2021 BLACK EXELLENCE IN STEM AND HEALTH SYMPOSIUM

MARCH 27, 2021

FINAL REPORT

PLANNING COMMITTEE:

Canadian Black Scientist Network (CBSN)
Delmore "Buddy" Daye Learning Institute (DBDLI)
Promoting Leadership in Health for African Nova Scotians (PLANS)
Imhotep's Legacy Academy (ILA)

IMHOTEP'S LEGACY ACADEMY

Black Excellence in STEM and Health Symposium (BESH)

History

In 2019, Imhotep's Legacy Academy (ILA) and the Delmore "Buddy" Daye Learning Institute (DBDLI) hosted a conference for STEM, and PLANS (Promoting Leadership in Health for African Nova Scotians) hosted a research symposium for Health. In 2020, all three organizations collaborated to host the first BESH symposium. In 2021, the Canadian Black Scientists Network (CBSN) joined as partners to host the second BESH symposium.

Objective

The BESH – Black Excellence in Science, Technology, Engineering & Math (STEM) and Health research symposium was created to promote the important work of Black scholars, professionals and university students in STEM and Health professions in Nova Scotia. The event brought together STEM and Health scholars, university students, secondary school students and members of the African Canadian community to discuss Black achievements in STEM and Health and expose secondary school students to Black STEM researchers and engage them in hands-on activities to deepen their understanding of STEM and health. Through this event, we developed activities to positively contribute to the educational and career development of African Canadians in STEM and Health.

Platform and attendance

The event was held live on the Microsoft Teams virtual platform to avoid the risk of spreading COVID-19. The Dalhousie University Information Technology Services (ITS) was hired to oversee the technical aspect of using the virtual platform. This event was offered free of charge, 146 registrations was received in total and 47% of the registered guests attended the symposium.

Symposium activities

The symposium ran for three hours (1pm – 4pm), which consisted of three segments. The first segment was a plenary session with a keynote speaker. The second segment had five breakout sessions consisting of three speakers in Science/Engineering, Mathematics and Health and two youth hands-on sessions in STEM and Health. The third segment was a plenary session for student research presentations.

Keynote Presentation

The keynote presentation was given by Dr. Maydianne Andrade, a professor in the Department of Biological Sciences, and Special Advisor to the Dean on Inclusive Recruitment and Equity Education at the University of Toronto Scarborough. Her presentation was based on her research using black widow spiders as models for understanding links between ecology, evolution and behaviour, particularly as these are related to mating and species diversity. Among other research awards, Dr. Andrade is a Canada Research Chair in Integrative Behavioural Ecology, has been elected to the American Academy of Arts & Sciences, and is a Fellow of the Animal Behaviour society. A strong advocate for equity and inclusion, she is the inaugural President of the Canadian Black Scientists Network and is the founder and co-Chair of the Toronto Initiative for Diversity and Excellence, a group dedicated to making Universities more inclusive and equitable through peer-to-peer

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education and leadership advising. In 2019 she was awarded the Ludwik and Estelle Jus Memorial Human Rights Prize by the University of Toronto's Alumni Association in recognition of the impact of her work. Dr. Andrade values outreach to encourage public engagement in science and equity, most recently by hosting an episode of The Nature of Things (First Animals), and by partnering with the University of Toronto Communications to create the podcast – The New Normal.

Breakout sessions

The breakout sessions were led by various guest speakers. Additionally, there were two youth hands-on sessions for STEM or Health. They had the option to attend one of the youth sessions or any one of the breakout presentations of the guest speakers. There was an almost even distribution of attendance across all sessions, including the youth sessions. Some students chose to attend a presentation from one of the guest speakers. Program materials were sent to the youth the week prior to the event to enable them to participate hands-on virtually.

Breakout 1

Dr. Dzevela Kong gave his presentation on his principal research objective, which is in the use of mathematical/statistical/computational modelling to study the impact of environmental stressors on species distribution and the dynamics of infectious diseases. Dr. Kong is an Assistant Professor in the Mathematics & Statistics department at York University. He is a member of the Canadian Black Scientists Network, a member of the Canadian Center for Disease Modelling and a member of the Canadian Mathematical Modelling Task Force. Additionally, Dr. Kong leads the Africa-Canada Artificial Intelligence and Data Innovation Consortium. He is an expert in data science, machine learning, infectious disease modelling and population dynamics.

