

EDITORIAL

CHEMISTRY EDUCATION IN AFRICA IN THE AGE OF AI

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Dear AJCE Community,

Chemistry education in Africa finds itself at a crossroads. The emergence of advanced digital technology and generative artificial intelligence is not simply an evolutionary step; it is a revolution—a change in the very fabric of what we teach, learn, and consider to be "chemical knowledge." Rather than dismissing these advances with a healthy dose of cynicism, as is the case in most African educational systems, we must engage with them and their incredible potential.

We can imagine AI systems that transcend the ability to display static images and instead allow students to explore and manipulate variables in real-time, allowing them to experience quantum mechanics and reaction kinetics that were previously relegated to textbook examples and approximations. We can also consider AI systems that serve as a tireless learning assistant—helping students through problem sets, creating an infinite variety of exercises on basic concepts such as stoichiometry and spectroscopy, and providing immediate and individualized feedback. This allows instructors to break free from these tasks and focus on what we consider to be the most important aspects of our profession: encouraging scientific thinking, critical analysis, and artistic experimentation in the laboratory.

Chemistry educators in Africa should engage themselves in the development of eLearning chemistry content development, and eAssessment in chemistry that are appropriate to the pace and learning styles of their students. These contents could be converted into interactive multimedia formats using AI-powered tools such as Articulate-360 and iSpring Suite. These tools help to create personalized learning and adaptive assessment in chemistry education.

Yet this promise is also accompanied by tremendous responsibility. We have to ensure that our students learn to think critically about the content generated by AI—about the "hallucinated" mechanisms that may be at play, and about the outputs that they produce in relation to the principles of chemistry. We don't want our students to be dependent on AI; we want our students to be discerning collaborators who can harness AI as a tool for generating hypotheses.

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