REPORT ON GENDER ACTIVITIES IN BASIC SCIENCES—SUPPORTED BY UPPSALA UNIVERSITY INTERNATIONAL SCIENCE PROGRAMME-ISP

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Report on Gender Equality Activities in Basic Sciences Makerere University

On October 08 2015, ISP recognized the need of increasing female participation in basic sciences research where females were under represented (specifically Physics and Mathematics). ISP pledged to support strategic activities for promoting access of women to science tertiary education, to research and career opportunities leading to academic key positions.

On November 25th Dr. Betty Nannyonga responded to the call by ISP for the Gender Activity Grants. On 02/17/2016, the greatest news that Makerere University had won he grant were received from Prof. Carla Puglia and the ball was set.

Right away arrangements started to have the first seminar and workshop in April 26 2016. The first seminar was held on 03/31/2016 in Botany/Zoology laboratory, with the main objective of introducing basic scientists to the expected activities, and calling for collective cooperation. In that meeting, a tentative date for the first workshop was suggested for April 26 2016.

Arrangements were made with collaboration from the School of Education and School of Gender Studies. The following was the program for the day:-

Gender Equality Activities Workshop

Theme: Mentoring, strengthening and supporting the success of women in basic sciences

April 30th 2016, College of Engineering, Design, Art and Technology – CEDAT Conference Room

Tentative Schedule			
Time	**Activity**	**Responsible Person**	**Moderator**
8:00 AM – 8:30 AM	**Arrival and Registration**		Secretariat
8:30 AM – 8:35AM	Welcome remarks	Dr. Betty Nannyonga, Project Leader	Rapporteur
8:35 AM – 8:45 AM	Remarks by the Head of Department, Mathematics	Dr. David Ssevviiri	
8:45 AM – 9:05 AM	Opportunities for Women in Physics	Associate Professor Florence D'ujanga, PhD Professor of Physics	
9:05 AM – 9:25 AM	Woman in Mathematics: The talent pipeline from classroom to boardroom	Mrs. Sylvia Genza, IT Business Control, Stanbic Bank Uganda Limited	
9:25 AM – 9:55 AM	Key Note Speaker: Experiences of teaching	Mrs. Assumpta Kasamba,	

	mathematics/physics to girls/boys—what girls should know	Head Department of Mathematics, Kings College Buddo, Former Coordinator, Uganda l Society Activities	
9:55 AM – 10:05 AM	Remarks by the Head of Department, Physics	Dr. Ireeta Tumps	
10:05 AM – 10:20 AM	Overview of the Gender Equality Activities in Basic Sciences in Makerere University	Dr. Betty Nannyonga	
10:20 AM – 10: 35 AM	Strengthening and Mentoring the girl in basic sciences: Experiences from a Physics major	Ms. Grace Nanteza, MSc student, Department of Physics	
10:35 AM – 11:00AM	**Tea Break**		
11:00 AM – 11:20 AM	**Group Discussions**	All female basic scientists	Dr. Betty Nannyonga, And Ms. Grace Nanteza
11:20 AM – 12:40 PM	Group Presentations	Female student leaders in basic sciences	
12:40 PM – 12:50 PM	Way Forward	Dr. Betty Nannyonga	
12:50 PM – 1:10 PM	Closure of Workshop	Prof. J.Y.T Mugisha Principal College of Natural Sciences	
1:10 PM	**DEPARTURE**	**DEPARTURE**	**DEPARTURE**

As part of the outreach and advertisement, posters were pinned around the College of Natural Sciences and a banner pinned at the Department of Mathematics. The title of the workshop was "Gender Equality Activities in Basic Sciences" with the theme "Mentoring, Strengthening and Supporting the success of women in Basic Sciences".

In the first workshop, we could not get regional presenters due to a strict budget. The events were smooth, but some students left early due to a test that had been moved to that day the day before.

The following was the report from the speakers for the day:-

GENDER EQUALITY ACTIVITIES IN BASIC SCIENCES FIRST WORKSHOP -- REPORT

Theme: Mentoring, strengthening and supporting the success of women in basic sciences.

