



Training the next generation of internationalist

**FEMALE UNDERREPRESENTATION IN SPACE SCIENCE:
A CASE STUDY OF THE AFRICAN REGIONAL CENTER FOR SPACE
SCIENCE AND TECHNOLOGY EDUCATION**

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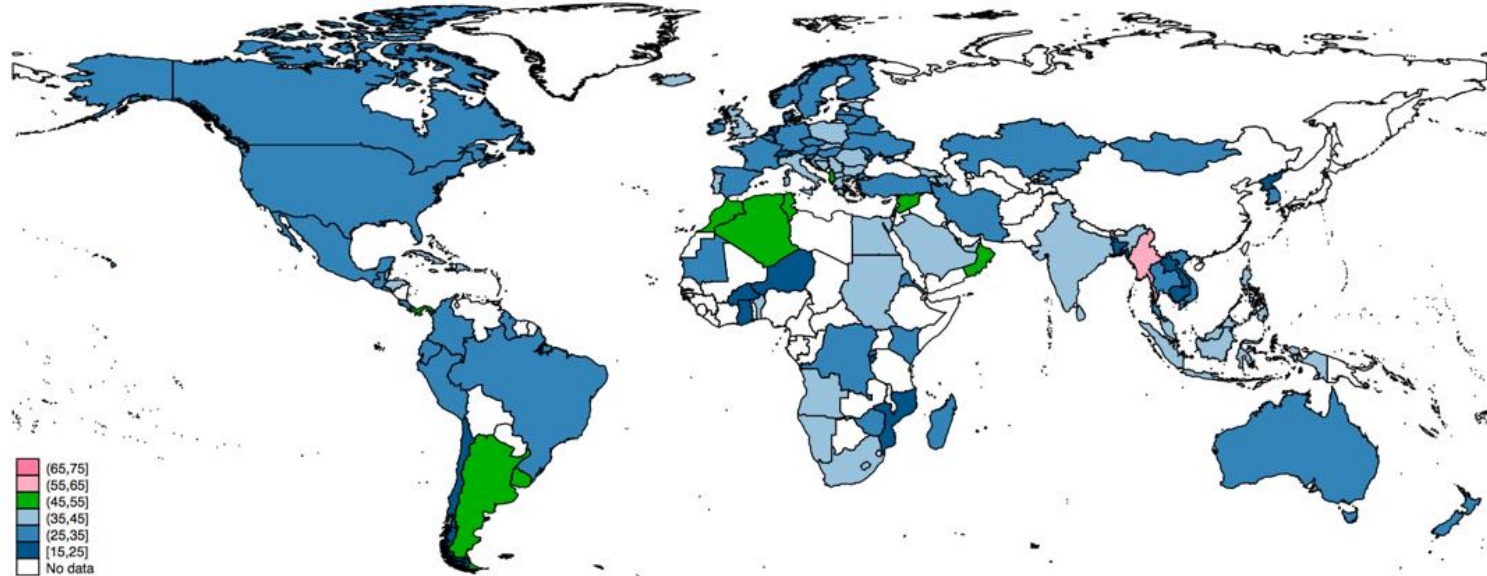
United Nation Office for Outer Space Affairs

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Underrepresentation of women in STEM

Female STEM graduates / STEM graduates %



Note: The values are the averages over the period 2012-2018
Data source: UIS 2018

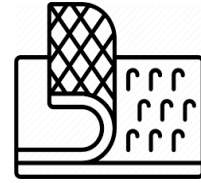
The potential benefits of tackling the gap

Narrowing the gender gap in STEM has multiple benefits:



