

REPORT ON THE SCIENCE AND TECHNOLOGY SEMINAR SERIES FOR FEMALES IN FIRST CYCLE INSTITUTIONS, PHASE II



Date: 20th – 21st June, 2019

Venue: FF1 & Ibis Tek Boardroom, Aboagyee-Menyeh Building, College of Science (CoS),
.KNUST.

Funding:

Danish Ministry of Foreign Affairs and DANIDA Fellowship Centre

College of Science, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi

GH Scientific

**Anticipated support from MP, Oforikrom Constituency at time of submission

Project Team Members

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Partners

- College of Science, KNUST
- Danida Alumni Network – Ghana (DAN-G)
- DANIDA Fellowship Centre
- Women in Science, Technology, Engineering and Mathematics (WiSTEM), Ghana

Participants:

- Main participants of the seminar were teachers and female students of Kotei R/C and Rakho Junior High Schools. At least 160 female students from the two schools participated on both days
- 4 Teachers from Rakho JHS
- 15 Teachers from Kotei R/C JHS
- 4 Teachers from Ayeduase JHS
- 3 Head teachers (from all three schools)

Also in attendance were distinguished invited guests and speakers as well as Danida Alumni. Attendance sheet for both days is attached (*Appendix 1a*).

Introduction

More girls, in recent times, are placed in schools as compared to what was the case some years back however, it has been observed that girls are significantly underrepresented in Science, Technology, Engineering and Mathematics (STEM) courses. The untapped potential of brilliant

girls who might be interested in STEM but choose not to pursue degrees or careers in these fields because of the various obstacles they may face, represent an important loss for the girls and the society as a whole. In the quest to encourage girls to pursue science and technology-related courses, a six-member team of the DANIDA Alumni Network-Ghana (DAN-G) submitted a proposal and successfully received a grant from the Danish Ministry of Foreign Affairs and the DANIDA Fellowship Centre (DFC) to organize the second edition of the Science and Technology seminar series for females in first cycle institutions.

The seminar was put together to stimulate the interest of female students in STEM programs, debunk the myths that girls *do not like and cannot pursue* STEM programs/ careers and finally motivate them to pursue higher heights in STEM education and careers. It was also a platform that created an avenue for DANIDA Alumni in KNUST to share experiences and mentor the girls. Details of participants and the final program is attached in ***Appendix 1a and 1b***, respectively.

Opening Ceremony

Over 160 girls (three times) the number of girls for the maiden seminar series last year, were received at KNUST. The seminar commenced with an opening ceremony moderated by Drs. Rose Coffie and Linda Ofori. Prof. Mrs. Ibok Oduro, Provost of the College of Science, KNUST, welcomed everyone that was present and gave an overview of the seminar series explaining the motivation and goal of the project. She indicated in her address the existing gaps of women in STEM, gave an overview of the measurable impact of the maiden edition of the seminar in the Ayeduase community and outlined the short-medium term goals of the project in seeking to make STEM friendly to girls. She reiterated the need for more financial support in order to expand the activity for the project goals to be realized. Professor Oduro said the smiles and hope on the faces of the girls as they are exposed to the diverse opportunities in STEM, is enough satisfaction and an indicator of the impact of the seminar series. The Girl Child Coordinator of the Ghana Education Service (GES), Kumasi Metropolis, Madam Vida Owusu, lauded the efforts of the Project team and the College of Science and Danida for the initiative which is key to their strategic goals. She promised the continued support of GES to empower girls to pursue STEM courses for National development and encouraged the girls to soar high in academia. The girls had a motivational interaction with Ms Yvette Opoku Yeboah, a former

student of Ayeduase Junior High School and a current student of pharmacy at KNUST. From a less privileged background herself, Ms. Opoku Yeboah shared her life experiences and *journey* to STEM advising the pupils not to be mediocre but stay focused to pursue higher heights despite the challenges they may face. The opening ceremony ended with a photo session (sample pictures shared on Danida platform/ social media).

Work packages

Day 1

In the second part of the programme for the day, Prof. Otoo Ellis, former VC of KNUST facilitated an interactive session on the topic “**Why am I in school?**” Prof. Ellis asked the students a number of interactive questions where most of them took turns in giving answers as to why they think they were in school. Prof Ellis, using his life experience, engaged the girls on their purpose for being in school and encouraged them to be serious with their studies. He cautioned them to be on the lookout for what he called “distractions” and make sure to overcome them. The Public Relations Officer of the Ghana Education Service, Kumasi Metropolitan Assembly, Nana Asiamah II enlightened the girls on the various academic programmes available in the second cycle institutions in addition to scholarship opportunities for secondary education. This was followed by a session on Physical and Computational Science. Dr. David Dotse Wemegah, a DAN-G alumnus, exposed the students to the basic Senior High School (SHS) course requirements and career opportunities in the physical and computational sciences.

In a parallel session, GH Scientific, one of the sponsors of the seminar, engaged the science teachers from the selected schools in a workshop to build capacity on *student-friendly* pedagogy for STEM (with biology as case study) for first cycle institutions. The day came to a close with the much anticipated educational tour. The girls were eager and curious to visit the various laboratories in the University. They visited the Physics, Mathematics, Forensics, Engineering and GIS laboratories. They were taken through a number of demonstrations on how to present data on charts, read maps and how to protect themselves from cyber-crime among others (sample pictures earlier shared on the Danida social media platforms).

