



Mathematics

Student Ambassador Case Studies

University of Leeds

University of Cambridge

University of Nottingham

Queen Mary, University of London

University of Bath

University of London

University of Plymouth

Undergraduate Ambassador Scheme

University of Warwick



THE CASE STUDIES

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Introduction

Mathematics Student Ambassador Case Studies

It is widely recognised that giving undergraduates a chance to participate in an ambassador type scheme is hugely beneficial. In the HEFCE (Higher Education Funding Council for England) funded More Maths Grads Project the evaluation found that one of the most fruitful ways of generating more Maths graduates was through using student ambassadors. Several HEIs

(Higher Education Institutions) have been running successful schemes for many years, but there are also various others who are venturing into this area for the first time. In recent years the Undergraduate Ambassador Scheme (UAS) and government funded Student Associates Scheme have increased dramatically the numbers of Maths departments participating in such schemes.

One of the great advantages of student ambassador schemes is that it is mutually beneficial for teachers, pupils, HEIs (Higher Education Institutions) and undergraduates. The teachers receive a young motivated extra pair of hands and also a better supply of capable graduates into the profession. The school pupils have a chance to interact with a young inspiring role model, and often their perceptions about university are changed dramatically. In 2008, the University of Leeds conducted a survey which showed that the proportion of pupils thinking that only rich people went to university decreased from 28% to 7% after the pupils had interacted with students from the Student Associates Scheme.

“ For the undergraduates themselves, being a student ambassador can be life changing experience, providing a valuable opportunity to decide on teaching as a career as well as a chance to obtain excellent transferable skills.

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For the undergraduates themselves, being a student ambassador can be a life changing experience, providing a valuable opportunity to decide on teaching as a career as well as a chance to obtain excellent transferable skills. For departments, they can often visibly see the change in

their students' motivation and communication skills, as well as being better linked to local schools. There is of course the difficult to measure but very likely outcome that departments will also experience some level of recruitment benefit.

This booklet has been put together to share some of the excellent work that is going on in this area, giving examples of different popular types of schemes, as well as a couple of more unusual models.

Hopefully these case studies will be useful for those who have been running a scheme for a long time, or who are thinking of starting up from scratch, providing plenty of ideas and food for thought.

Queen Mary, University of London



Please describe briefly the general set up of the student ambassador scheme at your institution.

At QMUL (Queen Mary University of London) we run a semester module for finalists under the Undergraduate Ambassadors Scheme (UAS). Students are selected to participate in the module based on a competitive interview. Selected undergraduates are required to spend one-half day per week for ten-weeks working as ambassadors in local schools. They are required to keep a reflective logbook of their experience, take a leadership role in developing a 'Special Project' to implement in the school and give an oral presentation summarizing their experiences during their placements.

How do you recruit students onto your scheme?

Typically 10-20% of our undergraduates in Maths go on to pursue careers in education. Final year students interested in this career path are naturally interested in obtaining relevant teaching experience as a part of their undergraduate studies.

What training and support do the students receive?

We support the students in the UAS module in several ways. First we screen students that are not well suited to classroom teaching through an application and interview process.

Prior to beginning their work in local schools, Undergraduate Ambassadors participate in a day of training led by a master teacher. This training orients them to their role in the classroom, offers suggested practices to assist with teaching and learning and addresses issues related to child protection and expected and appropriate behaviour.

The students are paired with a Mentor Teacher in the local school who oversees the majority of their work with students and provides general guidance.

During the term we hold a weekly workshop/discussion group with the Undergraduate Ambassadors at QMUL. This offers the Module Organiser an opportunity to monitor and support student progress and provide some programming on educational practice. It also provides an opportunity for students to share experiences and provide mutual support.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

Prior to initiating the UAS module at QMUL, an outreach project (More Maths Grads) had been involved with several local schools. Based on the recommendations and introductions of the More Maths Grads Team we called and emailed local schools to solicit their interest in participating in the UAS module. Following the first year a few schools have heard of this module by 'word of mouth' (e.g. Mostly via various outreach events) and contacted me to indicate that they would like to participate in future years.

We maintain contact with the schools simply by asking at the end of the previous placements if they wish to continue to participate in the future.

What do your students do whilst they are in schools?

Undergraduates generally assist with teaching and learning. Often they work with targeted groups of students and develop customized exam revision lessons and materials. Typically they assist their Mentor Teacher and also do a little whole class teaching.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

Students must complete a reflective journal and write a short report summarizing their overall experiences (25%). Students must write a report and critical review of their special project (2500 words) (35%). The students give an oral presentation on their project (25%). The Mentor Teacher provides a written evaluation of the undergraduate's performance(15%).

Do you pay the students for their time and do you pay travel expenses?

No. However, the students do earn academic credit towards their degree.

What effect do you think this particular approach of paying/not paying students has had?

The role of their academic assessment and implications for their undergraduate degree classification generally maintains high student motivation for performance in the module.

What kind of impact does completing the scheme have on students?

The experience that undergraduates gain in teaching during their placement offers an opportunity to explore actual work in schools in a limited way. At the start of the module most of the students indicate that they are considering teaching as a career. By the end of the module their experience helps them to make informed choices about pursuing this career. Some choose not to go into teaching, citing that their participation in the UAS module helped them in making this decision. Others use their experience to identify their preferred teaching environment (e.g. subjects, schools, age groups), to set career goals and determine the type of training they require to achieve them (e.g. PGCE, GTR enrolment).

What sort of feedback do you get from schools on the impact of the scheme?

Schools have been universally positive about the value of having UAS students from QMUL work in their schools. Our initial screening of applicants has probably helped in this regard.

