to pass off its output as if it were written by a human. The identified threats give a better overview of the problems associated with using AI tools, especially how they dull one's cognitive skills and promote outright plagiarism. Further down the scientific knowledge channel, these threats create another problem: how to evaluate AI content as if it were real research knowledge. In her SWOT analysis of AI use in an academic knowledge production scenario, Roohi Ghosh (2024) states:

“Should the role of peer review be to catch AI-generated text?” Peer reviewers are expected to contribute to the science—to identify gaps in the research itself, to spot structural and logical flaws and to leverage their expertise to make the science stronger. A peer reviewer's focus will get diverted if instead of focusing on the science, they were instead asked to hunt down AI-generated content; this in my opinion dilutes their expertise and shifts the burden onto them in a way that it was never intended.

This statement ushers us to the risks generated by the trends in the AI ecosystem in the education sector, where instead of focusing the technology on assistive roles to improve learner experience, it is displacing the learner and starting to do their role of academic research and writing. Indirectly, such generous use of AI in the knowledge production process means we have outsourced the essential parameters of education, namely educating learners to become experts and knowledgeable, to the service of society, to an AI infrastructure whose front end is a computer in front of the would-be learner. Downward, the same duo—an AI tool and the possible learner—will occupy the precious time of human peer reviewers, who will then have to abdicate their role as scientific experts and instead become AI spotters. It is arguable that if the peer reviewer is to maintain the integrity of the scientific knowledge production process, which is their primary pro bono role, they must weed out all AI-written content. In the process, they would stop being peer reviewers for the cheating author. They will peer review an AI tool that is not enrolled in any university for any qualification, and that does not care about the grade, nor does it have a name that might appear in university records.

The call for an ethical declaration of AI usage carried by publishers and institutions does little to help. AI content cannot be “transparently declared as such” (Pieterse 2024, 3) without one admitting to plagiarism (in the sense that the work is not your original effort but that of an AI tool). It is arguable that such transparency, even if achieved, will do

nothing to safeguard the dangers of AI to authentic knowledge creation in higher education institutions, and especially to the loss of research potential among scholars who will outsource their research tasks to the AI tool. What is at stake is the disintegration of the rationale of the scientific knowledge process as human scholars waste their time overturning mistakes caused by AI in complicity with the human author. Ghosh (2024) summarises this situation thus:

The aim of AI is to ensure that there is more time for innovation by freeing our time from routine tasks. It is a disservice if we end up having to spend more time on routine checks just to identify the misuse of AI! It entirely defeats the purpose of AI tools and if that's how we are setting up processes, then we are setting ourselves up for failure.

This misapplication of AI would lead us to Martin Hall's (2009, 69) question: "What forms of knowledge have legitimacy in the contemporary university?" We also add a couple of our own questions, too. Can AI legitimately contribute to knowledge production, theory, methods, or fresh perspectives pertinent to local awareness? Can it brainstorm through the perspective of the local scholars and arrive at data that is helpful, or even usable? Does its rhetoric of knowledge supersede its foundational flaw, namely, a Western-centric worldview trained on the existing material, which has already attracted attention over its biased view of, especially, the so-called global south? To put this into perspective, once an AI-created article is published, the AI tool will confer its publication points to its user, who will then claim the benefit from the university.

In the respects noted above, AI is both a thorny issue and also a stepping stone towards research/knowledge in Africa today. The problem is foremost that AI is not independently culture-aware beyond the language base from which it evolves. It comes cultured with notions of identity, global hierarchies, power struggles, and any aspect of humanism that defines global differences today. AI thus easily inherits the point of view of its creators, mostly in the global north, which sustains rather than abolishes hierarchies in cultural concepts and knowledge production. It does not serve the Africa-oriented knowledge production and, in fact, negates the official aspirations of its adoption in African educational institutions as captured in the African Union's Continental Artificial Intelligence Strategy (2024). The step is that in this realisation that AI cannot know Africa beyond the prism of its creators, we begin to acknowledge the need to be AI-free in our knowledge endeavours. This would mean humans thinking for themselves, about themselves, and tapping into their cognitive awareness and rationalism to actually develop knowledgeable humans rather than massified and retooled machines tutored on large language models.

It is not an exaggeration to say that as AI becomes smarter, the researcher relying on it will become correspondingly uninterested in mastering the authentic method of learning or becoming knowledgeable. The lifespan of contemporary published research is often short. This has been realised because of the kind of research being produced, as well as the kind of thinkers who exist in our times. As AI continues to be misapplied in higher education, the situation will become more complicated. We are in an era where anyone

skilled in brief AI prompting and with access to the latest AI models and some subscriptions can generate whole articles (perhaps even a book). They do not need to know anything about the academic field in which these articles are situated; when the above minimums are met, AI will do the rest and produce the submission-ready document. It is thus not trivial that AI is taking over the cognitive learning aspect of knowledge production. What is at stake is the age-old tradition that produced philosophers and scholars of high calibre, that produced highly knowledgeable scholars, and rationalised prolonged mentorship as a requisite for achieving not only experience but mastery—all things which AI-oriented scholars may not achieve.

Our rationale in writing this document is that the cognitive tediousness in producing knowledge, the repetitive labour of reading books, generating ideas from that reading, and writing your work (on paper, typewriter, or word processing software)—all these ingredients are not tangential to the process of knowledge production; they are its essentials. That sweat and exhaustion endured as one thinks and presents this thinking on paper are not just a process of all human epistemological endeavours; they are its rationale.

Conclusion

Philip Kitcher (1990, 7) asks:

Does the sophisticated work in history of science not reveal to us that there are numerous cases in which equally reasonable people may disagree about the merits of rival theories, perhaps because they have different ideas about the significance of different problems or about the appropriate criteria for solving those problems?

We cite this question to ground a common understanding that we are not anti-AI, but we hold an alternative view to its merits and risks in knowledge production. We thus state this to clarify the notion that may occur from reading this article: that we oppose the great achievements and breakthroughs of automating different aspects of the human world including in academic research and writing, which AI tools have brought about. On the contrary, we are very positive that these tools, used properly and without disrupting fundamental or core principles of academic research as a knowledge process, would make the research process efficient and offer contemporary advantages to an extent not seen before. Our interest has been to highlight the nexus between AI adoption and the university's knowledge production obligations, and in the process, we have had to highlight the limits of AI as a knowledge production tool. We propose that by automating certain core tasks necessary for knowledge production (replacing the process of cognitive processing of information, replacing the human as a student with AI as the student, short-tripping the culturally aware and progressive effects of mastering knowledge production), AI has dulled or compromised the legitimacy of AI-assisted scholars as true knowledge producers. What it does is open an ecosystem that promotes knowledge-lifting through, for instance, aggregating algorithms at the expense of the individual developing into a proper researcher. There is no last word on what AI

can and will become and how this will impact the knowledge ecosystem. It is a debate in which we do not claim absolute know-how or exclusivity, but one we feel adding our voices will benefit today's academic stakeholders. We caution against reverse-engineering research through database-driven knowledge, such as advanced AI. To echo Ghosh (2024), "The challenge presented before us is much more than just catching AI-generated content; it's about reimagining the future" or meaning of the university knowledge enterprise today.

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