Day 2

The second day of the seminar began with a recap of activities and lessons learnt from Day 1. It was exciting to see many of the girls willing to share what they had picked from the previous day's activities. The most interesting part of the recap was the fact that the students remembered almost all that they had been exposed to. The activities for the day commenced with the girls being exposed to career prospects in Biosciences, Health Sciences and Agricultural Sciences by Dr. Mrs Augustina Angelina Sylverken, Prof. Mrs Frances Owusu-Daaku and Dr. Mrs. Olivia Agbenyega, respectively. They were also introduced to the basic SHS course requirements in the fields. The girls were actively engaged in the discussion, asking and answering questions.

A ninety minute career guidance and counseling session, facilitated by Mrs. Hackman from the KNUST Counseling Centre followed the snack break. The girls in addition to a general tête-a-tête with the facilitator were guided on 'knowing themselves' and 'choosing career paths'. The session ended with the girls learning an inspirational song, "*Great Forte.... educate the girl child for National Development.*" Representatives from Developer in Vogue, an award winning private ICT institution for females, also had a *STEM made friendly* session with the girls.

The teachers had a parallel mentoring and capacity building workshop led by Prof. Otoo Ellis and Prof William Oduro. Topics discussed included "Coaching the young for tomorrow" and "Mentoring the young, Do's and Don'ts". All sessions were hands-on, allowing teachers to have group discussions, presentations and collective decisions on way forward to effectively discharge their duties in the basic schools.

The climax of the day was a special visit to the University fish farm. The tour was aimed at further encouraging more youth into agriculture for optimal National development. The session was facilitated by Dr. Collins Prah Duodu, a DAN-G alumnus, project team member and post doc at the Department of Fisheries and Watershed Management, KNUST. The students visited experimental laboratories at the farm, the feed house where fish feed is produced and the fish pond site. Women are generally known to be caring and the girls did not disappoint in their enquiries during the Q&A; Questions asked included "How do you *know and take care* of a sick fish?" "How can you tell a fish is hungry?" "What quantity of feed can the fish eat in a day?"

Evaluation forms were distributed to both students and teachers to ascertain the impact of the 2-day program and solicit suggestions for improvement during the next seminar series. *See appendix 3a and 3b.*

Closing

Teachers and students shared take-home messages to end the seminar. Acknowledgements were then given by both parties; participants and organisers. Closing remarks were given by Prof William Ellis on behalf of the Provost, College of Science after which certificates of participation were awarded to the teachers.

The project team commends all participants and in particular, the facilitators, DAN-G, GH Scientific and WiSTEM_{GH} for the selfless service to the next generation of female scientists, mathematicians and technologists.

Media Presence

The University Relations Office was engaged for publicity of the seminar. Media houses that were present at the 2 days event were;

- The University Relations Office, KNUST
- Focus FM
- Tek TV, KNUST
- Phronesis TV
- Multimedia group
 - Joy News
 - Myjoyonline

Publicity/Publication	Mode	Link
<p><u>Pre-event:</u></p> <p>Announcement of the seminar to create awareness and invite others</p>	<p>E-Flier</p> <p>DAN-G E-mail and WhatsApp platforms</p> <p>Website advertisement</p>	<p>Sample attached (<i>Appendix 2b</i>)</p> <p><i>Appendix 2c</i></p> <p>Available to all</p>
<p><u>Post event:</u></p> <p>News about the seminar was broadcast on TV, radio and selected websites.</p> <p>A video documentary on the activity was also done</p>	<p>Online</p> <p>Radio broadcast</p> <p>TV</p>	<p>https://www.knust.edu.gh/news/news-items/science-and-technology-seminar-series-females-first-cycle-institutions-opens-knust</p> <p>https://www.myjoyonline.com/news/2019/june-28th/kumasi-180-girls-familiarise-with-science-based-courses.php</p> <p>Luv Fm, Focus FM (Aired)</p> <p>Joy News, https://www.facebook.com/JoyNewsOnTV/videos/715393602227659/?t=3</p> <p>Tek TV, Phronesis TV (yet to be broadcast on satellite stations)</p>

Grant Support and Expenditure

Seven thousand and sixty-five cedis, seventy-four pesewas (GHS ~7080) was received from the Danida Fellowship Centre as grant support. The College of Science supported the initiative with approximately Ten thousand Ghana cedis (~10, 000) in kind. The project team and some members of DAN-G also made personal contributions towards costs incurred. Details of the expenditure and funding support are attached (*Appendix 2a*).

Future Prospects

The project team has plans to,

- Intensify teachers' seminar with a "Head Teachers Only" workshop to further build the leadership and mentorship skills.
- Extend the seminar series beyond the KNUST environs; immediate target is the entire Oforikrom Constituency.
- Reach all public and selected private first cycle institutions in the six municipal districts of the Ashanti Region by 2025

Considering the potential impact of this seminar series on *STEM for girls' endeavours*, it is hoped that new partners will commit to the initiative as existing partners also find it worthwhile to increase their financial commitments for greater success.

Appendix

(Appendices attached separately)