April 30th 2016, College of Engineering, Design Art and Technology- CEDAT conference Room.

REMARKS FROM DR. SSEVIRI – Head of Department of Mathematics

Thank you for responding to the call. Statistics show that there are fewer female mathematicians at the university. The department of mathematics has 26 academic staff with only 3 females and 4

support staff with 3 females. This says something about the females in basic sciences. The mathematics department needs female teaching staff members with PhD. Women should work hard to achieve their goals. There's 18 post graduate students, 1st and 2nd year at the moment and there's only one girl. More needs to be done.

WOMEN IN MATHEMATICS - MRS SYLVIA GENDA

The statistics in Makerere do not favor us as women. You have to understand that you are talent. Identify yourself as a woman and work harder. Women have to work harder than men because they need to prove themselves. The challenge is to work hard because there are many opportunities for women in mathematics. Look at mathematics as a tool that can be used to impact the communities. It is a tool that can be applied to other disciplines.

Points to note.

- Identify what you want to do. Find an objective and work towards it. You may need to do activities that you don't like so much but keep doing them as long as they get you to where you want. Keep focused.
- Set realistic and specific goals. Put in the time to achieve these goals.
- Identify your strength. Do something that you will enjoy doing even without pay. Identify an area in mathematics that you'll enjoy even when it becomes tough.
- Don't blame your career choices on people around you and those you've met along the way. That is to say, it is wrong to base your failure on the lecturers, parents, and friends. Your career choices and development depends on you.
- Make the right kind of connections. Network with people who will advance your academic growth.
- Stay focused. Do those things that will take you to the destination you want.
- Seek excellence. Do not just do tasks or activities to finish but to learn something out of it and excel at it.
- Be disciplined and principled. Continuously do those things that will take you to the next level. It takes discipline to achieve the goals that you have set for yourself.
- Do the work. Put in the effort. Do not use people to do the work that you should be doing. Having done the work enables you to help others.
- Do not allow yourself to feel like a woman when it comes to capability and ability. Work hard because women are as good as men.

OPPORTUNITIES FOR WOMEN IN PHYSICS – PROF. FLORENCE D'UJANGA

Science has the ability to produce women with leadership skills.

Challenges to education opportunities for women.

- Tradition prohibits women from working from home because the woman has always been seen as the homemaker. But the benefits outweigh the problems assumed. Women can multi-task. Education empowers the women to do a lot of things like careers, mothers,

mentors etc. Women are under-represented in the sciences. However, such projects as these empower and encourage the young generation of females. Documenting powerful women stories can inspire others. Have ambition and motivation. Once you focus, you'll get what you want. Have an aim.

- Some basic sciences look abstract. Understand the concepts of math and physics. Science keeps evolving all the time. Today's abstract science will be applied tomorrow.

What is the way forward?

- Aim to achieve a high class degree. With a good degree, there are so many career opportunities and fields to go into.
- Having a good physics degree sets you apart as a female scientist. Physics can be applied to basic things at home and within the environment.

Opportunities with a physics degree.

Teaching is not the only option.

- Geophysics, Biophysics, Oil and gas, Geological surveillance, radiation protection.
- Aerospace, Military personnel's, Civil aviation, banks.
- Telecom engineers, telephone companies.

Related fields:

- IT companies, consultancy, financial services, legal services, transport services.

Many employers accept all graduates. They believe that with a high class degree, one can be trainable.

Underrepresentation of girls is a task for all of us. The main aim is to encourage and support women in basic sciences. The problem may seem big but the good thing is we have started. We can impact and change the statistics and have more females within the basic sciences department.

KEY NOTE SPEAKER: MRS ASSUMPTA KASAMBA- HEAD OF MATHEMATICS DEPARTMENT, KINGS COLLEGE BUDDO.

