

East Africa STEM Stakeholder Workshop Report

Introduction

The virtual stakeholder co-creation workshop, held on February 23, 2024, was a collaborative effort between the Inter-University Council for East Africa (IUCEA), the African Population and Health Research Center (APHRC), and the University of Johannesburg (UJ). The workshop brought together stakeholders focusing on Science, Technology, Engineering, and Mathematics (STEM) within the African continent's higher education ecosystem. The stakeholders shared invaluable reflections and insights to help shape the research framework of the Pedagogies of Inclusion project supported by the International Development Research Center (IDRC) and being implemented by APHRC and UJ. With a vision of leading the nurturing of a common higher education area for a prosperous and sustainable East African Community, the IUCEA promotes mutually beneficial collaboration between member universities and with governments and public and private organizations.

Outcomes of the Thematic Discussions

Reporting On Student Success in STEM

1. There is need to analyze student success from enrollment to graduation, with a specific focus on gender disparities.
2. Kenya Certificate of Secondary Education (KCSE) results are disaggregated by sex.
3. In Tanzania, the Maasai community is providing free science education, focusing on preparing 200 women for higher education.
4. The Association of African Universities (AAU) possesses gender enrollment data and recognizes and awards prizes to the most exceptional female medical student.

Policies Regarding Women and Inclusion

1. The University of Rwanda offers scholarships heavily favoring STEM subjects to address the low participation of women.
2. Rwanda and Uganda have a national gender policy aimed at promoting gender equality and inclusion in various sectors, including STEM.
3. The Tanzania Commission for Universities (TCU) mandates a STEM policy requiring every university to establish a gender unit to address gender issues within STEM.
4. The Handbook for university education in Tanzania, 3rd Edition, Section 13, emphasizes gender sensitivity and equity, supporting gender inclusion and equity in STEM education initiatives.
5. Some countries indicated that gender mainstreaming efforts are in place to ensure adequate representation of women in STEM programs.
6. Some countries indicated that gender-based violence policies are implemented to safeguard students in STEM courses.
7. Student support policies encompass psycho-social and career support for all students, though not exclusively focused on women in STEM.

Literature on Women, Inclusion, and Pedagogy

1. The Open University in Tanzania has established a gender unit to provide advice on gender-related matters, with literature accessible through platforms like Open Education Resources (OER) Africa.
2. Kabianga University in Kenya has a gender mainstreaming unit that facilitates meetings, provides advice, and shares reports and materials on gender issues, including data on gender inclusion.
3. In Ethiopia and Kenya there are programs that support the involvement of females in medicine in Ethiopia and the Kenya.
4. Studies in STEM areas exist, but the challenge lies in how they are captured or published.

Innovative Practices Around Women, Inclusion, Pedagogy, and STEM

1. E-learning platforms significantly contribute to women's inclusion in STEM education, particularly in Tanzania, by offering flexibility compatible with family and caregiving responsibilities.
2. Technology integration into STEM learning has been shown to enhance academic performance.
3. Self-paced learning methodologies, alongside inquiry-based approaches like the 5E instructional model, ensure equal opportunities for both males and females.
4. Encouraging women's participation in STEM; increasing their involvement in defining research areas; and providing mentorship from senior professionals. Uganda and Rwanda are commendable for their leadership in fostering gender representation.
5. Elevating the visibility of female role models in STEM fields to motivate young women to pursue STEM careers.
6. Institutional grants specifically allocated for women in STEM fields.
7. Initiatives such as STEM fairs, exemplified by the Kenya Science Engineering Fair,
8. Organizations like the Rwanda Association for Women in Science (RAWISE) actively support and encourage girls and women to pursue careers in science.
9. Ensuring the inclusion of persons with special needs in STEM subjects
10. Affirmative action policies, such as the gender rule, are enshrined in the constitution.

