THRIVE
TRAINING HEALTH RESEARCHERS INTO VOCATIONAL EXCELLENCE IN EAST AFRICA

Community & Public Engagement Newsletter

MAKERERE UNIVERSITY 1922 - 2022
LEVERAGING 100 YEARS OF EXCELLENCE IN BUILDING A TRANSFORMED SOCIETY

July 2022

Editorial

Prof. Nelson Sewankambo
Director, THRiVE

Dear Readers,

This is an extremely exciting moment as we celebrate the Community and Public engagement in research-related activities discussed in this Newsletter. They were carried out by students from different schools in partnership with THRiVE researchers. THRiVE stands for "Training Health Researchers in Vocational Excellence". The institutions in Uganda, Kenya, Tanzania, and the United Kingdom participating in the THRiVE activities are at the bottom of this page. Our researchers are highly trained at Ph.D. and at post-doctoral levels. They mentored the youth so as to excite them about science and research. Scientists and researchers are not

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Creating TB and Asthma awareness through poems and graphic cartoons

Dr. Jonathan Mayito and Mr. Richard Kwizera, THRiVE-2 PhD fellows

Tuberculosis (TB) and asthma are important public health concerns in resource limited settings, causing a high morbidity and reduced quality of life among those infected. Despite being of such importance, the two diseases have limited media coverage which hinders dissemination of messages on their prevention and control. As researchers, we set out to implement a public engagement project targeting school communities aimed at developing prototypes for communicating messages on tuberculosis and asthma recognition, treatment and prevention.

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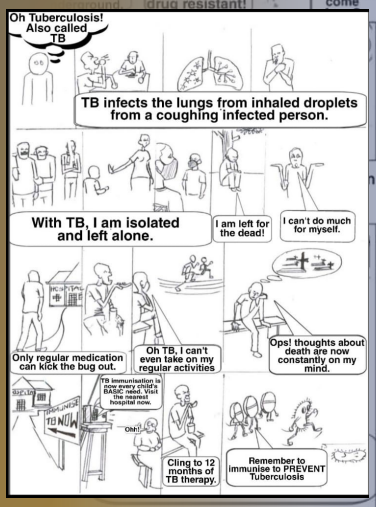

Inside

A male student presents a poem on Asthma and Tuberculosis before fellow students at Midland High School-Kawempe.

UNIVERSITY OF CAMBRIDGE · GULU UNIVERSITY · icipe INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY · LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE · MAKERERE UNIVERSITY · UVRI

Editorial continued from p.1 but they are inquisitive about issues that affect our lives. They use science and set out to create new knowledge to facilitate our understanding of why things are what they are and also find solutions. For example, a new disease, COVID-19, appeared and shook the world. Through science and research, we now understand better how to control its spread. We extend our great appreciation to the schools, their management, and the students that participated in these activities. Schools everywhere should actively engage in science and research. Our countries will then have more scientists and researchers just like the developed countries.

A female student presents a poem on Asthma and Tuberculosis before fellow students at Midland High School-Kawempe.

Continued from P.1 We engaged students of Midland High School in Kawempe, Kampala to develop the prototypes. At inception, we presented the project to class representatives and the school administration. Thereafter, we led a discussion on how best the students felt the project would be implemented. The students suggested; songs, skits, music & drama, poems and graphic cartoons. After discussing pros and cons of each, poems and graphic cartoons were selected. Student representatives working together with their literature teacher, selected 10 students in consideration of gender and class balance, to work on the poems. The poems would later be passed on to another group of 10 students to develop graphic cartoons. The final poems and art pieces would then be showcased to the rest of the school through an open day competition. Five students worked on tuberculosis while another five worked on asthma. Students were provided with basic information about asthma and tuberculosis to use in composing the poems.

Students worked with their literature teacher and project coordinator to refine the poems and later presented to the PhD fellows to guide on accuracy of facts and flow of ideas. Feedback was given to the students about the poems and they incorporated the suggested corrections. A poet was identified from the school of languages at Makerere University to work with the students to further improve the quality of the poems. The students then presented the final poems to the PhD fellows and community engagement experts from THRiVE who provided more feedback that further improved the poems.

The final poems were handed over to fine-art students to make graphic cartoons from the messages in the poems. The students then presented the art pieces to the PhD fellows for guidance on the flow and accuracy of the messages depicted by the art pieces. Due to the Covid-19 disruptions that included closure of schools, selective re-opening and strict standard operating procedures employed when the schools briefly opened, the students could not continue working on the pieces nor could the open day show casing be held. Instead, the poems and art pieces were handed over to an art expert who continued with developing the graphic cartoons.

