

Educational Pathways for Unlocking the Participation of Women and Girls in Science: Lessons from Zimbabwe's Women's University in Africa

Sunungurai Dominica Chingarande, Tenson Muyambo and Wonder Muchabaiwa

Introduction

Science is identified as one of the vehicles towards the realisation of Zimbabwe's 2030 Vision. The vision also identifies gender equality, a human right and a foundation for peaceful, prosperous and sustainable development, as an enabler and key driver of this vision. To this end, inclusive science initiatives are recognised as fundamental for Zimbabwe's industrialisation agenda. The situation on the ground, however, is that although women have achieved near-parity in several fields of study in the social sciences and humanities, there remain gaps in Science, Technology, Engineering and Mathematics (STEM) disciplines globally (National Science Foundation, 2011). In Zimbabwe, women remain underrepresented among STEM graduates, with 19% of women holding STEM degrees compared to 81% of men (World Economic Forum, 2016). The participation of women in STEM disciplines tends to be hampered by the deeply entrenched patriarchal and cultural norms and practices that can undermine women's agency and perpetuate the perception of women as subservient. Furthermore, the gap is exacerbated by negative stereotypes and the lack of role models, lowering girls' performance, aspirations vis-à-vis science and technology, covert discrimination, implicit biases and career preferences (Gudyanga,

2016). Unfortunately, societal constraints can and do force women to make ‘choices’ that often lead them away from STEM fields.

In 1995, the Government of Zimbabwe implemented an affirmative action admission policy to facilitate women’s entry into public universities. This policy lowered the advanced-level points necessary for females to gain admission to public higher education institutions in the country. At that time, only 25% of enrolled students were women and in 2021, 54% of enrolled students were women. However, only around 20% of enrolled students in STEM disciplines were women (UNESCO-IELSALC, 2021) despite the government providing scholarships for females enrolled in STEM disciplines.

In trying to address persistent barriers to women’s participation in higher education and STEM disciplines, women’s universities have been established globally, including Hunan Women’s University in China, Kiriri Women’s University of Science and Technology in Kenya, Philippine Women’s University and Ewha Woman’s University in Korea, among others. Kiriri Women’s University is a women-only university, Philippine Women’s University was exclusive to girls until the 1970s when it started to admit boys, Hunan Women’s University and Ewha Woman’s University admit both girls and boys. In Zimbabwe, the continued gender disparities in higher education and the STEM disciplines saw the founding of Women’s University of Africa (WUA) in 2002, with the specific mandate of addressing gender disparities in education.¹

WUA has policies and practices in place that deliberately promote diversity and inclusion to ensure that barriers to women’s access to education in all fields are addressed. However, since its inception, no comprehensive study had been conducted to interrogate WUA’s experiences and the effectiveness of its measures to mitigate or eliminate systemic barriers to the greater participation of women and other underrepresented groups. Further, to date, no work has been done to increase diversity of personnel in science fields; hence we conducted this study between 2020 and 2023 to answer the following research questions:

1. To what extent has WUA addressed systemic barriers to the participation of women in STEM?
2. How effective are the gender-mainstreaming strategies implemented by the University?
3. What is the role of multi-stakeholder partnerships in fostering inclusive educational pathways?

1 “Addressing gender disparity and fostering equity in university education” (<https://www.wua.ac.zw/>).

The findings of the study, which inform this chapter, are discussed in detail below.

Methodology

The mixed-methods research project was implemented in two phases over 36 months. Following a qualitative research design with descriptive quantitative elements, the first phase focused on data collection for 12 months from January to December 2020; while the second phase (24 months), from January 2021 to December 2022, used the results to design, implement, monitor and evaluate the results.

Phase 1: Data collection and analysis

The project targeted people knowledgeable in the University's programmes and initiatives who could testify to the measures taken, their effectiveness as well as recommend strategies for inclusive STEM programmes. These included WUA alumni, students, staff and university partners. These participants were notified about the study via email and over the phone.