Experiences of teaching Mathematics/physics to girls and boys

- Girls are embarrassed to raise up their hands in class.
- Girls are threatened by boys. Boys reluctantly accept good female students.
- Boys will always want to put you down especially sexually. As a woman, command a high degree of discipline.
- The girls under estimate themselves while boys overestimate themselves. Boys naturally think mathematics/physics are their subjects. They always hold their heads high even when they have failed while girls shy away and look down on themselves.
- Always be prepared. Build up concepts step by step and then use examples to explain the concepts.

- Bring mathematics into the real world. Start from simplicity and use physical examples. Girls need a logical flow of ideas and steps while boys can figure it out.
- Girls do not want to risk. They have a pre-determined answer to the problem of math. They fear to give wrong answers. They prefer to have private consultations and individual questions for the teachers.
- Girl's presentations are always tidy and neat even when their answers are wrong while the boy's presentations are untidy and scattered.
- Girls do their work quickly in order to avoid punishment but boys will try to get out of doing homework. They show their competence during exams.
- Teachers should teach through dialog. Take a little more time to introduce a new topic. Relate with your students. Use visual aids. Do not throw unfriendly comments to students.
- Do not sympathize with girls. Mathematics is not for cowards.
- Ensure quality working time with girls. Change the study environment.
- Teachers assume mathematics is easy de-touching themselves from slow learners. Take yourself back to that 'class time' experience and teach from that point of view as a learner.
- Girls should not see themselves as girls but as students of mathematics and as competitors.
- Mathematics teachers do not want to read. They do not want to get information and end up re-echoing what their teachers taught them. Prepare, read and find out how to make the topics friendlier. Do not repeat the same explanation when the student has not understood. It's pointless.
- Use textbooks for each student. It helps with the interaction between students and teachers. Use a variety of books to teach.
- Mathematics contests were thought to be for mad people and therefore could only be done by boys. However, there is an increasing number of girls getting involved. There's still a lot of work to be done.
- Participation can change a mindset. Some girls who have participated in these contests have gone on for higher studies with good courses which are well sponsored.
- Do not be afraid to go out there and get exposed.

OVERVIEW OF THE GENDER EQUALITY ACTIVITIES IN BASIC SCIENCES- DR. BETTY NANNYONGA

Activities planned.

3 workshops expected to be done.

This one was student oriented to find out how the students want to be helped.

Another workshop was done in secondary schools. The students blame themselves for being reluctant and lazy. They don't blame their teachers.

Utilize the chances that you have at university level. Mathematics can be a link between disciplines. Know how to use the subjects that you have to take you where you want. The aim of this project is to guide you on how to utilize your subjects. The project was specific to mathematics and physics. Future activities include: Outreach activities, workshops, women in sciences club, mentors in the

department. The club will ease the link between teachers and students. Continue collaborations with Mbarara University. Thank you, Dr. Ssevviiri for all the support.

EXPERIENCE FROM PHYSICS MAJOR- MS. GRACE NANTEZA

None of us has ever thought of doing mathematics physics at university. We always want to do engineering, medicine, pharmacy etc.

There are so many reasons we worry when we are admitted for education. For example stature, little pay, stubborn, students etc. But teaching is not the only option. We need to change our attitudes towards these basic sciences and have a positive attitude to teaching as well. Work hard and be determined. Look at the applications of the basic sciences. We don't keep our knowledge in the books but we apply it to our environments and communities. Women underestimate themselves yet we have capabilities too. The answers are always in the books. Read, read and read. Girls should stop assuming they should always be given. Work hard. Let us apply whatever we have learnt in the community.

GROUP DISCUSSION- Areas that you need help or mentorship

- Reduce the gap between lecturers and students.
- Regular seminars.
- Opportunities that are non-academic.
- Communication network to enable students who have finished the courses to access.
- Outreach to rural schools.
- Lectures are too fast for slow learner.
- Encouragement from lecturers.
- Discouragement from the students can stop one from choosing a course unit.
- More female role models.
- Links between lecturers and students increase.
- Math contests for ladies.
- Sensitize students on the application of math and physics.
- Choose lecturers for career guidance.
- Sensitize students on the use of minor subjects.
- More time for workshops.
- Lack of support; academic, encouragement, references, training companies.
- Projects to rural areas. Best students end up getting pregnant and married.
- Established science clubs to deal with challenges.
- More practical subjects/course units.
- Inappropriate teaching aids e.g. projectors for physics.
- Discouraging comments from lecturers.
- Excellency is expected at university.
- Visual aids and practical work should be used.
- Academic lecturers minding marks rather than helping students.
- Lecturers keep in mind slow learners.