The final poems and graphic cartoons have been compiled into an illustrated self-education book to educate the student community about tuberculosis and asthma, and to cascade this information to the wider communities they interact with.

Dr. Jonathan Mayito and Richard Kwizera (both in the front line) pose with students of Midland High School-Kawempe after an engagement with them.

Using a student-centered approach to prevent teenage pregnancy

Racheal Ninsiima, Communications Officer-THRiVE

Uganda has one of the highest fertility rates in the world, at 5.4 children per woman, according to the 2016 Demographic Health Survey. The rate of teenage pregnancy has stagnated at about 25% despite government and other stakeholders' efforts to address this challenge. The Covid-19 pandemic with its associated nation-wide lockdown and schools' closure exacerbated the issue of teenage pregnancy. Various media published distressing articles on the inflated number of teenage pregnancies during the lockdown period. Regrettably, even with the re-opening of schools, some of these teenagers were unable to continue schooling and have since gone down the vicious cycle of perpetual poverty.

Dr. Susan Atuhairwe talks to a teenager from her work station at Kawempe Hospital

Through THRiVE's Research Enrichment Community and Public Engagement (RECPE) program, I adopted Joven's High School in Entebbe in order to execute my school engagement activities. The main purpose of my work was to use a student-centered engagement approach to improve knowledge and practices on prevention of unintended pregnancies among adolescents. While this topic arose from a reproductive health issue gap identified by the students, the Covid pandemic made it more relevant to both the students and researchers. We hypothesized that students are more likely to package and convey information to their peers in a way that they would understand and assimilate better than adults.

In 2019, we engaged the school administration on the proposed research program, which they embraced and cited as relevant. We held several engagement sessions that included talks, brain storming sessions and watching videos with selected students. After each session, these students were charged with doing further research on teenage pregnancies. From the students work, we identified four main themes namely: drivers of unintended pregnancy; consequences of unintended pregnancies; ways of prevention and sources of information. The students formed groups according to the themes and each group suggested engagement modes that they would use to convey information to the other students. The three top modes chosen were: songs, poems, and drama. Each of these engagement modes had the four running themes.

Students of Jovens High School-Entebbe present a skit on teenage pregnancy

Throughout this time, students freely expressed their minds and gave us snippets of their talents through songs, acapellas, poems and skits. On April 25th 2021, the students made presentations to the entire school, under the theme, **"The burden of teenage pregnancy-role of an informed youth in the 21st century".** This event was attended by students, teachers, THRiVE secretariat, school headteacher and the media. There was active interaction with the students and sharing of brilliant ideas.

The students have officially recorded their awareness song titled: 'Let's join our hands.' Copies of this song have been distributed within the local community and to different schools. The song was officially launched on June 17 2022.

Students of Joven's High School present their teenage awareness song during its launch

As a researcher, this whole process has been a learning and mentorship opportunity for me. Key lessons learned include:

1. Endorsement by the school administration is crucial for the success of such a program. As gate keepers to the students, the administration's engagement right from the start made them a part of the study process design and successful implementation.
2. While the issue of teenage pregnancy is primarily seen as affecting girls, including boys to demonstrate the key role they play was eye opening for students.
3. Students have a lot of information regarding drivers of teenage pregnancy. It's only by addressing these drivers that suitable solutions can be attained to prevent further pregnancies using sources of information applicable to their age.
4. The information students had attained prior to the lock-down helped them during the prolonged period of school closure. Many students testified that the knowledge they had acquired helped them abstain from sex, and avoid risky behaviour. They also shared this information with their peers in the community.
5. Using edutainment provides both a learning opportunity and inspires students to become better citizens.

A student presents a song during the teenage pregnancy awareness song launch

Dr Susan Atuhairwe (in yellow) cuts cake with students of Jovens High School - Entebbe after the launch of the awareness song at their school.

6. Students have potential to transform their personal and peers' lives using their knowledge, talents, energy, ambition given the opportunity and an enabling environment.

I thank THRiVE for supporting this work and providing opportunity for the students of Joven's High School generate these information sharing modes with peers using this innovative approach.

Students of Joven's High School - Entebbe pose for a group photo after officially launching their song.