The project had proposed to design and administer two questionnaires to current and former WUA students as well as to faculty staff that included selected female and male lecturers, staff in the Registry department, key administrators in the University and programme coordinators. The purpose of the student questionnaire was to gather their views and perceptions on their experiences at WUA and its engendering agenda, with a particular focus on STEM. The staff questionnaire was intended to gather data on the extent to which gender mainstreaming and inclusivity have been internalised and enacted by staff, and on the development and delivery of gender-sensitive programmes and services. Overall, the staff questionnaire included information about infrastructure and equipment, mechanisms, practices and attitudes that have made a positive contribution to mainstreaming gender and the promotion of women in STEM at WUA. The questionnaires were also intended to gather staff perspectives on the extent to which policies are gender-sensitive and promote women in STEM, staff gender balance at WUA, the challenges faced and the interventions being implemented to improve the institution's ability to address the barriers to women's participation in STEM, among others.

We also brought together WUA alumni for focus group discussions (FGDs). A total of 19 alumni were interviewed, 9 males and 10 females. The research team resorted to individual virtual discussions with the alumni. This meant

that those who lacked access to digital platforms were automatically excluded from the study.

The key stakeholders interviewed virtually included representatives of UN Women, UNESCO, Forum for African Women Educationalists Zimbabwe (FAWEZI), Education Coalition of Zimbabwe (ECOZI) and the Ministry of Primary and Secondary Education (MoPSE).

Key informant interviews with WUA staff were held in person while interviews with the rest of the study's participants were done virtually. At WUA, key informant interviews were conducted with 12 senior administrators. In addition, 14 full-time lecturers in science programmes were also interviewed.

FGDs were conducted with STEM undergraduate and postgraduate students in science programmes at the Harare and Marondera campuses. Undergraduates were separated from postgraduates to allow for unfettered discussions. The groups combined both male and female students. Each group was made up of between eight and nine participants. In total, seven FGDs were conducted with a total of 107 students, 65 females and 42 males.

Thematic analysis was the primary analytical approach for the qualitative data (Caulfield, 2023). This allowed us to identify, organise and categorise themes in the transcripts. This process involved identifying the major themes in the data, based on the study questions and objectives. Thematic coding allowed us to ensure the qualitative analysis remained focused on the study objectives, while also remaining flexible enough to capture emerging themes in the data. Results interpretation considered key themes, who raised certain themes (i.e. students, staff or alumni) and relationships that exist between themes that helped us answer the study questions.

Quantitative data from the staff questionnaire were cleaned and entered into Microsoft Excel for analysis. COVID-19 containment measures resulted in a low questionnaire response rate with only 17 completed questionnaires. Descriptive analysis was therefore conducted to capture perceptions on the commitment to gender equality within the University, staff capacity to mainstream gender, awareness of the existing gender equality policy framework and gender responsiveness of the University infrastructure and facilities, among others. Results are outlined in the following sections.

Phase 2: Implementation, monitoring and evaluation

Using the results from Phase 1, the research team worked with WUA management to design intervention measures for inclusive STEM programmes at the University as well as to devise action plans for implementation. For this

second phase of the project, physical monitoring visits to the University were conducted, complemented by regular virtual monitoring calls to members of the Gender Equality Committee. The purpose of the monitoring visits and calls was to measure the progress of implementing the action plan developed by the Gender Equality Committee. Two years were dedicated to implementation, monitoring and evaluation. The research team monitored enrolment intakes (August 2021, February 2022 and August 2022) to establish the enrolment statistics of women in STEM fields and the number of STEM-related programmes available at WUA, as well as changes in policies and practice at WUA. The following section overviews the findings of the study and subsequent intervention measures. The implementation, monitoring and evaluation of intervention measures is discussed.

Findings from Phase 2

Policy transformation

A progressive policy environment for promoting gender equality is critical to reduce the conditions that hinder such equality (Hervías Parejo & Radulović, 2023). According to Hervías Parejo and Radulović (2023), policies may have a major impact on gender equality and attaining equal access to opportunities, resources and rights for women, men and other identities. The Government of Zimbabwe has provided a conducive normative framework for the promotion of gender equality. Section 56 of the Constitution of Zimbabwe guarantees the right to equality and non-discrimination. It highlights that all forms of discrimination on the basis of sex, gender, marital status, custom, culture, pregnancy and disability are not permitted. In addition, Section 80 specifically outlines women's rights. It states unequivocally that all laws, customs, traditions and cultural practices that infringe on the rights of women conferred by the Constitution are void to the extent of the infringement. In addition, in the Government of Zimbabwe's (2020) National Development Strategy (NDS1) 2021–2025, gender equality is a cross-cutting issue. Zimbabwe has also ratified the following continental and regional protocols:

- The African Charter on Human and Peoples' Rights was ratified in 1986. The Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (the African Women's Protocol) was signed in 2003 and ratified in 2008.