- Sensitize students on the relevance of BSc degree.
- Intimidation from lecturers i.e. statements about retakes.
- Be intentional about mentorship i.e. encouraging students who are not vigorous.
- Scholarships for girls who are smart. Avail them to students.
- Mathematic minors are not given opportunities.
- Minors are under looked yet they can use these minor subjects to help their majors.

Feed back

Some of the points mentioned are the aims and objectives of the project.

- Lecturers cannot know your problems if you do not come to see them.
- Do not give yourself bad label like not vigorous.
- Encourage fellow students to approach lecturers.
- Be proactive.
- Set your own goals and the lecturers will help you achieve them.
- The aim is to have seminars every two months, have outreach activities to rural schools and support services for students.

CLOSING REMARKS

- You have to input for you to achieve your academic and personal goals.
- These principles can be applied to all areas of life.
- Communication lines are open between mentors and students.
- Break the stereotype and get out of the comfort zone.
- Be aggressive.
- Be on the lookout for opportunities and use them.
- Do not be lazy.
- Be a role model.
- Work hard. Everyone who comes to university is clever.
- Get a good degree.
- Students are not treated differently so please consult with lecturers.
- Focus.
- Thank you all for attending the workshop.

CLOSURE OF WORKSHOP – PROF. J.Y.T MUGISHA

This is the day. Congratulations to Dr. Betty Nannyonga and the department of mathematics for winning the grant for the project.

Thank you to all the speakers who have been involved in the workshop.

Messages to students

- Look at yourself in the mirror every morning and note that you are smart.

- Look at your neighbor and know that you are better than them.
- Look back as far as you can and remember how many you have left behind.
- Look at the future and be positive. Thank God.

Prof. Ingrid Daubechies, the president of international mathematical union is an inspiration. She has come up with the Daubechie wavelets. If she did it, you can too.

More of these workshops needed. Bring another person next time. Thank you for attending.

During the workshop, field work was carried out, using questionnaires. The data will be used to answer many questions such as "Is gender bias, a mental or social problem".

Students began their end of year examination in May 2016, and later broke off for the long holiday till August 2016.

During the long break off by the girls, the Women in Natural Sciences (WINS) activities started with ides from the staff of the Department of Mathematics and School of Gender Studies. By August, a draft was available, and application of an address from Makerere Directorate of ICT Support (DICTS) sought. It was agreed to have WINS under College of Natural Science (CONAS), especially since the activities were being carried out in the College.

The next seminar was held on September 22 2016, in Botany Year II laboratory, this time with a higher attendance, and main aim of discussing issues that inhibit good performance by girls in Mathematics and Physics.