Learning about TB through community and public engagement: A case of Iganga Girls SS

'TB Girls', Iganga Secondary School

As Iganga Girls Secondary School, we were happy and excited when we were chosen out of many to participate in the Tuberculosis community and public engagement (CPE) project. Great thanks to Dr. Edward Wampande and Mr. Jimmy Isooba for the golden opportunity. Our journey so far as participants of the project has been worth it.

The project began in the second lockdown with the use of Zoom as a way to coordinate and discuss. The hilarious part of it all is that we all did not know much about TB and were actually surprised when Dr. Wampande gave us a detailed introduction about the disease. We were elated that we got a chance to know more about TB. After discussing TB at great length, we decided that the public needed to know about the dreaded monster killing masses. To achieve our goal, we agreed to use skits, poems, shirts, plays, animations and songs as a way of spreading awareness.

This article, authored by the TB Girls of Iganga SS was published in an earlier edition of THRiVE's newsletter series.

Some of the 'TB girls' make a poster presentation during a CPE session at their school

When we resumed physical school in January 2022, we embarked on working on a few of the suggested items. We composed a song, poem and skit. Dr. Wampande always came to the school over the weekends to review our progress. Through our journey, our knowledge of Tuberculosis has increased exponentially. Among some of the things we have learnt is the symptoms of TB such as dry cough, fatigue, and chest pain, among others. We also learnt that there are different types of TB such as Multi Drug Resistant TB and Pulmonary TB.

"This project has not only helped me to make new friends but has also been a massive learning experience and a fountain of wisdom from which we have drunk free career guidance and motivation in our academics. I am proud to have taken part in this project," says Amma Cynthia Nalumansi, a senior six student who is part of the project.

Another, Tracy Luwedde, an arts student, attests to the fact that participating in the project has made her open minded to acquire knowledge in different disciplines and not only the humanities.

Vivian Nansereko, the health prefect of Iganga Girls SS makes a presentation during a community and public engagement session

One of the TB girls makes a presentation during an engagement activity at the school.

Owing to our consistent engagement with TB information, our school mates nicknamed us the 'TB Girls' and we find great prestige in it. As a way to continuously sensitize our colleagues, we resolved to form a health club and we are already underway in creating it.

We are grateful to THRiVE and Dr. Wampande for the opportunity afforded to us. We also thank Mr. Isooba and Mr. Peter Sangayi for their effort to have this project effected in the school. This community and engagement project is something we shall carry on for a lifetime.

Dr. Edward Wampande (in colored shirt) poses for a picture with the 'TB Girls' of Iganga Girls SS

Connecting the dots between Zika Forest and the Zika virus: What's in a name?

Assoc Prof. Angelina Kakooza-Mwesige – THRiVE-2 Post Doc fellow

Just as it takes a village to raise a child, it takes a great sense of culture and history to name one. Looking back at my old school days I recall complaints from the teachers to some of my classmates similar to **"I find your name quite hard to pronounce do you have a shorter name we could use?"** or **"Your name is not familiar to me, which part of the country (Uganda) do you originate from?"**. Such experiences often led to some intimidated classmates compromising their names to whatever pronunciation would be easiest for the teacher or alternatively adopting a nick name to avoid all confusion and mockery. Such a scenario is quite disheartening, because a personal name is a vital aspect of cultural identity.

In any society there exist names of any nature, which often reflect the prevailing social dynamics of the societies where they are found. Society performs a critical role in guiding the choice of names given to individuals and entities which are dependent on the respective functions they serve in their societies. While names can bring together communities, they can also serve as a means of breaking up various communities. The latter activity can be quite disruptive since it is from names that one can learn the various cultures that have been present in a particular place, and have an understanding and the appreciation of the history of a place.

It is against this backdrop that I became especially intrigued when during the setting up of my post-doctoral project entitled **"Zika virus: prevalence, neurodevelopmental dysfunction and genotype in Uganda."** I was perplexed when I discovered in several of my conversations with the locals living around the Zika forest that the majority had no idea about the Zika Virus, its discovery in the Zika forest or its complications in humans. Furthermore, I was made to understand that the Zika forest was found in Ziika Zone, Katabi Town Council, Entebbe. I noted a discrepancy between the name 'Zika' and 'Ziika' prompting me to inquire more about the issues underlying this naming. I wondered whether it was a naming misnomer or could there be hidden connections behind it?