- The African Union’s Agenda 2063, which commits to ending all harmful social practices and removing all barriers to women and girls’ access to quality health and education.
- The SADC Protocol on Gender and Development, which calls for gender equality and equity in constitutions and seeks to ensure 50% representation of women in all decision-making positions in the public and private sectors through affirmative action measures.

At the international level, Zimbabwe is party to the following:

- The 2030 Agenda for Sustainable Development, under which Zimbabwe prioritised 10 of the 17 goals, including Goal 5 on achieving gender equality and empowering all women and girls.
- The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), ratified by Zimbabwe in 1991. By accepting this convention, Zimbabwe committed to incorporating the principle of equality between men and women into its legal system, abolishing discriminatory laws and adopting appropriate laws that prohibit discrimination against women.
- The Beijing Platform for Action and the Beijing +20 Review, which seek to address women’s lack of empowerment and human rights violations through comprehensive laws and policies, as well as transformation of both formal and informal institutions, to achieve gender equality and the full realisation of women’s and girls’ rights.

Zimbabwe has made significant strides in amending and enacting legislation that promotes gender equality and women’s empowerment. Aside from the current Constitution, the country has passed 17 pieces of legislation to advance gender equality and equity objectives. Zimbabwe also made efforts to mainstream gender into its policies. The 2004 Public Sector Gender Policy put in place a system of gender focal points in all ministries and parastatals. In 2015, a Gender Commission was established, and commissioners were appointed in 2016. The country adopted its first National Gender Policy in 2004, followed by the second National Gender Policy in 2017, which aimed to eradicate gender discrimination and inequalities in all spheres of life and development. Furthermore, Zimbabwe has a Domestic Violence Act and a National Gender-Based Violence Strategy that seeks to address GBV through prevention, service provision to survivors of GBV, research, documentation, monitoring and evaluation of the impacts of GBV and coordination of current GBV interventions.

The commitments made by the Government of Zimbabwe all call for women's participation, the transformation of discriminatory practices and upholding women's rights. However, these international and regional conventions and protocols cannot protect women and girls in the manner intended because they are not fully incorporated into law via Acts of Parliament, as stipulated in terms of Section 327(2) of the Constitution.

Ideally, the objectives and approach for higher education institutions should be aligned with the principles and objectives enshrined in Zimbabwe's normative framework to increase the participation of women and girls in Zimbabwe. At WUA, a progressive policy environment plays a pivotal role in defining the University as a safe space for women and girls. At the time of implementing the study, the University did not have policies on gender, disability and human resources, nor an updated anti-sexual harassment policy that enshrined gender-equality provisions. These were developed in response to the recommendations of the study. These policies are important for effective mainstreaming of gender (Morley, 2010). They guide WUA in addressing gender issues in a structured and systematic manner and create more targeted opportunities for female students to take up science programmes. With the University's renewed focus on gender equality as a result of the study recommendations, all University policies were reviewed to ensure their alignment with the gender policy and to make them gender responsive. The revised human resources policy now provides for a compulsory gender module to be completed by all staff within their first two weeks of employment, as well as paternity leave.

That said, having policies in place is not enough to see impactful change in behaviour and practices that promote the participation of women and girls in science. The University also worked to raise student and staff awareness of policy provisions, enabling them to claim and enjoy their rights. In addition, a gender-equality implementation mechanism in the form of the Gender and Diversity Centre was established. This facilitated the reporting of any policy violations, and for the first time, a student reported a case of sexual harassment that led to the dismissal of a staff member and their subsequent prosecution.

In addition to policies, if any meaningful traction is to be realised in the participation of women and girls in science, University plans should be clear on this strategic direction with clear targets, actions, measurable results and a monitoring and evaluation plan. As a result of the study, WUA's Transformational Strategy has gender equality promotion as one of its strategic focus areas, under which the University envisages creating an institutional environment that is gender sensitive and promotes equal opportunities, spearheaded by the Gender and Diversity Centre. The targets are: (1) at least 50% of the decision-making

positions occupied by women; (2) at least 85% female student enrolment across all disciplines; and (3) implementation of a wide range of gender-sensitive policies and the creation of at least two functional networks for female scholars. Having such a plan (and a directorate whose performance is measured against a strategic focus area of the plan) has gone a long way to promote a conducive environment and action towards the increased participation of women and girls in science. One such action, aimed at realising 85% female enrolment across all disciplines, has been the establishment of the STEM Centre at the University. The Centre serves to encourage and prepare female high-school students to take up STEM subjects. Policy reform to promote gender equality is therefore imperative for transforming behaviour and practice in university education. Below, we outline three areas within WUA where changes could further improve gender parity in the University's STEM programmes.