Seminar 22nd September 2016 BOT Yr. II LAB

Agenda

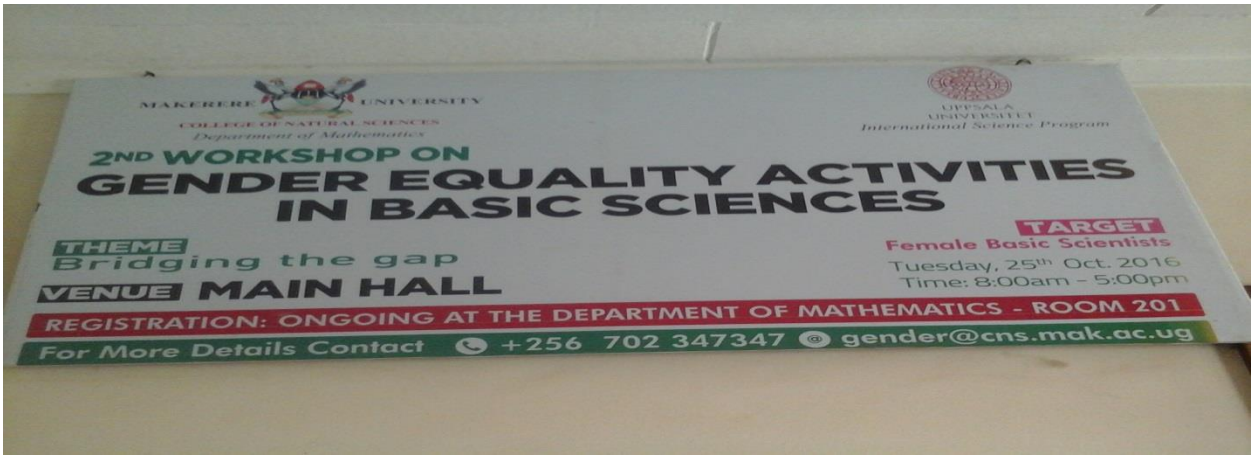
1. Prayer
2. Communication from Chair
3. Reactions & Discussions
4. AOB

1. Prayer was led by Ms. Namukasa Florence at 1:15pm
2. Communication from Dr. Betty Nannyonga:
    i. Advised ladies to be free during discussions
    ii. Advised ladies to be open and share their challenges
    iii. Need to find a way to retain girls in mathematics
    iv. Need to help girls succeed in mathematics
    v. Cannot help unless reasons for low numbers are known
    vi. Second Workshop on Tuesday October 25 2016 in Main Hall
    vii. Two international presenters, presentations from student female leaders, and from a male lecturer from CONAS
3. Reactions:
    a. Needed more course works-- - Students tend to copy therefore tests better for testing

b. Retakers are segregated--- too discouraging to already vulnerable girls--- should be strongest when challenged
c. Girls chose where to minor because of band wagon, no advise, no clear future with Mathematics/Physics--- Will initiate meetings during semester II to talk to first years
d. Students in mathematics/physics wanted to be doctors or engineers but failed to make it so here by default—when the world gives you lemons, make juice
e. Requested for more platforms where they share challenges and discuss possible solutions—formation of WINS to be launched in the October 25 Workshop
f. Need sensitization about mathematics/physics and applications in real life
g. Lack of role models--- to be worked on and institute a practice in department to show case successful women in mathematics/physics
h. Bias against lecturers due to their comments—look at the content and where you are headed, not the lecturer
i. Financial constraints---scholarships are available at graduate level
j. Need mentors--- Project leader available

4. AOB—
   i. Will circulate program to representatives before workshop
5. Seminar ended at 2:30pm

After the Seminar, arrangements for the October Workshop were in high gear, as the girls were excited to organize and own the workshop. We managed to get two international Plenary Speakers, Dr. Lovisa Sumpter Mathematics Educator, from Stockholm University in Sweden, and Dr. Alix Dehayem, from the University of Nairobi, Kenya. The title of the workshop was "Gender Equality in Basic Sciences" with the theme "Bridging the gap".



The program for the day was as follows:

PROGRAMME

Time	Activity	Responsible Person
8.00-17.00 hrs	**Opening Plenary session**	**Program Coordinator**

8:30 - 9:00	Arrival and Registration	Student Leaders
9:00 – 9:10	• Welcome remarks by the Project Leader	Dr. Betty Nannyonga
9:10 – 9:20	• Opening of the Workshop by the Principal, CONAS	Prof. J. Y.T Mugisha
9:20 – 9:30	• Remarks by the HOD, Mathematics	Dr. David Ssevviiri
9:30 - 9:40	• Remarks by the HOD, Physics	Dr. Ireeta Tumps
9:40 - 10:40	• Plenary Speaker— "Why the difference is in the structure and not in the individual"	Dr. Lovisa Sumpter -Sweden
10:40 – 11:10	• Talk: Why so few?	Dr. Alix Dehayem- Kenya
11:10 - 11:30	**BREAK**	
	BRIDGING THE GAP	
11:30 – 12:10	Current Status, Launch of WINS	Dr. Betty Nannyonga
12:10 – 1:00	Gender Issues/Challenges in the University Lecture room	Mr. Fred Mayambala, Mr. Alex Behakanira Tumwesigye
1:00 – 14:00	**LUNCH**	
	PRESENTATIONS FROM STUDENTS	
14:30 – 14:40	Science I	Ms. Ashaba Shillah
14:40 – 14:50	Education I	Ms. Josephine Nabakooza
14:50 – 15:00	Science II	Ms. Bukirwa Joanita
15:10 – 15:20	Education II	Ms. Ssanyu Vision
15:20 – 15:30	Science III & Education III	Ms. Nazziwa Carol/Oliver
15:30 – 15:40	MSc. Mathematics	Ms. Helen/Caroline