Breakout 2

Dr. Philip Asare gave his presentation on how engineers are educated to operate in the complex socio-technical world, particularly how we create an engineering community that is diverse, inclusive, and equitable and the related benefits for society of such an engineering community. Dr. Asare is a teaching stream faculty member in U of T Engineering's Institute for Studies in Transdisciplinary Engineering Education and Practice (ISTEP) and the Division of Engineering Science (EngSci). Previously, he was an Assistant Professor in Electrical and Computer Engineering at Bucknell University, and before that spent time as a scholar-in-residence at the U.S. Food and Drug Administration while earning his PhD in computer engineering from the University of Virginia. His approach to engineering and engineering education focuses on viewing engineering as a human activity, and the implication of this perspective for engineering education and practice.

Breakout 3

Dr. Andre Fenton's presentation was called "Memory, learning to learn, and control of cognitive representations". He is a professor of Neural Science at New York University. Dr. Fenton investigates the molecular, neural, behavioral, and computational aspects of memory. He studies how brains store experiences as memories, how they learn to learn, and how knowing activates relevant information without activating what is irrelevant. His investigations and understanding integrates across levels of biological organization, his research uses genetic, molecular, electrophysiological, imaging, behavioral, engineering, and theoretical methods. Dr. Fenton and his colleagues identified PKMzeta as the first molecule that maintains the persistence of memories in the brain, a discovery recognized by Science Magazine as one of the 10 most important breakthroughs in all of science and technology published in 2006. Dr. Fenton founded Bio-Signal Group Corp., which developed and commercialized an FDA-approved portable, wireless, and easy-to-use platform for recording EEGs anywhere and anytime for novel medical applications. It is being used in innovative clinical applications including in emergency medicine, space exploration, and

underserved clinics in Africa. Dr. Fenton co-hosted NOVA Wonders on PBS, and when the Covid-19 pandemic shutdown work in the lab and development of a way to detect and warn about concussion, he joined an online community of technologists, designers, and physicians to help solve the ventilator shortage in NYC; the solution is now being implemented in Nigerian Covid-19 treatment centers and is being deployed in other low-resource communities across the world.

Breakout 4 (Youth STEM session)

ILA delivered a grade 7 activity entitled "Enviro" to students that attended this session. The activities performed in this experiment allowed students to visualize what a volcanic eruption looks like and demonstrated the effects of acid rain on man-made structures such as buildings and statues. In addition, the students learned about biotic weathering (how plants can contribute to the destruction of man-made structures and natural landscapes) as well as the various ways that rocks can form. We connected the activity culturally by telling the story of a female of African Heritage who earned a Nobel Peace Prize for her work on the environment. There were 15 junior high school students from across Nova Scotia in attendance.

Breakout 5 (Youth Health session)

PLANS facilitated a youth activity where students from grades 6 – 12 participated in art therapy. During this session, we engaged the students in a conversation about the social determinants of health. This activity explored the social determinants of Health by allocating a range of paint colours to different members of the group to reflect the range of possible social determinants of health circumstances. The range of colours a person has access to provides an analogy for how that person's social determinants of health can impact the range of health care services or opportunities that they can access. With paint, paint brushes and a canvas we engaged youths in exploring the social determinants of health. The time allotted to this session was brief, and students did not get enough content, so it is advisable to allow more time for this session in future events. The feedback from the students who participated indicated that they enjoyed the activity.

Student research presentations

After the breakout sessions, the event guests reconvened to listen to research presentations from students. This year, a high school student presented research work at the BESH symposium for the first time. In addition to the great work and presentations from all speakers, this session was anticipated by many guests. Research presentations were delivered by the following students.

1. Mr. Loukman Ghouti is a recent graduate of the Medical Science program at Dalhousie University. He presented his research on Parkinson's Disease.
2. Ms. Success Wokili is a final year Industrial Engineering student at Dalhousie University. She presented her research with other students on designing and creating an ingredient traceability system for a bakery.
3. Ifeanyi Nmecha is a master's student at McMaster University. He presented his research on Mechanisms to reduce kidney fibrosis which is caused by diabetes.
4. Celeste Ferrus is a final year physics student at Concordia University. She presented her research on comparing the simulations and tests of a CAD-ed healthy and morphed heart to the data found from actual astronauts to find the resemblance.
5. Tyra Obadan is a grade 12 student at Sydney Academy. She presented her research on reproductive technologies. Tyra received the best presentation award through a poll of attendees.
6. Fola Akpan is a first-year student in a joint masters of Physiotherapy and Rehabilitation Research Program at Dalhousie University. She presented her research work on applying operations research to the inpatient stroke rehabilitation system. Fola received the second-best presentation award through a poll of attendees.