Challenges regarding inclusion/exclusion of women in STEM in HEIs

1. Lack of awareness about diverse STEM career opportunities reduces girls' motivation to pursue STEM education.
2. Patriarchal and class dynamics reinforce gender stereotypes, which discourage girls from entering STEM fields.
3. Gender stereotypes that associate STEM with masculinity deter girls from pursuing or completing STEM careers/courses.
4. Socioeconomic barriers include pregnancies, peer discouragement, marriages, financial constraints, and societal misconceptions about gender-specific educational approaches.
5. Inadequate government and institutional policies perpetuate gender disparities in STEM education.

Stakeholders Demographics Summary

Attended vs Registered

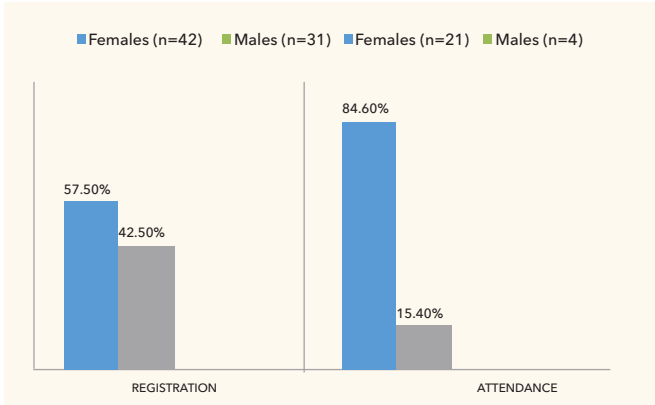


Figure 1: SARUA stakeholder workshop registration and attendance by gender.

Profiles of the stakeholders

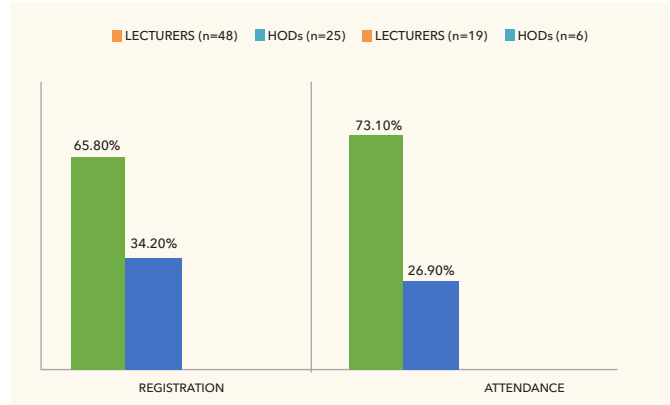


Figure 2: IUCEA stakeholder workshop registration and attendance

Countries represented

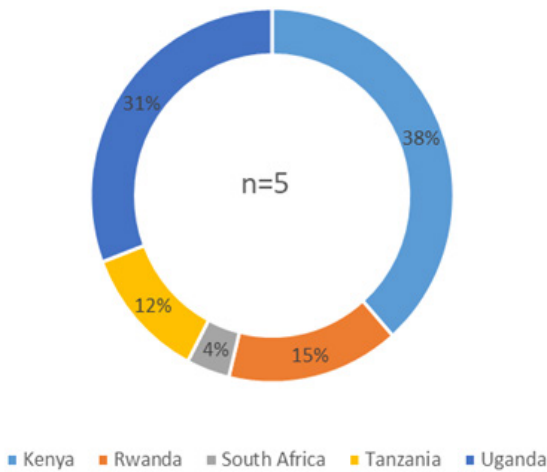


Figure 3: IUCEA stakeholder attendance by country

Way Forward

In collaboration with IUCEA, we look forward to continued engagement and inclusion of stakeholders' voices in successive stages of the research process, with validation of findings at the end of the project. The ultimate aim is to build a collaborative research agenda and develop communities of practice with the stakeholders, including practitioners and policy makers, on how pedagogical practices can address issues of social exclusion, particularly gendered exclusion, in STEM disciplines in Africa's higher education institutions.

The IUCEA workshop was part of a series of regional virtual stakeholder co-creation workshops. The other workshops were held in collaboration with the Association of African Universities (AAU) across the continent, the Southern African Regional Universities Association (SARUA) in Southern Africa and the Association for the Development of Education in Africa (ADEA) in Western Africa.

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