Empower Uganda's learners for science-based future

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Peer-led experiments offer platforms for youth to co-create

On January 23, the world commemorated the International Day of Education under the theme: *The Power of Youth in Co-creating Education.* For Uganda, the day was both a moment of reflection and a call to action.

This year's theme underscored a powerful truth that young people are not merely beneficiaries of education systems, but architects of their future. With over 75% of Uganda's population under the age of 30, this reality carries profound implications, particularly for science education, which remains central to national development, innovation and economic transformation.

Science education equips learners with critical thinking skills, problem-solving abilities and the capacity to innovate; urgently needed to address Uganda's challenges in health, climate resilience, food security and technology. Yet, despite its importance, science education in Uganda continues to face persistent obstacles that demand collective responsibility from schools, government, civil society and development partners.

WHERE ARE SCIENCES FALLING SHORT?

Across many schools in Uganda, one will realise that science teaching remains largely theoretical, constrained by limited laboratory infrastructure, inadequate hands-on teaching materials and overburdened educators. Studies have shown that learners struggle to grasp scientific concepts when practical experimentation is absent, leading to low confidence and poor performance in national examinations. These challenges are more pronounced in rural and under-resourced schools, deepening educational inequality.

It is also important to note that gender disparities further complicate the picture. Girls remain under-represented in science pathways, particularly at higher levels of education, due to cultural norms, limited mentorship and unequal access to resources. Without deliberate intervention, Uganda risks losing a generation of lucrative scientists.

WHAT SHOULD SCHOOLS DO DIFFERENTLY?

To improve science outcomes, schools must move beyond rote learning and embrace experiential, learner-centred approaches. Science must be taught through observation, experimentation and inquiry methods that allow learners to engage with real-world problems and develop curiosity. Equally important is teacher empowerment. Continuous professional development, peer learning and mentorship can help teachers translate theory into engaging classroom practice. When teachers are confident and well-equipped, the learners thrive.

Schools must also recognise learners as partners in learning. Science clubs, innovation hubs, peer-led experiments and learner-driven projects offer powerful platforms for youth to co-create knowledge and take ownership of their education perfectly aligned with UNESCO's 2026 theme.

ROLE OF STAKEHOLDERS, CIVIL SOCIETY

Civil society organisations, private sector players, parents and community leaders can bridge resource gaps, support innovation and advocate for inclusive education policies.

From the example, at River Flow International, our work demonstrates how partnerships can meaningfully transform classrooms. Through the provision of the new approach primary science kits, which are mini-laboratories for primary schools containing models, practical teaching aids and other unique instructional materials, we have enabled thousands of learners in 2,753 primary schools to experience science practically rather than theoretically.

In collaboration with the Ministry of Education and Sports, we have supported teacher training initiatives that enhance lesson delivery, improved learner engagement and boosted confidence in science instruction. Such models show that when resources are paired with training, impact is multiplied.

Through these partnerships, we see what is possible when commitment meets collaboration. The task ahead is to scale these efforts, deepen youth engagement and ensure that every learner, regardless of gender or geography, has access to quality, practical science education.

The writer is a communication specialist at River Flow International