15:40 – 17:00	Discussions and Way forward	
17:00 Hours	**DEPARTURE**	

Gender workshop 10/26/2016 Main Building Makerere University

Presentation from Ssenyunja Vincent

- Appreciated girls taking mathematics that they are really talented and encouraged them to remain focused.
- Advised the girls to admire female lecturers especially Dr. Betty because she is a good example.
- Advised girls to attend and participate in group discussions.
- Avoid blaming lecturers

Challenges

- Lack of confidence towards mathematics.
- Some girls have a negative attitude towards mathematics especially in some topics.
- Some girls are minimized by boys.
- Big lecture rooms that is to say the learning environment is not conducive to studying mathematics.
- Girls are being taken advantage of by boys especially when they seek assistance from them.

Presentation by Ashaba Bsc. Scie and Econ

- Thanked Dr. Betty and everyone who participate to make the workshop a success.

Challenges

- Demoralization from other people especially 2nd and 3rd years.
- Some lecturers are not audible and clear when teaching.
- Few reference books for revision purposes.
- Some students are challenges to themselves ie they are lazy, they do not do course works, they don't do research etc.

Presentation by Nabakooza Josephine (Bsc. Educ & Math)

- Thanked God for that day.
- Thanked Dr. Betty and the organizing committee for such a big opportunity to them.

Challenges

- Girls lack passion for the subject.

- The department has many male lecturers to female lecturers which makes hard for girls to make personal consultations in case need arises.
- Clashes in the time table especially for physics and mathematics.
- Some lecturers have always have two handouts; a summarized one and detailed one which sometimes confuse students.
- Some girls fear to ask question while in class because boys minimize them and some lecturers do not give them a chance or instead intimidate them with statements like "**anyone with a stupid question!"**

Comments from Dr. Alix

- Advised students to always share knowledge and avoid being selfish.
- Encouraged them to work in groups i.e. discussion groups.
- Avoid being discouraged by boys.

Presentation from Bukirwa Joanita

- Thanked Dr. Betty for sensitizing them in different areas of mathematics.
- She shared with others that she was discouraged by some careers when she was growing for example teachers, but she realized it was not true when after starting her course.

Challenges

- They do not know how to apply mathematics.
- They are biased.
- Mathematics has some hard and complicated topics which require much time to be taught than they are given.
- Some lecturers do not know how to handle slow learners.
- Unfair retakes are given to students.
- There are no corrections made to course work tests.
- Some lecturers despise and discourage them especially the retakers ie they are sometimes isolated from others.
- Some results get misplaced especially those for minors.
- Sometime results are not released in time.
- Boys use girls instead of helping them.

Comments from Dr. Betty

- She informed students that there are not unfair retakes because students do not write names on their answer sheets, their answer scripts are always marked by both internal and external examiners.
- Informed students that there are applications of mathematics for example in research, medical, statistics etc.

- She noted that there were many issues with retakes, but efforts were being made to manage the situation.
- Those who do not get results are always book bank defaulters or may be sit with wrong group where they do not belong.

Presentation from Sanyu Vision (Educ, Math & Econ)

She thanked God and advised everyone to put God first before anything.

Challenges

- Mathematics requires a lot of concentration.
- Ladies hate stress and give up so easily.
- There is limited work for girls in science line because great jobs are especially manly in nature.
- Science course are expensive.
- Many womanly challenges
- Lack of parental support
- Girls do not believe in themselves.