The Space field

- Space is a critical sector for reaching sustainability within many areas

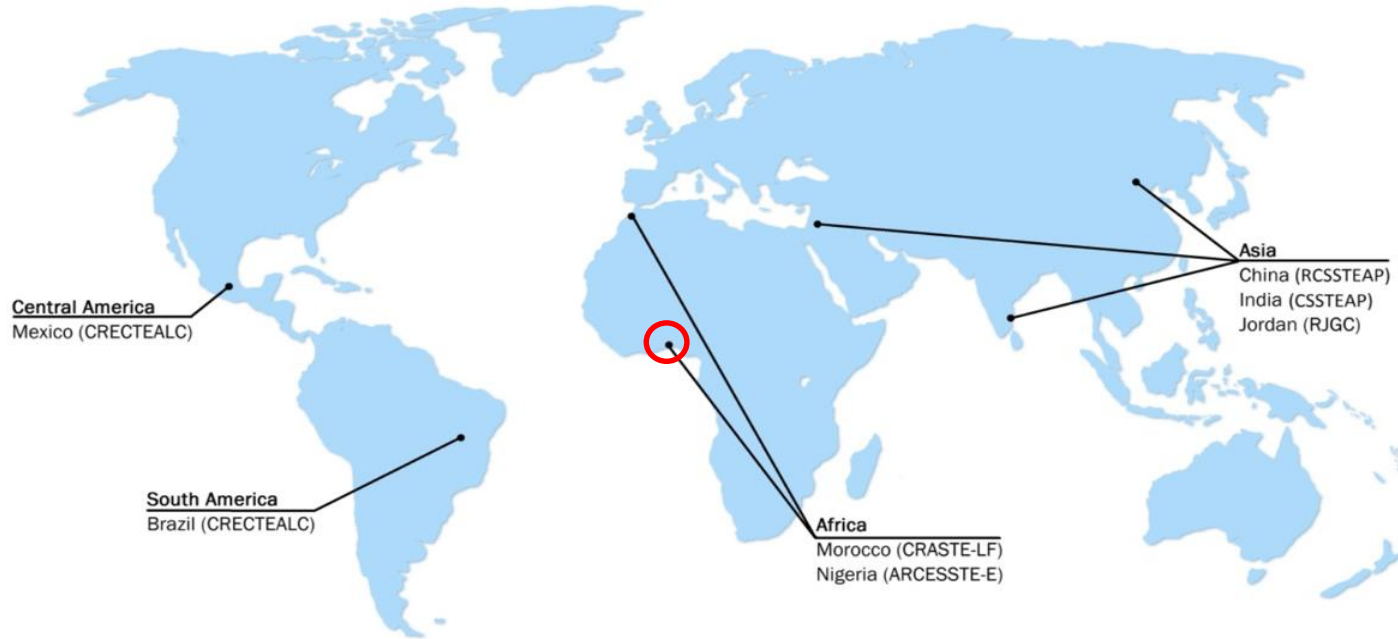


- There is a lack of data on the (under)-representation of women in space

Space for Women Project

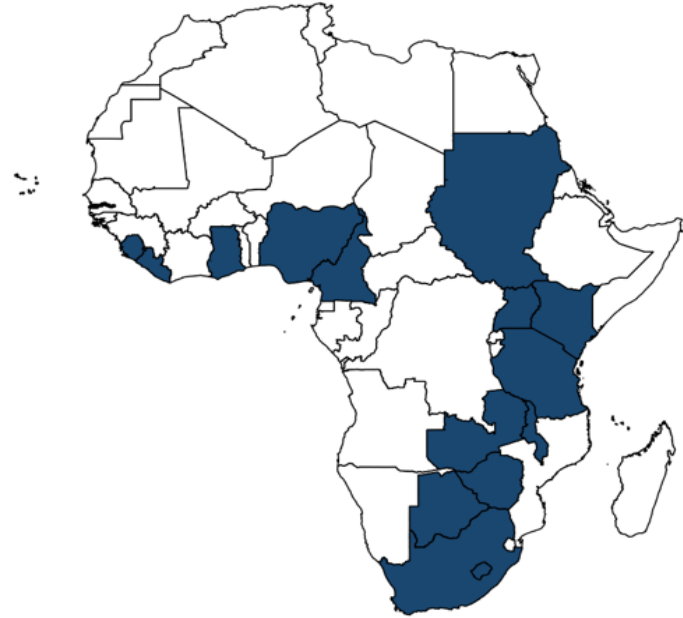


The Regional Centres



ARCSSTE-E

- Inaugurated in 1998
- Partner Institution: Obafemi Awolowo
- Countries from where the participants came from: 17 of the 24 English speaking countries



Our Research Question: Why so few women at ARCSSTE-E?

To what extent are women involved in space field today?



What is the situation women face while pursuing a space related career?



What initiatives are currently in place in the regional centers and what could be added?

Methods

Our focus:

experiences of women pursuing STEM careers in Nigeria



Primary source of

data:

5 qualitative, semi-structured **interviews:** senior staff and female professors and students at ARCSSTE-E → snowball sampling.



1 survey:

Female alumnae: similarities among experiences and reflections of the senior staff and teachers - students.