This led me to conduct a study to explore the origins and meaning of the Zika Forest and whether it had any implications to the naming of the Zika virus. I believed by unearthing the information surrounding the origins of the Zika forest and the Zika virus discovery through utilizing facts from science, history and the society, I would be able to connect the dots and form a logical, coherent story underlying the basis of understanding this topic. I was not disappointed in my quest for what I found out surprised me a great deal.

Assoc. Prof Angellina Kakooza (In black coat) interacts with residents of Katabi Zone where Zika forest is located.

IMPORTANT DISCOVERIES

I discovered that forest is a cultural heritage site for the Buganda Kingdom and the seat of an ancient King - Bemba Musota. He was a tyrannical ghost snake King of Buganda in the 15th Century famed for killing his enemies and burying them in the forest, hence the name Ziika. One respondent said they were told **"Bwogenda e Ziika todda"** (meaning once the king took you to the Zika Forest that meant your death).

On the other hand, medical history records reveal that colonial researchers in the 1940s used the forest to study yellow fever, thought to originate in the area. Scientists caged monkeys in wooden platforms high among the jackfruit and mango trees, where mosquitoes were most likely to breed. Investigations intensified in 1960 when a 120 ft steel tower was relocated from Mpanga Forest to Zika Forest to study the vertical stratification of mosquito activity, especially the sylvan yellow fever virus (YFV) vector Aedes (Stegomyia) africanus Theobald. Asian sentinel rhesus monkeys, locally known as **ssewagaba**, were placed on different height-points of the tower to identify viruses carried by mosquitoes. One of the monkeys fell ill with a fever and was taken to the Uganda Virus Research Institute (UVRI) for examination. It's blood samples revealed an unknown virus. The monkey's serum was injected into the brains of mice and they fell ill. ALAS - a new virus had been discovered! As protocol dictated, it was named Zika after the forest in which it was identified.

Assoc. Prof Kakooza climbs up the 120ft steel tower on which traps were placed to catch mosquitoes

Although the right spelling of the virus should have been **'Ziika'** which means overgrown in the Luganda language, the second **'I'** was dropped by the colonialists who misheard its pronunciation. The term 'overgrown' may be explained by the surrounding community avoiding the forest area due to its evil associations as a burial site in the past resulting in excessive growth of vegetation. Nevertheless, my investigations reveal that the meaning of the name **"Ziika"** is still contentious and may be associated with the Luganda term **"overgrown"** or related to the Luganda term **"to bury"**

Assoc Prof. Kakooza engages with the caretaker and guide of Zika forest

A community member explains to Assoc Prof Kakooza one of the tree species found in the forest.

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Sensitizing Communities on Maternal Health Care through drama

Francis X. G. Luyera and Dr. Imelda Namagembe

Although COVID-19 has devastated the world, jeopardizing nearly all socio-economic activities, it has also provided opportunities for communities and decision makers to engage in order to find solutions that will nip it in the bud. However, the pandemic has become a learning lesson for the world to make an audit of the health sector, focusing on the prevention and cure of the existing ailments. Among these is maternal health. According to the 2016 Demographic and Health Survey, Uganda's current maternal mortality ratio is 336 maternal deaths per 100,000 live births implying that many women die from pregnancy and childbirth-related complications. Over 100 maternal deaths are recorded annually at the National Referral Hospital in Kawempe.

It's against this background that Dr. Imelda Namagembe has designed a school engagement project to sensitize students and parents about this precarious phenomenon. Under the auspices of THRIVE, Dr. Namagembe, a PhD fellow, is working with students of St. Aloysius Secondary School in Nabbingo to deliver messages on safe motherhood through drama and songs. Their most recent performance was on the school's blessing day, Sunday 20th February 2021, presented by senior four and six students to an audience comprising mostly of parents. This was held under the theme: 'Engaging communities to revamp safe motherhood and COVID-19 prevention.'

The 15 minutes play titled, 'Act Now-Save Mothers and Babies' was packed with thought-provoking scenarios that stir one to identify the missing links in Uganda's maternal and neonatal health system and consequences it bears if it is not urgently addressed. The piece emphasized things such as; antenatal visits, proper nutrition, spouses' support and quick medical attention as measures to reducing the maternal and neonatal deaths in the country.

Additionally, the students showcased the role of different health workers such as the nurses, midwives and gynecologists in preventing maternal deaths. In a bid to emphasize their message, the students also composed songs that were intermittently sang during the skit.

"It was a fantastic show of talent by the students who ably depicted various personalities namely the pregnant mothers, husbands, relatives and friends as well as medical workers. I learned that I have to escort my wife for her antenatal visits and when she goes to deliver in a health facility," says one of parents who watched the drama.