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Communications and Marketing summary

- Posters were developed featuring all associated speakers, students, presenters, and sponsoring organizations following a consistent theme with slight modifications for personalization.
- Biweekly Email Campaigns were sent out to contacts within the ILA, PLANS, DBDLI and CBSN networks encouraging people to register for the event.

News and Social Media

- With the assistance of Dr. Claudette Bouman, an ILA board member, we reached Portia Clarke, a news reporter for CBC News who interviewed ILA's Executive Director to promote the event.
- Posters of the BESH event were posted on the notice board section at the Halifax Central Library.
- Dal News wrote an article featuring the event and shared this article on their Twitter page.
- Posters developed by the BESH promotion team were shared on Twitter, Facebook, Instagram and shared by several notable pages including Carla Renic and Rhonda Brown (Global News Halifax Reporters), Sherri Borden Colley, The Halifax Regional Centre for Education and many more.
- Several Members of the Black in X community shared the event with their networks in the U.S.
- Dalhousie departments, STEM faculty heads and their administrators were emailed and asked to promote the BESH event to their respective students, faculty and staff. This included the Black Faculty and Staff Caucus. An invitation was also extended to graduate students.
- Secondary School Students and University Students (past and present) from ILA'S contact list were emailed and encouraged to register for the BESH event.

Feedback and Reviews

The BESH event received an overall positive feedback from the attendees with 100% of the 23 responses from the initial survey saying that the event was either good, great, or excellent. More than 80% were happy with the event format that includes a keynote speaker, breakouts, and student research presentations; 13% were indifferent and one person (4.3%) was not happy with the format. Regarding the breakout sessions, 43.5% would prefer that the breakout sessions run in series so that everyone has an opportunity to attend all breakouts, 34.8% are indifferent about it, and 21.7% would like the breakouts to be in parallel. Feedback indicates an interest in having secondary school students present their research or projects, that Microsoft Teams is not the best platform, the need to create a network session for faculty to interact with students, and a panel discussion. The cost of using MS Teams fit within our budget, but the platform experience was not very favourable due to minor interruptions such as from non-presenters and the sound alert from chatting and joining the event. When asked if they will attend the event in 2022, 82.6% said yes, 17.4% said maybe and 0% said no.

Recommendations

We will continue to host the Black Excellence in STEM and Health (BESH) research symposium and continue to seek partners to advance the impact of the event. COVID-19 forced the event to be done virtually, which created the opportunity to invite speakers and guests from outside Nova Scotia. In the future, we hope to do a hybrid event where guests can attend physically and virtually through a live streamed event. We appreciate the feedback and recommendations from the 2021 BESH attendees and will implement meaningful changes in future events. The next BESH event is tentatively scheduled for March 25th, 2022.

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Appreciation

On behalf of ILA, PLANS, DBDLI, and CBSN we wish to express a special thank you to Ms. Claudette McGowan for sponsoring the 2021 BESH event. We sincerely thank all the speakers, volunteers, staff, promoters, and guests of the 2021 Black Excellence in STEM and Health Research Symposium. We hope to see you next time.

Appendix

BLACK EXCELLENCE IN STEM AND HEALTH (BESH) SYMPOSIUM, March 27, 2021

Statement of Revenue and Expenses

2021 Black Excellence in STEM and Health Conference	
IMHOTEP'S LEGACY ACADEMY	TOTAL ACTUALS
at June 15, 2021	
Revenue	
BESH Gift Revenue	$ 5,000
President's Office - Dalhousie University	$ 207
Total Revenue	**$ 5,207**
Expenses	
Part Time staff	$ 239
Summer students (incl. Co-op)	$ 486
General Fringe Benefits	$ 55
Teaching and program materials	$ 1,102
Laboratory supplies	$ 217
AV/Photo/Graphics - Internal Exp	$ 350
External Salary - General	$ 2,350
Travel	$ 41
Printing services - External	$ 44
Postage	$ 322
Total Expenses	**$ 5,207**
Net	$ -