Theories - Data analysis

Code I:
motivation

Gender theory:
I. a person's motivation is ultimately gendered,
II. experience of female students differs from that of their male counterparts.

Code II:
discrimination

Social justice theory:
unequal distribution of resources and representation of women → design of institutions of higher education

Code III:
institutional obstacles

Post-colonial theories:
unequal power relations → structural difficulties in academia for institutions in the global South.

Results I

Pseudonym	Gender	Institution	Position*	Education	Age	Ethnicity	Religion
Koinsola	Male	ARCSSTE-E	Senior Manager	PhD	60-80	Yoruba	Islam
Yemisi	Female	ARCSSTE-E	Senior Manager	PhD	40-60	Yoruba	Christianity
Uchenna	Female	National Space Research and Development Agency Nigeria (NASRDA)	Not related	Post-Graduate	40-60	Igbo	Christianity
Omolara**	Female	Teaching Hospital	Not related	PhD	40-60	Yoruba	Christianity
Manish	Male	CSSTEAP	Senior Manager	PhD	60-80	Indian	(no answer)
Deborah	Female	National Observatory of Climate Change Cameroon (NOCC)	Alumna	MSc.	40-60	Esu	Christianity

Results II

Gender Gap

- ▬ 14-40% women among students in ARCSSTE-E
- ▬ 20% of the total staff is female
- ▬ Women in senior members' positions: rather the exception, not supported
- + Upward trend in female participation: impact of new UN strategies in favouring women for new positions



Results III: Applications

Applications

- ▬ ARCSSTE-E receives a crucially lower amount of female applications.
 - Different reasons:
 - little interest
 - pressure by family and environment,
 - ‘a global phenomenon’
 - Problem: difference in perceiving this by the actors.

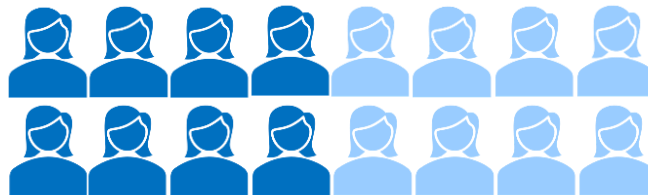
Results IV: Lack of role models



Results IV: Lack of role models

“During the summer camp in Abuja, I was once told by a young girl how to draw a rocket, how to make a satellite. We did a lot of things. And I told them, *you can do these things*, and, in fact, the mothers that came were so surprised.” (Uchinna, Nigeria)

Half of our respondents were inspired by a role model

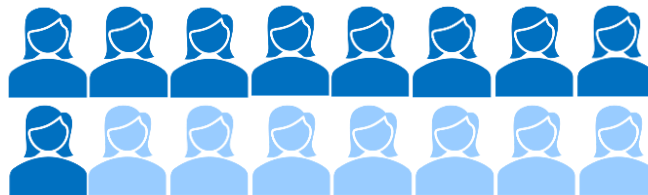


Results V: Issues of discrimination

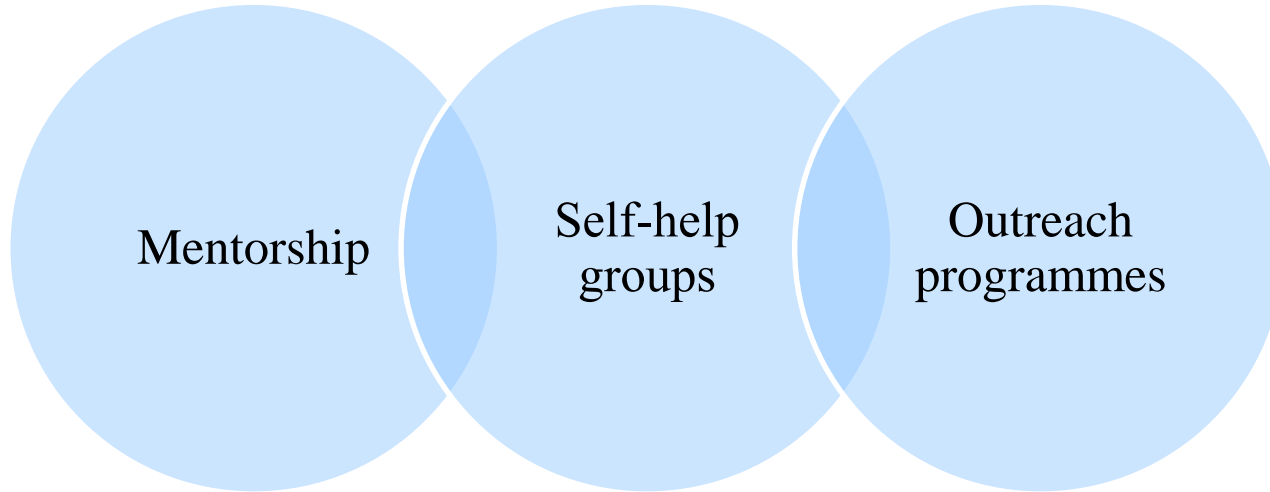
“The male students, they think they are superior and that they have superior brains”
(Yemisi)

