

Shattering Stereotypes:

SEPnet tackles the gender stereotyping found in subject choice for GCSE subjects in schools.

Aims:

This pilot project will determine the best role Physics Outreach Officers can play in tackling and improving the Gender Stereotyping problem in schools.

Context:

The SEPnet Outreach programme aims to communicate the message “Anyone can do Physics” to schools across the region with a particular focus on KS3 students. This message is particularly targeted at those students who enjoy Physics and could go on the study and enjoy the subject, but are currently being dissuaded by external factors such as their school or parents.

The SEPnet Outreach programme has been running successfully for eight years and is formed of twelve partner universities. During the restructure of the Outreach programme last year, both Outreach Officers and the SEPnet Collaboration Board (formed by the SEPnet partner Heads of Departments) prioritised tackling the gender imbalance found in Physics.

In the last few years research by the Institute of Physics (IOP) has shown that the lack of girls taking physics at A-Level is part of a wider problem; gender stereotyping in schools. The report *Closing Doors*¹ concluded that schools which had low numbers of girls doing physics also had a small number of boys doing subjects which were stereotypically seen as girl subjects. Following this the IOP ran the *Opening Doors* project which generated a best practice guide for schools² looking to tackle gender stereotyping.

From the point of view of the SEPnet partners the lack of diversity in Physics is a problem they want to tackle as potential undergraduate Physics students are being put-off from studying the subject. Projects aiming to increase the diversity of students taking A-Level physics are then seen as growing the pool of potential physics undergraduates.

In the past the SEPnet Outreach team has not directly addressed the diversity problem in Physics. However the SEPnet Diversity lead (Prof Averil MacDonald) alongside WISE has developed *People Like Me*³, a new workshop tackling how STEM careers are presented to KS3 students, specifically targeting girls.

¹ http://www.iop.org/education/teacher/support/girls_physics/closing-doors/page_62076.html

² http://www.iop.org/education/teacher/support/girls_physics/opening-doors/page_63803.html

³ <https://www.wisecampaign.org.uk/about-us/wise-projects/people-like-me>

This project will determine how best a Physics-specific Outreach Officer can challenge the wider problem of school gender stereotyping using existing resources and based on the Opening Doors report.

Objectives

Objectives for Pilot Project upto 2017

- Deliver a year-long programme of activities to six schools in the South East in the 2016/17 academic year. Each of the three Outreach Officers (OO) will work with two school. The schools will be local to each of the Officer's Universities.
- Develop metrics to measure how gender-stereotyping culture can be measured in schools.
- Kickstart a discussion in each of our schools on how they are gendering different subjects and therefore influencing subject choice.
- Produce a best practice report for Physics specific Outreach Officers wishing to tackle Gender Stereotyping in Schools.
- Show a decrease in gender stereotyping behaviour in our pilot schools including teacher's behaviour, school environment and aspirations of students.

Overall Objectives for Project (Beyond 2017)

- Show less gender-biased subject choices made at GCSE for Year 9's in schools in 2017 / 2018.

Project Team:

Dominic Galliano, Director of Outreach, Project Manager (PM)

Pearl John, Southampton, Consultant and Teacher Support

David Farmer, Royal Holloway, Outreach Officer

Jen Gupta, Portsmouth, Outreach Officer

Heather Campbell, Surrey, Outreach Officer

Summary of programme of activities:

The main programme targets Year 8 students in schools of all genders. In terms of SEPnet and Physics, the final vision is to see an increase of girls and other under-represented groups taking A-Level physics and going on to do Physics degrees.

A secondary audience are interested A-Level physics students. Part of the main programme will be delivered by Year 12 students as the Year 8 students will relate to them more than SEPnet's usual undergraduate ambassadors. These students will be known as Physics Ambassadors (PA) and will be supervised by their local OO. The PAs will finish the project with a greater understanding of the gender stereotyping problem and how it affects STEM careers. It is hoped that they can continue to help raise awareness as they continue their careers.

It is intended that out of the six schools the pilot will be run in, half will have sixth-forms within the school, the other half will require a partnership with a local college.

The OO will be running the programme in partnership with the school from the start. Each school will carry out additional activities, some based on Opening Doors or original, that will look at the problem of gender stereotyping across all subjects.