Suggestions

- Form school clinics especially in primary and secondary schools to spread the gospel about science through career guidance.
- Student were advised to reduce time on social media and concentrate on their goals ie by doing what is right at the right time, place and in the right way.
- Retain more female teachers to inspire more girls to science.

Presentation from Nazziwa Carol (Math and Chem)
She shared her history.

She started loving mathematics in senior three and she dreamt of becoming a doctor but to her surprise, she was given (chem/Math). She was not happy at all. Due to the inspiration by Dr. Betty she started loving mathematics and now performing well.

Challenges

- Girls lack interaction especially with male lecturers.
- Lack of commitment; girls always have self-pity.
- Male students and lecturers despise girls.
- Discouragement from relatives.
- Lack of information about courses in college of natural sciences.
- Discouragement from fellow students (2^{nd} and 3^{rd} years).
- Some lecturers send girls out of the lecture rooms because they do not contribute.

- Some girls are moody.
- Poor explanations by some lecturers.
- Some lecturers just download notes from the internet and do not even edit them.

Comments

- Be committed
- Try to sell mathematics to outside community
- Write a paper and name the lecturer who chases you out of lectures.
- Move with a friend to consult a lecturer.
- Avoid discouragement from other people.
- Advised them to do any course whether minor or major.
- Rotate lecturers.
- Avoid being biased.

Presentation from Oliver Nabuuma (Bsc. Educ)

She confessed that she loved education that she gave it 1st Choice, 2nd Choice, 3rd Choice and Engineering was given 4th Choice. That means she could not miss out education course.

Challenges

- Discouragement from colleagues
- Problems in marking
- Lack of motivation in class
- Mathematics does not show that it is practical
- Destruction by statisticians (ie 49% is being a fool).
- Some girls do not do course work.
- Lack of cooperation amongst students
- The scarely nature of mathematics
- Lack of concentration in class

Comments

- It is all about methodology
- Talk about it with Head of Department
- Learn to apply mathematics

Presentation from Carol Namanya (Graduate Student)

- Mathematics requires hard work
- Few female lecturers (gender sensitivity) in the department
- Set goals and work hard to attain them.
- Fear to fail publically

- Everyone sees things differently

Way forward

- Congratulated Dr. Betty for such opportunities.
- Departmental platforms with all information required especially internships, scholarships and other opportunities and updates.
- Continue consulting each other; boys and girls as brothers and sisters to learn more in different fields.
- Emphasis should be taken far primary and secondary schools.
- Feel responsible for your lives at campus and after campus.
- Be focused in whatever they do (ie putting on min skirts when consulting a male lecturer; avoid shying) be focused.
- Disapprove that mathematics is for men, it is for everyone.
- Give girls a chance to participate in different activities as well as boys.
- Avoid being selfish.
- Love one another for better results.
- This idea should be taken far to primary and secondary to make a good foundation by opening their eyes at early age.
- Organize a career day and have a practical session for mathematics.
- Advise students on the issue of majoring and minoring in first year.
- Advise girls to look for opportunities and use them accordingly.
- Go back to former schools, homes, communities and inform them about the good things in physical sciences.
- Oral tests should be emphasized.
- Avoid being inferior all the time.
- Put love and determination together to become great ladies.
- Some courses are not easy to explain ie BSc. Econ (Stat & Math)
- Extend sensitization to communities to be able to reach parents.
- Students should emphasize on understanding but not only result.
- Sensitize primary and secondary schools teachers.
- Learn to present yourself with dignity.

Closing remarks

Go out and grab a chance because nobody will give you one.

Use internet to get more information about physical science, use e-mails, calls etc. to access information.

Look for opportunities, google and get those opportunities.

Be flexible, ie scientific journalists, bankers, translator, statisticians, economics.

Comments

All challenges to be presented to people concerned.

Realize all the negativity in you and fight it.

Science is always dynamic.

By the end of the workshop, a total of 416 students had signed the attendance register. During the workshop, more field work was done. This work will be analyzed statistically after the end of year activities.