Under the stewardship of Mr. Paul Remmy Matte, their headteacher, the students formed a drama group where they intensively developed the drama skit and songs as an information and empowerment tool. The club was formed to unlock and display student's talents, while entertaining and educating the masses.

"My engagement in the club has helped me learn several things about maternal health. Before the club, I did not have any idea what maternal health meant. However today, my knowledge about the issue has greatly improved and so has my public speaking," testified one of the students that participated in the skit.

As a sustainability plan, the club members are imparting skills learnt to other students so that they can act as change agents in their community.

Students of St. Aloysius Secondary School in Nabbingo performing the skit on saving expectant women during the school's blessings day.

Targeted school engagement on sexual and reproductive health – A researcher's experience

Dr. Ruby Doryn Mcharo, THRiVE-2 PhD Fellow

The idea of Research Enrichment, Community and Public Engagement (RECPE) with adolescents and young adults was quite foreign to me when the project was first introduced to THRiVE fellows. Little did I know that this endeavor would turn out to be an eye-opener for me, pointing me to the fact that research can be interesting and fun. My RECPE project hinges on engaging adolescents to identify targeted Sexual and Reproductive Health (SRH) interventions. For this project, I involved students from Loleza Girls' Secondary School in Mbeya region, Tanzania. The objectives of the project were to work with young girls at this school to identify their preferred ways for engagement with SRH research; co-create, co-design and implement an engagement project led by student champions and to evaluate the impact of the engagement project.

After obtaining all permits and ethical requirements from the school and regional administrative bodies for engaging with students, a group of about 60 students from the Science and Art combinations were identified to take part in the project. Saturday mornings were much waited for both on my side as a researcher and on the students' side. Through my interaction with the students, I learnt many issues that concerned their young minds and in turn, they got a chance to have interactive discussions on SRH matters,

which are often not openly spoken about.

All students agreed that they have received SRH talks/classes in school but noted that these focused more on the types of Sexually Transmitted Infections (STIs), ways of contracting STIs, complications and ways of prevention such as abstinence and condom use. Other topics they were taught include sexual hormones and menstruation. Therefore, together, we agreed to handle the engagement sessions based on their need of information. Indeed, most students had meagre information on the common STIs and preventive measures. After we had come to a satisfactory level of understanding, we then moved on to identify the prototype which could be used for the RECPE project.

Dr. Mcharo after a school engagement session with Loleza Secondary School students in Mbeya, Tanzania

The winning ideas were between a comedy drama and a song. Although the auditioning for the comedy drama was lively and entertaining, we agreed that it be reserved for school events. Thus, the group settled for the song as a prototype for the RECPE project and that they would record this in a music studio. It was amazing to see how students enjoyed the whole process of putting together ideas, scripts and the message they wanted to send through. It was clear that they understood the need to send out concrete knowledge on STIs, relate with their peers who could be at risk and share necessary preventive messages to reduce risk. In addition to the STI knowledge, risk and prevention content they had packaged, they also felt the need to include messages for their parents/guardians on communicating adolescence challenges with regard to sexual behavior and health. Students appreciated the open dialogue on sexual matters, temptations, behavior and health-risks that we had and wished that this could happen at a family-level too. The latter was noted to be a hurdle because when parents/guardians do not openly speak about sexual matters, this encourages young people to experiment with different sexual activities which puts them at risk.

Together with the teachers, we emphasized to students the need to initiate such talks with their parents or guardians. Such sensitive contents on sexual matters could be well reflected and understood when further explored with a family member. This was also noted as part of my main PhD work that focused on students of Higher Learning Institutions in Mbeya. In a paper accepted for publication in BMC Public Health Journal; **"Where and how do young people like to get their Sexual and Reproductive Health (SRH) information? Experiences from students in Higher Learning Institutions in Mbeya, Tanzania: A cross-sectional study"**, we noted that young people have a strong gender-biased preference when it comes to learning about SRH matters from their parents. Female and male students preferred discussions with adults of their respective sex, although such conversations seldom occur.

I believe it is high time that African parents/guardians break the silence on SRH matters and have this as a significant part of their children's life as are academic matters and personal habits. Parents/guardians need to also endeavor to build their skills, capacity and competence on parent-child communication on SRH matters to be able to confidently initiate and send forth accurate SRH information.