Stage One April – July 2016:

This stage sets-up the relationship between the Project team and participating schools. Initial contact with the school will be through the existing relationship between the OO and the Head of Science / Physics, but subsequent meeting will involve the Headteacher and senior management. This is a crucial part of raising awareness and will help if there is push back from members of staff. There will be an agreement between each of the schools and SEPnet which will outline what we expect from each school, what they can expect from SEPnet also allow the evaluator access to the school and pupils at certain points in the project.

The programme will be delivered to Year 8's who at this stage will be in Year 7. The schools and OO will decide on how many student in that year will take part. This will depend on the available time of the OO, the school and the number of students. The school will also decide when it's best to deliver the programme. (PSHE lessons / Science lessons).

The evaluator will visit the school to establish a baseline. There will also be a briefing from PM and the respective OO to all teachers so they are aware the project is being run at the school.

To study as many different types of schools as possible within this limited sample, half the school won't have Year 12/13 (Sixth-form). In these cases, alongside the school, a local Sixth-Form College, will be found for which the secondary school is a feeder. In this case the Headteacher of the Sixth-Form College will need to agree to the project and also have an agreement with SEPnet.

Once all this is decided dates for the three parts of the programme will be decided so they can be worked into the OOs workload for the coming year.

Stage Two 2016/2017 Academic Year

Autumn Term 2016:

(1) PA recruitment

The OO will run WISE's People Like Me workshop to Year 12 Physics students. The primary aim is not to influence their choices in career (too late at this point), but to make them aware of the diversity problems in STEM and introduce them to a resource they will then be helping to run later. The OO will also give a summary of the Closing Doors / Opening Doors reports from the IOP. This will be followed by an outline of this project. By the end of session, the OO will recruit 4-6 volunteers to become PAs and help deliver the programme.

(2) Introductory Workshop – People Like Me / Physics: What Is It?

The OO and PAs will deliver the People Like Me workshop to the Year 8 students. The PAs will be sitting with the students helping them through the activity. This will be particularly helpful for those students who may have greater difficulty using adjectives to describe themselves.

At the end of the session, the Year 8 students will receive take home material outlining their STEM types encouraging to talk about this with their parents. They will also be asked to pass on an invitation to the next term's careers event (see below).

There will be supporting material for the parents where they can find out more about the workshop their children have participated in. This will be based on existing materials for the WISE workshop, will be hosted on the SEPnet website. PM will oversee this.

Training material for the PAs will be developed by the OOs and PM over the summer and delivered prior to the actual event.

Spring Term 2017:

(3) Careers Evening

As part of the agreement with the schools, we will them to plan and host a Year 8 careers evening. SEPnet is happy to support the event which will include providing speakers from industry. We will also help the schools find speakers beyond STEM. Speakers should be diverse and not conform to the stereotypes we are challenging. The PAs and OOs will be available to the school to help run the evening, however it will be the school's responsibility to plan the evening.

Prior to the evening we will ask the STEM speakers to carry out the adjectives activity so they can talk about what type of STEM person they are. There will also be an opportunity for the parent and student to do the activity throughout the evening.

Summer Term 2017:

(4) Gender Stereotyping Extended Project

To end the year the Year 8 students will work on an extended project led by the PAs and supervised by the OO looking at how the school and the students view gender and career choices. The project could take any form, including a poster, a short production, and a series of essays or a video. The length of the project will depend on the type of project. The students will work in groups and each school will pick a winner. The winning projects will be highlighted on the SEPnet website. Prizes will be given to the winning students from each school.

(5) Region Wide PA Conference

The PAs will be invited to a day conference at one of the participating universities. There they will get a chance to talk about their experiences throughout the year and prepare a

presentation on how their school's experiences throughout the programme. There will also be expert speakers on gender who will provide insight and encouragement to the PAs.

There will be a final meeting at each school between the Head, any teachers that were actively involved with the project (form tutors and Year 8 Head) along with the Head of Science / Physics, the OO and the Evaluator. It will be an opportunity to talk about the programme candidly.

Stage Three August – December 2017:

There will also be a regional meeting, which will be an opportunity for representatives from each of the schools to meet and share their experiences and provide suggestions for future years of the project.