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# **Encouraging Women, Girls and People of BAME Descent into STEAM in Collaboration with Universities**

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# Outline

- Introduction – The context and Importance
- Strategies – Encouragement, Engagement and Support
- Case Studies – BCOS, Diverse Youth NI, ANM, Nuffield Trust, Sentinus Research Academy,
- Limitations and Future Work– Impact Assessments Multiple identities, Spread and Global Perspectives and Collaborations
- Conclusions and Recommendations for Future –
- Conclusion and Recommendations

# Introduction – Context

- Underrepresentation of women, girls and individuals from BAME backgrounds in STEAM has been of concern worldwide.
- Failure to address this issue will
  - affect diversity and inclusion
  - Serve to limit the potential talent pool available for various industries and sectors
- Universities as storehouses of knowledge possess the personnel and resources to seek and use the right approach to resolve the challenges facing providers of STEAM education.

# Gender, BAME and University Collaborations

- BAME and Gender Disparities –
  - Historically, women and individuals from BAME communities have faced barriers to entry and progression in STEAM fields due to various systemic and societal factors.
  - Factors include stereotypes, cultural norms, lack of representation, unconscious biases, limited access to resources, and inadequately tailored educational opportunities
- Collaboration with Universities
  - This is considered as important.
  - Universities play a vital role in facilitating change and inclusion in STEAM disciplines. They serve as hubs of knowledge, research, and innovation.
  - Collaborative efforts between universities, organizations, and communities can foster the necessary infrastructure, resources, and support systems to encourage and empower individuals from marginalized groups.

# The Role of Universities

- -Core actors for new knowledge creation
- -Education and training of new experts
- -Production of new human capital by amount of talents
- -Building up social capital, human connections and interactions
- -Affect the cultural life and enrich the quality of the city
  
- (Hautamäki&Oksanen, 2012)

# Strategies for Encouragement and Support

- Outreach Programs and Exposure –
  - Hosting outreach programs that target schools and communities, particularly those with limited resources, to raise awareness about STEAM fields and promote inclusivity. These programs focus on showcasing diverse role models, providing hands-on experiences, organizing STEM fairs, workshops, and science camps.
- Mentorship and Networking Opportunities
  - To serve to connect women, girls and BAME individuals with experienced professionals for access to crucial guidance, advice and encouragement.
- Scholarships and Financial Assistance
  - This alleviates financial barriers to enter and progress in STEAM education.
- Curriculum and Teaching Practices
  - Engagement of universities in curriculum and teaching practice reviews to allow and promote inclusivity, diversity and cultural awareness.
- Research Opportunities and Internships
  - Promotion of internships and research opportunities for underrepresented groups to provide valuable hands-on experience and mentorship directed at enhancing interest and increasing level of engagement. This collaboration should be with industries, governmental bodies, research institutions aimed at creating and establishing more inclusive opportunities.

# Case Studies and Best Practices

- UU-Sentinus Research Academy (SRA)
  - Study and Research Placement for students from a wide variety of backgrounds from any school in the region
- UU-Nuffield Trust
  - Summer Research Placement Projects for Pre-University Students including Girls and those of underrepresented communities
- UU-BCOS (Belfast City of Sanctuary) in collaboration with the Greater Belfast City Council
- UU-Diverse Youth Network (DYNI)
- UU-ANM (All Nations Ministries)

# Observations and Results

- Our programmes have led to fostering diversity, inclusion and innovation both in research and teaching and learning for both the tutors and students.
- The University is beginning strongly to address disparities in STEAM participation by diverse groups. This was achieved by implementing targeted outreach programmes. Valuable research opportunities involving schools, community groups and businesses have been developed and delivered. These include successful knowledge transfer partnership (KTP) projects with international companies.
- We saw the realization of some form of collective potential and talent of all individuals. Irrespective of gender or ethnic background.




# Education - Relevance, Growth, Development and Sustainability

- Kibera, Nairobi



# Limitations, Lessons and Areas Future Work

- Lack of long-term impact assessment - Because these initiatives are new, impact on representation and retention are still not fully understood.
- Intersectionality and multiple identities - This cuts across intersectionality of identities including race, ethnicity, gender identity, disability and how these affect access and representation in STEAM.
- Global Perspective – The present talks reports on work done in eth region in specific context. Further and future work would need to include broader analysis of strategies and initiatives implemented nationally and in different countries and cultural contexts.
- Teaching Practices – There is the need for more in-depth research and evaluation of pedagogical methods that promote inclusivity in STEAM education, enhancing learning experience and with increasing retention rates.
- Collaboration Frameworks – with emphasis on collaboration between universities, organisations and communities. Future work should focus on understanding best practices for building effective collaborative frameworks.

A photograph of a snowy mountain peak under a clear blue sky. The foreground is a vast, snow-covered slope. The image has a white, torn-paper-like border at the bottom, which is set against a black background.

Where are we  
Heading?

# Conclusions and Recommendations

- Encouraging women, girls and individuals of BAME descent into STEAM is an endeavour that requires collaborative efforts between universities, organisations, governments and communities.
- Universities play a pivotal role in creating an inclusive and diverse STEAM workforce through targeted strategies such as outreach programmes, mentorship opportunities financial assistance, use of inclusive curriculum and research internships.
- It is recommended that universities
  - develop and implement diversity and inclusion policies that explicitly address the issue of underrepresentation of women, girls, and individuals of BAME descent in STEAM fields.
  - establish dedicated offices and centres for diversity and inclusion should be established. These should be equipped with personnel and resources to support initiatives aimed at promoting STEAM participation among underrepresented groups.
  - Review and revise curriculum and teaching materials to ensure representation and inclusion of diverse perspectives.

# What to Do – Offer Help and Never Give Up

- What Universities, Businesses including Women, Girls and individuals of BAME descent is to help one another:
  - [Just like the turtle here.](#)
- *It must be said too that it is not over until it is over: Never give up on doing and striving for your goals to make success of your efforts*
  - [Never give up!](#)



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**THANK YOU  
ANY QUESTIONS?**

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