Funding

A gender-responsive infrastructure is critical for unlocking opportunities for the increased participation of women and girls in science. A gender-responsive infrastructure calls for funds to support activities and initiatives that address the barriers affecting women and girls' access to university education. Our study revealed barriers that include gender roles and responsibilities, gender stereotyping, limited choice in science programme offerings, entry requirements, lack of female role models and a masculine environment, among others. To address these barriers, WUA has allocated resources for the following initiatives, which were well received by students:

- A mathematics bridging programme to support students without mathematics at Ordinary level who aspire to enrol in disciplines that require mathematics;
- The establishment of a daycare centre and a nursing-mothers lounge to support female students and staff that require such services. The WUA daycare centre was established to provide services to children so that their mothers can concentrate on their studies (Chingarande et al., 2023). This strategy is consistent with those in other countries, such as Nigeria, where a number of higher education institutions have childcare facilities on campuses to cater for the children of students and academics (Gaidzanwa, 2007). However, the daycare centre should be reconfigured to ensure that its calendar is aligned with the University's if it is to be effective in addressing the needs of female students and staff at WUA. The calendar

followed currently is that of the MoPSE, which is not in harmony with tertiary institution calendars. In addition, funding of the centre is critical as fees can be a deterrent for female students and staff who desire to have their children enrolled at the daycare centre. Furthermore, age restrictions at the daycare centre to between 5 and 6 years exclude students and staff whose children are below these ages. Due to these gaps, the number of female students and staff members enrolling their children at the centre is still limited.

- The establishment of a STEM centre, as highlighted in the previous section;
- Capacity-strengthening of staff in gender mainstreaming in general, and in gender-responsive pedagogy in particular.

Despite these important programmes, WUA is yet to have a science laboratory that broadens students' horizons through science-programme variety. Funding is required for the establishment of such a laboratory. Having a science laboratory is a Zimbabwe Council for Higher Education requirement for introducing science programmes. Owing to the financial demands of rolling out science programmes, fees are high compared to other programmes. Therefore, scholarships for female students in science programmes are also necessary.

Additionally, parents and guardians prefer to have their daughters accommodated at the University for their security. The lack of on-campus student accommodation therefore affects their enrolment, especially in science programmes that may require them to be on campus after hours. An investment in on-campus student accommodation is therefore critical for unlocking women and girls' participation in science.

Transformation of the teaching and learning environment

Through our study, we established that a secure learning environment can play a significant role in the recruitment and retention of students across all disciplines, including in STEM. Students need to feel secure in their learning environment – on campus and online. Studies in the Global North have highlighted the pervasiveness of gender violence perpetrated against female students on university campuses (Anitha & Lewis, 2018; Cantor et al., 2015; Wamboldt et al., 2018). Similarly, studies in South Africa have demonstrated that sexual harassment in institutions of higher learning has become rampant; however, victims are unsure where to report these incidents, thereby contributing to underreporting of the phenomenon (Chauke et al., 2015; Mutinta, 2022). Emerging research in South Africa suggests that the subordination and

sexual harassment of women, as well as GBV in general are often normalised on campus residences (Anitha & Lewis, 2018; Chauke et al., 2015). Attempts to mitigate sexual violence on campuses globally and at WUA have resulted in the introduction and adoption of anti-sexual harassment policies that attempt to provide support and information to students who experience such incidents (Anitha & Lewis, 2018; Wamboldt et al., 2018). To further ensure women's safety, the University's human resources policy includes a code of conduct for staff and actions to prevent sexual harassment and GBV.