THRiVE encourages its research fellows to undertake community and public engagement as a pathway in realizing further potential impact of their research relevant to the community. This project has been indeed a pathway to much more that research has to offer. It has been engaging, compelling and interesting. Sometimes being uneasy to share what we deem "inappropriate" for adolescents/young adults can be our own impediment in preventing sexual health threats such as STIs and many of their complications at a young age. It is clear from this project that young people are keen to learn and when we actively involve them and attract them in activities that are of importance and value to them, they can be quite innovative. Much appreciation to the THRiVE CPE team for enlightening us on the concept and advantages of research community and public engagement.

Dr. Mcharo (in T-shirt) holds a school engagement session with Loleza Secondary School students in Mbeya, Tanzania

THRiVE malaria scientist takes on community engagement

Racheal Ninsiima, Communications Officer-THRiVE

When Dr Trizah Milugo Koyi won a THRiVE PhD fellowship to investigate the anti-malarial activity of the famine weed, a famous mosquito diet, mostly found in Western Kenya, she was tasked to ensure that the community understood her research. She obtained a Research Enrichment -Community and Public Engagement (RECPE) grant to interest secondary school students with her research.

"Initially I thought that I was going to a school to explain to the transmission and treatment of malaria to students. However, when I got to Gendia High School, I realized that they wanted mentorship and career talks. When I gave my first career talk, they invited me again and again," Dr Koyi said in an interview with THRiVE.

Dr Koyi interacts with students of Gendia High School after a mentorship session

The students have been introduced to different medicinal herbs that are used in malaria treatment and have participated in mixing them. They (students) have expressed knowledge on Dr Koyi's research through arts such as skits, poetry, songs and drawings.

"Before practically engaging these students, most of their knowledge was imaginary as it was what they read in text books. However, they are now able to relate reality with written text as is seen through their recommendations such as clearing nearby bushes and effective use of bed nets," Koyi remarked.

Currently, Gendia High School is considering incorporating science mentorship classes into their routine school program. Furthermore, through additional funding from the Mawazo Institute and DELTAS Africa, Dr. Koyi has expanded her science mentorship engagement project to two other schools in Western Kenya. These are: Hilario and Wamalwa Kijana Friends Secondary Schools.

"Sometimes I meet students on the university campus and they remind me that they met me when I came to their school and I inspired them to pursue a science course. This means that my work is making a lot of impact and I will continue such engagements," Dr Koyi said with a soft smile lighting up her face.

Her vision for implementing community and public engagement as she conducts scientific research is that participating students can mentor their classmates and families.

Trizah Koyi (in black) demonstrates the mixing of different herbal leaves used in malaria treatment to students of Hilario Secondary School in Western Kenya

Dr. Trizah Koyi hands over a certificate of participation to a student involved in her community and public engagement project

Engaging youths as partners in science and research development

Dr. Denna Michael Mkwashapi – THRiVE-2 PhD Fellow

For the past decade, I used to think that community engagement was about preparing the community for planned research activities and providing feedback to them after results are obtained. When THRiVE requested all research fellows to implement community engagement in what has been termed "Research Enrichment Community and Public Engagement (RECPE), I was uncertain on how this engagement was going to be designed and implemented.

The brainstorming session during the consultative meeting with students

Uncertainties arose when THRiVE insisted that engagement should have a focus on secondary school students. However, I had a lingering question at the back of my mind because secondary school students are neither the targeted study community nor are they policy makers. Thus, how could the research community engagement benefit these youths?

Nonetheless, I proceeded to design my youth engagement project as part of the RECPE program by adopting a secondary school in Mwanza, Tanzania. My main objective was to work with selected students at Mwanza secondary school to co-create and co-design a project where students would be engaged with my PhD research in order to be able to relate with science in their day-to-day activities. My PhD research focuses on exploring the effect of HIV and antiretroviral therapy (ART) on fertility. It also aims to ascertain trends in the use of family planning services and unmet need for family planning amongst women of reproductive age in Magu district, Tanzania between 1994 and 2018.

During implementation, I organized several consultative meetings with students who discussed issues around fertility and family planning which came out prominently in my research. At this stage, youths were greatly empowered to discuss the research and science and made decisions that would affect them and the process of engaging other fellow students.

Development of prototypes: technical drama training and rehearsal

To engage these students, I used a human-centered approach where ideas, attributes and concepts were generated by students themselves. Fictitious characters and scenarios were used to stimulate thought, provoke discussions and gain mutual understanding, trust and collaboration between me, and the students. With further engagement, students proposed use of drama and songs as the best method to engage fellow peers and the community at large.