“In Nigeria and Africa at large [discrimination] is a very serious problem. We have this mindset that a girl and a boy are not supposed to work together and knowing that engineering and science at large is a man’s cause, so it has always made them to believe that is not for girls.” (Uchinna)

9 respondents reported experiences of day-to-day discrimination based on their gender



Results VI. Existing projects?

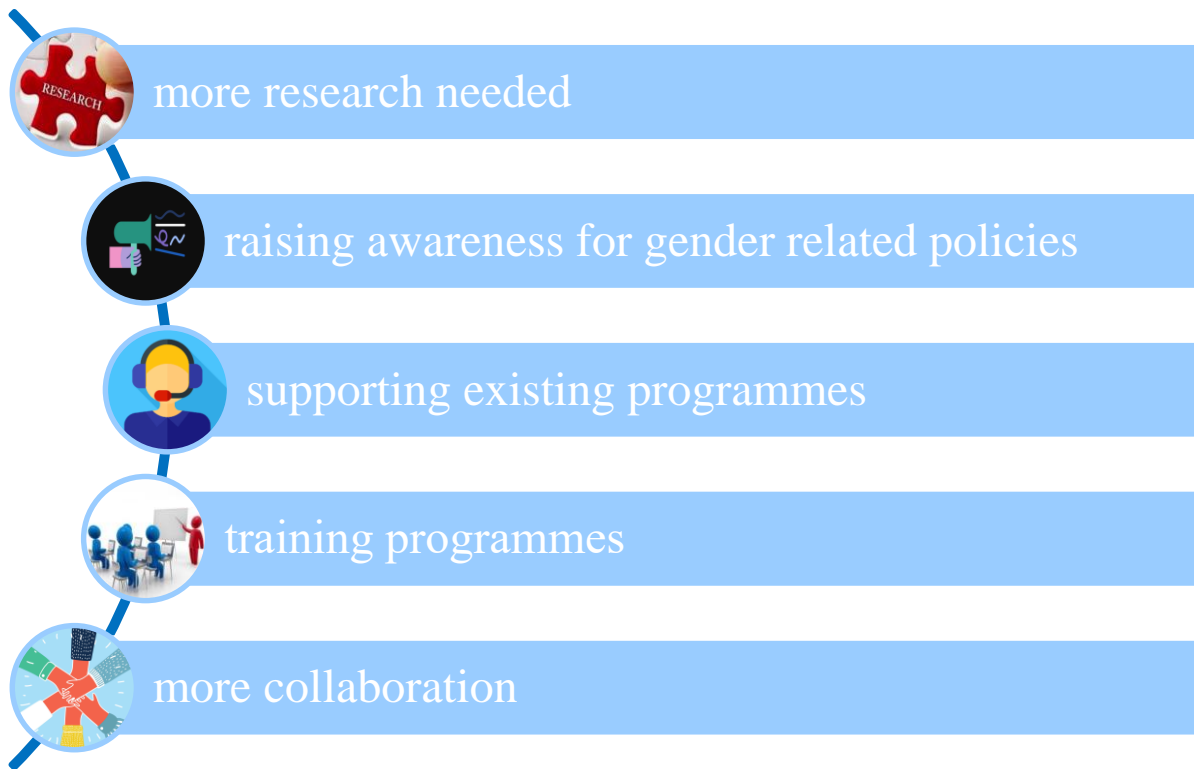


Results VII. Lack of awareness

“
If you are good, you are good. If you are wise, there are no limits for you. If
you are a lady - women have the same opportunities.”

(Koinsola)

Recommendations



«Achieving gender equality and empowering women and girls is the unfinished business of our time, and the greatest human rights challenge in our world.»

António Guterres, 2018 International Women's Day

THANK YOU!

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