A few days after the workshop, Makerere University was closed for three months till January 2017. This resulted in missing two seminars and a career day.

When the university was opened, it was not possible to have the seminar in January, as it was announced simultaneously, that end of semester examinations would be start in three weeks, and the second semester would open four weeks after re-opening.

The next seminar was organized end of March 2017 (30th) in Bot Yr. II laboratory. This was aimed at catching up with the lost activities, and reminding the girls of our cause. During the seminar, a date for the next one was set for 20th April, in Bot Yr. II laboratory. This was the most attended seminar with 170 registered attendees. It was quiet overwhelming but the students agreed to participate even with such a stringent budget. Before the seminar and during class visits by the Project leader, students suggested that we could have a bigger seminar and unlimited time, but students would be free to leave if they had a lecture and the seminar was still ongoing. In view of this, the seminar was held from 1:00pm to 3:57pm, when all possible discussions, are arrangements for the May 02-03 Math School were finalized.

The Agenda for the seminar was:-

Seminar 20th April 2017BOT Yr. II LAB

Agenda

1. Prayer
2. Communication from Project leader
3. Reactions & Discussions
4. Math School May 02 – 03 2017
5. AOB

1. Students presented a lot of issues, especially with male lecturers.

2. The girls felt bias from male lecturers especially when they ask, or comment on the derived answers during lectures.
3. One girl shared an experience when she was called stupid during a lecture.
4. They felt biased by some male students especially those who marked their scripts – they felt that the boys gave them poor marks for fear of being outscored by the girls.

All these points and concerns were presented to the Head of Department by the Project Leader immediately after the seminar and he promised to address them.

Students suggested a presentation by the Project Leader on application of mathematics rather than teaching. The Projector leader made a brief presentation and promised to give a 30 minute talk during the May 02-03 School.

Students requested the Project Leader to request the Head Department of Mathematics to talk to his employees to refrain from calling them dumb in class. They shared that with too much demanded from their homes (house work), some of them look for their own tuition, other social responsibilities, being called dumb could put an end to their quest for success in mathematics. The Project Leader promised to address it with the Head of Mathematics. This was presented to the head on the same day.

On Career day and field trips, it was agreed that the first week of June should be utilized. A Makerere University bus has been promised by the Principal College of Natural Science. A girls' school has been identified Nsambya Girls Senior Secondary School and appointment already booked. The career day to showcase applications of Mathematics to real life sciences is tentatively being organized and dates will be communicated very soon.

The May 02-03 2017 Math School arrangements are finalized and expected to be the best. Speakers from Uganda and Nairobi are expected to attend. This time, a total of 30 speakers have confirmed attendance including three Principals, three Deans, two heads of departments, key gender facilitators, and staff of the Department of Mathematics.

So far, 430 students have registered and picked tags. With a very strict budget, we hope that the facilitators bear with us.

Results so far

1) **Female empowerment** in the College of Natural Science has been a success, with more girls willing to participate in all activities including college leadership. In the last students' polls, girls made a record taking College President and College Vice President. This is the first time a female student is College President. As if that was not enough, a female student also won vice presidency -- the college is run by girls. This was due to an empowerment talk I made to each class urging to support each other especially the girls that had shown interest to lead.
2) a) **More female majors in mathematics and physics.** In the current third years, we have more than 18 math/physics majors. A jump from less than five a year ago. These students have also shown interest to continue with graduate studies and I am looking for grants to cater for their

graduate study as they iterated that it would be hard to secure more school funds from their parents.

a) **In the current second year**, which was year I when the project started, we have over 40 students that have expressed interest to major in mathematics/physics.

3) **There is better collaboration with the Department of Physics** with the Head giving me access and assistance whenever required. He has also continually participated in these workshops and shared the benefits and opportunities of majoring in Physics to the girls.
4) **Women in Natural Sciences** was launched on October 26 2016 and still operational, but due to no funds to develop it further, it is still lacking and more effort will be directed towards better facilities on the webpage in the nearest future.