Another way of transforming the teaching and learning environment is to adopt gender-responsive curricula, materials and pedagogical approaches (see Chapter 9 for a detailed discussion on pedagogical approaches to addressing gender equality in sub-Saharan Africa). While the number of women entering different disciplines at WUA has increased, course content in the major academic disciplines has not been revised to give attention to women and gender in the form of language, resources, representation of women, references and teaching styles. Poor pedagogical practices reinforce gender inequalities (Nabbuye, 2018). A study on gender equality in higher education in the Commonwealth (Morley, 2010) revealed discriminatory practices against female students as a result of gender-insensitive pedagogical processes. At WUA, our work has established that some lecturers perceived women and girls through stereotypes – characterising girls as struggling to actively engage in science disciplines. This has resulted in the University introducing a compulsory module on gender for all staff, which new staff must complete within two weeks of employment. The University has also started training academics to apply gender-responsive pedagogies and curricula materials using the INASP Gender Responsive Pedagogy in Higher Education Toolkit (for more information, see Chapin & Warne, 2020). Chapin and Warne (2020, p. 1) elaborate that, in gender-responsive pedagogy, the “learning needs of male and female learners are addressed in teaching and learning processes (inside and outside of the classroom)”. Nabbuye (2018) postulates that gender-sensitive pedagogy can make a big difference for women and girls' learning experiences in the classroom. Further, gender-blind teaching practices reinforce classroom gender inequalities, leading to the concept of a ‘hidden curriculum’, in which male students are permitted to dominate discussions and classroom space (Chapin & Warne, 2020). It is important to note that gender-responsive pedagogy can be enhanced by developing gender-sensitive monitoring and evaluation instruments that capture students' feedback on their learning experiences, needs, challenges and constraints, as well as the opportunities available to female students. Although such a feedback mechanism exists at WUA, the lack of specialists to analyse the data for

decision-making purposes has limited their use in the development of transformative actions (Anitha & Lewis, 2018; Mutinta, 2022). Therefore, it was difficult to assess the impact of the training on gender-responsive pedagogy. Data from the monitoring and evaluation process provide crucial information for adjusting programmes and activities. To achieve gender-equality goals and understand an institution's progress towards gender equality, gender-sensitive indicators should be developed to measure gender-related change over time.

Transforming the teaching and learning environment may require female role models in science disciplines (see Chapter 12 for a discussion on using role models to address gender disparities in Africa). While female role models help to reduce stereotypes about scientific careers and gendered abilities, they can also make the underrepresentation of women in science more salient (Breda et al., 2020). The underrepresentation of women in these traditionally male-dominated fields can also constitute a reinforcing cycle for subsequent generations, as girls have little opportunity to interact with women who could inspire them (Mutinta, 2022). Exposing female students to successful or admirable women scientists could help to break this vicious circle. These role models could potentially extend female students' perceptions of the possible, raise their aspirations, alleviate stereotyping and provide relevant information (Anitha & Lewis, 2018). A large body of work has established that female science teachers and professors can serve as role models and that they help improve female students' academic achievement (Eble & Hu, 2017), increase their probability of enrolling in STEM disciplines (Lim & Meer, 2017) and influence their occupational choices (Kofoed & McGovney, 2019). At WUA, there is a deliberate attempt to have female role models at all levels. The Board and Council chairpersons are female, the Vice-Chancellor and one of the Pro-Vice-Chancellors are women, three out of four deans are women and the Student Representative Council President is a woman. However, during data collection, a gap still existed in the number of female lecturing staff in science programmes, which, at 40%, is low compared to their male counterparts.

Multi-stakeholder and ecosystems approach

Strengthening institutional partnerships with government, civil society, women's movements and the private sector can enhance social inclusion in higher education. Structural change, especially at the institutional level, requires bold partnerships to review and reform processes that lead to gender-based exclusion (Tizikara, 2019; UNCTAD, 2011). Thus, women's participation in science programmes can be enhanced by a multi-stakeholder approach.

It starts by university administration implementing programmes and policies to support women's participation in science. The government agencies can then chip in with funding initiatives and policies supporting women's participation in science programmes (Tizikara, 2019). Industry partners can also provide scholarship, internship and job opportunities to women in areas requiring sciences. In the same vein, funding agencies like the IDRC, UNESCO and UNICEF, among others, may provide grants and scholarships for women in STEM fields (Tizikara, 2019). More importantly, research institutions may conduct research on gender disparities in STEM disciplines and fields with the aim to provide solutions.