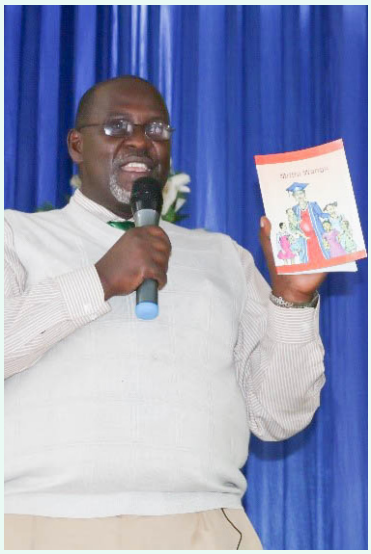
Therefore, experts in theater and performing arts were consulted to train students on the state of art hall performance. Through a series of training and rehearsals, students were able to perform a dramabefore a group of selected secondary school students as the audience. The drama was named "*mrithi wangu*" in Swahili which means "*My heir*". The drama presents ongoing social conflicts; whether HIV infected women should access Family Planning services and deliver babies and social-cultural reasons prevailing in our society that conflict the use of family planning.

When an impact evaluation of this engagement was done, it was found to impart new knowledge to selected students who attended the performance at school. The performance was video- recorded and produced for future use and experiments.

Through the THRiVE-RECPE program, I have been able to install a new look on how communities and particularly youths should be engaged to research and science. Wholly, this engagement empowered student to make decision on areas important to them. Therefore, Positive Youth Development (PYD) in Science and research is achievable through a successful youth-led engagement project. Youths possess indigenous skills and talents to make themselves changing agents. Youths can be knowledge-transfer vehicles to their fellow. Through scientific citizenship, youth are partners in science and research.

THRIVE-RECPE output: drama film

PHOTOS FROM THE BOOK LAUNCH



Dr. Bargul's Community Engagement Project lands him on school management board

Ms. Andrea Ouma- Communications Intern, THRiVE-*icipe*

Over the last three years, Dr. Joel Bargul, a THRiVE-2 Postdoctoral Fellow has catalogued blood-borne pathogens infecting camels in northern Kenya and has sought to understand the role of biting flies commonly known as camel keds in the transmission of these pathogens. Throughout the research, Dr. Bargul and his colleagues at *icipe* profiled camel diseases circulating in northern Kenya as a basis to guide in designing appropriate disease control measures to be adapted by the farmers at Laisamis, Marsabit. To achieve this, the team were fortunate to engage with the local community, particularly the livestock farmers, as an integral part of his research work.

"The camel farmers being with their livestock all the time understand best the challenges they face with their livestock including diseases and pests and thus they shaped my research towards finding a scientific solution to these problems," said Dr. Bargul in an interview.

Dr. Joel Bargul works in a mobile lab during one of his field visits in Liasamis

Dr. Joel Bargul (3rd from right) engages carmel herders in a discussion

In October 2020, the research team visited Laisamis with the purpose of organizing a workshop to discuss livestock diseases and their transmission by biting flies. Additionally, they wanted to conduct surveys to understand the pastoral community's perception towards gender equity in education and leadership. The survey was conducted among parents and students of Laisamis Secondary School, the school Dr. Bargul identified for his community engagement project.

The workshop was attended by various stakeholders from the County's Ministry of Education; Ministry of Agriculture, Livestock and Fisheries; representatives from local administration and livestock farmers. The team from *icipe* highlighted the objectives of the education survey plan and highlighted expected impacts the study will have in promoting improved access to higher levels of education in order to produce critical mass of future leaders in research and innovation for development. The team reported their findings on livestock diseases and the role of biting keds in disease transmission and effective control measures for vector-borne diseases.

The research revealed that these flies (known as Dakar in the Samburu language) are vectors of anaplasmosis disease (Ndiss in Samburu) caused by a new type of bacterial pathogen that has just been detected in Kenyan camels for the first time. However, Dakar flies do not transmit Trypanosomiasis (Saar - Samburu; Omar - Rendille) as earlier proposed by most camel keepers during an interactive mutual engagement session with the livestock-keeping community.

As a result of community engagement, the research team envisioned better management of these diseases which would lead to improved livestock production in terms of meat and milk production. Eventually, this would lead to better livelihoods of marginalized nomadic pastoralists of northern Kenya.