The synergies among these stakeholders can create a supportive ecosystem that addresses systemic barriers and promotes women's participation in science disciplines. To this end, our monitoring visits to WUA established that partnerships were indeed unlocking opportunities for women and girls there. For example, through a partnership with UN Women, a Feminist Knowledge Hub was established to demystify feminism. By extension, the collaboration between WUA and UN Women has strengthened the University's mandate, dismantling systematic patriarchy and enforcing the transformative agenda of gender equality. As a result, such synergies have contributed to an ecosystems approach to tackling gender issues, particularly from the perspective that access to STEM education follows a pipeline, from primary through secondary to tertiary level, which requires the active participation of multiple stakeholders working collaboratively to address systemic barriers and promote inclusive participation. This has culminated in increased uptake of STEM-related disciplines by female students.

In addition, WUA has conducted gender audits, developed gender-mainstreaming strategies and provided gender training to private companies. An interface between any university and companies on gender issues is critical as these companies absorb students for employment after their graduation. Hence, when the workplace infrastructure is not gender responsive, it can deter women from taking up science programmes in universities. Such synergies create a robust ecosystem that increases opportunities for social inclusion and women's participation in science disciplines and careers. At WUA, interfaces between the University and companies are held once every semester to expose new students and graduating students to existing STEM-related opportunities in different companies.

Evidence/Knowledge generation using a gender-audit methodology

Gender transformative education strategies and intervention packages must be informed by a nuanced understanding of the gender roles, gender norms and the underlying power relations specific to a local context. This process requires regular gender audits. A gender audit is a method for gender mainstreaming. It helps institutions identify and understand gender patterns in their composition, structures, processes, organisational cultures and management, as well as in the design and delivery of policies and services (Chingarande et al., 2023). A gender audit helps to understand what works and what doesn't, and how to scale-up workable strategies and intervention packages. This evidence can then be used to advocate for sustained investment. It also calls for revised perspectives on how progress is viewed and measured. This nuanced understanding of progress will require moving beyond learning-outcome assessment and existing gender-equality indicators to measure changes in gender norms and attitudes in universities. For example, progress can be checked by monitoring changes in women and girls' individual agency; tracking community perceptions around the acceptability of females in male-dominated trades and vice versa; measuring female performance in male-dominated disciplines; and analysing deferment levels, drop-outs and shifts in programme enrolment. In addition, leaders within higher education systems need to be equipped to apply gender analysis, and to understand and unpack gender inequality and how it explicitly or implicitly manifests in the education system.

Informed by the above insights, we adopted a gender-audit methodology at WUA, with the intention of understanding the institution's practices and circumstances from a gender perspective, as well as identifying any gaps and strong points. In return, this would enable us to sensitise members of the institution, particularly its management, to the numerous ways in which gender inequality was entrenched at the institution and to inspire positive change towards greater equality. The gender audit was applied to sections and departments of the University. The audit sought information on: women's participation in the University's management and governance; whether curricula fostered a sense of gender accountability and fairness, as assessed through staff interviews; student life on campus, particularly the experiences of students regarding gender and female participation in science-related programmes; and relevant policy reviews, as discussed earlier. The gender policy review looked at whether WUA policies in general protected, respected and fulfilled the rights of women and men to gender equality and non-discrimination. From the findings,

recommendations were drawn up and shared with the University management, who then developed an action plan to implement them. Some of the gaps identified through the gender audit were as follows:

- Lack of key policies, including a gender policy, disability policy, an updated anti-sexual harassment policy and gender-responsive policies;
- Limited focus on gender equality in the existing strategic plan;
- Limited science programmes to broaden female students' choices;
- A dormant Gender Equality Committee;
- Uneven knowledge of gender across the various categories of staff, with academic staff more knowledgeable than non-academic staff;
- Limited staff capacity in gender mainstreaming in general, and in gender-responsive pedagogy in particular;
- No budgets to support gender integration at the University;
- Lack of a gender-sensitive culture;
- Lack of gender-responsive infrastructure and facilities;
- Limited participation of female students in science programmes.

WUA went on to activate the dormant Gender Equality Committee to monitor and report on progress in implementing the recommendations. Below is an extract from the action plan.

Table 1: Action plan for the Women in Science Taskforce Committee

Objective: Improve the uptake of science programmes by female students at WUA

Strategies	Indicator	Status
Increase the number of science programmes to choose from	Number of new science programmes introduced	4 (BSc Honours in Health Services, BSc Honours in Nursing Science, MSc in Midwifery Education and MSc in Public Health)
A focal person/department responsible for gender at the University	Focal person or department responsible for gender established	Gender and Diversity Centre established and Director and gender champions in place
Promote gender-sensitive infrastructure development	Infrastructure sensitive to the needs of female students	Toilets with showers for female students and a convenience shop were constructed
Development of a WUA gender policy and gender-mainstreaming strategy	Gender policy and mainstreaming strategy in place	Gender policy and disability policy in place and gender-equality promotion included as a standalone pillar in the University's 2023–2027 strategic plan
Update the University's sexual harassment policy	Updated sexual harassment policy in place	Updated sexual harassment policy in place
Full-fledged gender-audit of the institution	Gender-audit report	In progress

Strategies	Indicator	Status
Training of staff on gender mainstreaming	Improved skills to mainstream gender Positive attitudes towards gender issues More female students in science programmes	Gender-mainstreaming training of all university staff regularly conducted Mandatory 'I Know Gender 1,2,3' course for all new staff
Training of lecturers in gender-responsive pedagogy (GRP)	Participation of women in science disciplines	GRP training of lecturers regularly conducted
Design a simple, specific framework on gender-responsive pedagogy for use by all lecturers	Participation of women in science disciplines	Draft guide was developed
Mentorship programme for female science students	Mentorship programme in place	Mentorship programme in place through the STEM Centre
Partnerships with the private sector on women in science	MoUs in place with the private sector	MoU with STEM Power in place

Staff capacity

One of the major findings at WUA was that although most lecturers showed some gender awareness as stated in the university’s mandate – “Addressing gender disparity and fostering equity in university education” – they did not have formal training on gender matters. Male lecturers in science-related programmes still held stereotypical views towards female science students, reflecting a lack of gender competence (Thompson et al., 2022). The lecturers’ attitudes were informed by cultural norms (Kuteesa et al., 2024) that stereotype women and girls. Since lecturers are the cornerstone of the higher education system, their very role as educators marks them out as change agents and role models. To make the most of these roles, tertiary institutions need to embark on gender-related capacity-building initiatives. This would include lecturer induction on how to actively promote gender equality in their teaching practices. Lecturers need to be able to examine their own gender prejudices and to identify and challenge inequalities in the lecture hall. This will eventually result in gender-responsive teaching and learning, as evidenced by Chapin and Warne (2020). Once lecturers are capacitated to be gender aware, they are more likely to prepare reformed curricula, including gender-transformative modules and teaching/learning materials. It is equally important to establish peer learning and exchange mechanisms through which lecturers can share experiences, support one another and strengthen transformative teaching practices.

Conclusion

This chapter has outlined several educational pathways that WUA has implemented and continues to implement to unlock the participation of women and girls in science. These pathways include policy, funding, the teaching and learning environment, a multi-stakeholder and ecosystems approach, evidence and knowledge generation, as well as staff capacity-building. Although the transformation of gender norms takes time, there has been a shift in the way the gender business and agenda are being conducted at WUA as a result of the study. This shift has been driven by the political will to support gender transformation. There has been a more deliberate attempt by all the internal stakeholders to foster gender equality at the University. This commitment requires buy-in from the University Council through to management and all staff members across the institution. When gender integration becomes everyone's responsibility – with the strategic plan marking it out as a key pillar and management periodically reporting on progress in this area – the outcomes can be tangible. In addition, the need for staff knowledge, capacity and instruments for gender integration should not be ignored, as these form the foundation for a gender-sensitive university culture. Moving forward, WUA should invest in monitoring and evaluation and the documentation of all gender-related initiatives to measure their successes, understand the challenges and draw lessons for continuous improvement. Tracking of student retention and performance in science programmes is still not done yet is critical. In addition, the University should consider funding for the daycare centre to make access affordable for all female students and staff.

The experiences at WUA can be replicated in other universities that may not yet have a mandate to foster gender equality but recognise the value of gender integration. Drawing on the experience of the Women's University in Africa, it is imperative that institutions of higher learning take internal action to create gender-responsive and gender-friendly educational pathways that attract women and girls to enrol in science programmes.

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About the Authors

Sunungurai Dominica Chingarande (PhD) is a Professor and Vice-Chancellor at Women's University in Africa, Zimbabwe.

Tenson Muyambo (PhD) is a Research Fellow at the Research Institute for Theology and Religion, College of Human Science, University of South Africa, and a Lecturer at Great Zimbabwe University, Zimbabwe.

Wonder Muchabaiwa (PhD) is a Faculty of Education Coordinator and Lecturer at Midlands State University, Harare Campus, Zimbabwe.

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