Fruits of Community Engagement

Dr. Bargul's research has continued to have a strong component of community and public engagement. The research team's collaboration with Laisamis Secondary School (LSS) has contributed to the success of the ongoing THRiVE-2 and the African Academy of Sciences-funded research projects. This partnership has enabled Dr. Bargul and his team to strengthen the community's perception towards gender equality in education and leadership.

"I aim to motivate school going girls and boys to motivate them in research relating to the subjects they are taught in school such as biology, chemistry, physics, mathematics, among others in order for them to be future leaders in research and innovation for development", he explains.

Laisamis Secondary School students after engaging with Dr. Joel Bargul in focused group discussions on gender equity in formal education and gender roles in leadership.

As a result of this successful engagement with Laisamis Secondary School, Mr. James Maina Joseph, the school's Principal, has requested Dr. Bargul to join the School Board of Management as a member for the period of three years. Dr. Bargul says this position will provide him with a unique chance to offer leadership support to advance the goals of this school, especially in encouraging careers in the sciences.

The other stakeholders, including farmers, appreciated the work undertaken by the research team and thanked them for providing feedback on diseases affecting their livestock.

The findings of the study will guide relevant stakeholders to put in place appropriate interventions to improve equitable access to education by both boys and girls in the community in line with Sustainable Development Goals 4 and 5 which advocate for quality education and gender equality.

Dr. Joel Bargul making a presentation on his research findings to livestock farmers and various stakeholders during data dissemination workshop in Laisamis, Marsabit county, Northern Kenya.

Scientist wins big by sharing his research with the public

Racheal Ninsiima, Communications Officer-THRiVE

After you've spent months and maybe even years on your academic research and finally have it published, what's next? Will the general public read and understand your research? Will the research sit on a shelf and gather dust or will it actually spark interest from the general public? For Dr. Emmy Okello, a consultant cardiologist and senior researcher at the Uganda Heart Institute, involving community members at all levels of the research process, and from the start is critical. He did so and his research has thanked him for it.

When THRiVE awarded him a post-doctoral research grant to study acute rheumatic fever (ARF) in 2017, he made sure his results reached the community that stood to benefit from them. His strategy was to involve communities in Gulu and Lira districts, the study sites, to discuss the importance of this research and dispel any misconceptions. So, Dr. Okello, designed a community and public engagement (CPE) project targeting community volunteers, primary health care workers and the general public.

The objectives of his engagement included: gaining public and community acceptance for his research, gather community views to guide in study design and improve retention of study participants. To achieve this, he held radio talk shows with the area's local leadership and organized town hall meetings with primary health care workers and community volunteers.

> "Public engagement via radio helped to change community perceptions about research in general. Where people previously thought research as

Dr. Emmy Okello, a THRiVE-2 Postdoc makes a presentation at the Uganda Heart Institute. Photo credit: Uganda Heart Institute.

Dr Okello (in clinical coat) with guests at the Uganda Heart Institute. Photo credit: Uganda Heart Institute

> exploitative, they now saw it as beneficial to the individual and community," he says.

By engaging non-scientific communities in Gulu and Lira, the researcher found, made it much easier to recruit and retain research subjects, who were children. His study enrolled 916 children to be administered penicillin injection monthly for two years. Therefore, acceptance by district and school leaders was critical to adherence and follow up. By the end of the research, his study had about 90% retention of the children recruited.

Moreover, conversations with local leaders, primary health care workers, community volunteers and parents helped Dr. Okello to generate feedback on how the study should be implemented. For example, participants watched an animated video of the entire research process before individual consents were given and this helped to modify the consenting process. The norm in consenting is that participants are debriefed about the study and later a consent or assent form is read to them before they can sign on it.

> "As a researcher, I had not foreseen that participants would request to watch a video about the research and consenting process. When they did, I had to revise my study protocol and resubmit it for approval to the Internal Review Board," Dr Okello recalls.

Thus, by the time consent and assent was obtained, study participants were knowledgeable about the research and what was required of them.

Community and public engagement has brought out the best in Dr. Okello as a researcher. He told THRiVE that since he initiated his community and public engagement project on ARF, many community members have reached out to him, wanting to understand the disease process and how they can protect their children.

He observes that if any CPE project is to succeed, researchers ought to engage their communities early, including a representative sample of the intended study population. This allows one to receive early guidance that may help him/her to modify their study.

Dr. Emmy Okello (c) shares a photo moment with participants at a Rheumatic Heart Disease Workshop

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