“Typically 10-20% of our undergraduates in Maths go on to pursue careers in education. Final year students interested in this career path are naturally interested in obtaining relevant teaching experience as a part of their undergraduate studies.”

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

In the past year obtaining CRB (Criminal Records Bureau) checks for our UAS students required up to 5-months for processing. This led to problems for a few students who were unable to start their placements without a CRB check. We have had to move our selection of students forward in time to try and accommodate the long processing times for CRB checks. We've encountered no other substantive difficulties running the UAS module to date.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

I would suggest contacting the Undergraduate Ambassadors Scheme national organization (www.uas.org.uk) for additional information about the many participating universities and the diversity of modules offered under this scheme. When we initiated this module at QMUL, discussions with UAS Module Organisers at other institutions were extremely helpful. The contacts provided by our outreach team and the UAS national organisation really expedited the startup of our module.

How is your scheme funded?

Our initialization of this module was supported internally by the School of Mathematical Sciences and by a small startup award (£500) from the national Undergraduate Ambassadors Scheme.

Here are some representative student comments about the module:

- “I wanted to become a teacher, however I was not completely sure, but having completed this module I have made a definite choice.”
- “I have learnt so much through this module as it has given me hands on experience in teaching pupils. I have learnt that no two days are the same, always be prepared as anything can happen, and each pupil is different.”
- “The main thing gained by the pupils from my presence was the extra help and attention they received. Also many viewed me as a mentor, who can assist them in the choices of subjects for A-levels, and give them an insight on university life and Maths as a degree.”
- “[Taking this module] made me realize that I would rather teach at secondary school than at college, which is what I initially wanted to do.”
- “It is great to have this experience if you are thinking about going into teaching and it really looks good in interviews for PGCEs.”

University of Bath – Maths Communicators



Please describe briefly the general set up of the student ambassador scheme at your institution.

The students do a variety of activities for credit. 16 Maths students complete the Maths Communicators course in their final year and students are selected from a much larger pool who want to do the course. The course has now been running since 2002.

The aims of Maths Communicators are as follows:

1. To teach the students to be effective Maths communicators (and evaluators).
2. To give the students experience of working with young people, teachers and the general public.
3. To use the great creative resources of our students to be effective agents for promoting Maths and encouraging widening participation.

Format and timetable

November: Students selected

January: CRB (Criminal Records Bureau) and child protection training

Feb-May: Students trained in presentation and evaluation skills and do the following:

- Baths Taps Into Science (An annual science fair run in Bath as part of National Science and Engineering Week)
- Maths Masterclass (Key Stage 3)
- Optional activity
- Written piece

May: Submit a 40 side project report for evaluation

Details of the student activities:

1. Bath Taps Into Science

Students plan and run an exhibit in the Bath Taps Into Science Festival, working in teams of four for half a day. Examples of topics covered include: mazes, codes, probability, noughts and crosses and magic. Students are trained in presenting and evaluating and are given the chance to do both a dry run and full exhibition.

2. Maths Masterclasses

These Saturday morning classes for KS3 young people were originally founded by Christopher Zeeman. They are a mixture of talks and workshops and are based in a university (Bath, Bristol, Reading for our students, but the classes are nationwide) and are linked to local schools.

Students work in teams of four to deliver a class – there have been a huge variety of topics including mazes, codes, deep sea diving, and dancing. Students have two theory training sessions, one observation and run one actual class.

3. Optional Activity

Wide variety of possible options for students to choose from, e.g.

- Primary School Lesson
- Secondary School Lesson
- Maths Inspiration
- STEM Net activity (eg. Lego Robotics)
- BBC4 production
- University of the Third Age
- Royal Institution
- Dr Maths Journalism
- Further Mathematics Support Programme
- Video conference

4. Written Piece

This is a permanent piece of work in a style of the student's own choosing.

- Poster
- Web-site
- DVD/Video
- Newspaper article
- Booklet (eg. For More Maths Grads in a Box)

Students have to identify an audience & write for that audience. Evaluation is by portfolio. Students are assessed on

- Presentation
- Explanation of the Maths in each activity
- Explanation of how this was conveyed and the expected learning outcomes
- Careful evaluation of how the activity went (possibly including audience statistics)

How do you recruit students onto your scheme?

They apply by sending in a short account of why they should do the course which I then use to decide on their suitability.

What training & support do the students receive?

Courses in: Running a science fair, working in schools, evaluating their work, child protection, risk assessment.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

Through the Maths masterclass programme and the local education authority. Working with the teachers as part of a big team keeps the links going.

“ Students work in teams of four to deliver a class – there have been a huge variety of topics including mazes, codes, deep sea diving, and dancing. Students have two theory training sessions, one observation and run one actual class. ”

What do your students do whilst they are in schools?

Science shows, Maths masterclasses, special lessons, teacher observations.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

All have to have a current CRB (Criminal Records Bureau).

They do four pieces of work for a portfolio and this is then double blind marked to give assessed credit against a carefully worked out mark scheme.

Do you pay the students for their time and do you pay travel expenses?

Pay travel only.

What effect do you think this particular approach of paying/not paying students has had?

It is much more cost effective to give them degree credit.

What kind of impact does completing the scheme have on students?

Massive. Many of them say that it is the best course that they have done. Many of the students have gone onto careers in teaching or public engagement. All have enjoyed the course.

They have created a lasting legacy of resources and a lasting impression amongst the young people and general public that they have worked with.

What sort of feedback do you get from schools on the impact of the scheme?

Schools really like the students and request them to come again.

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

It takes a long time to assess the student projects and this has to be done with great care. Money is always a problem.

Are there any additional practical considerations which you need to consider when administering your scheme?

You need a streamlined administrative procedure to deal with all of the complexities of the scheme. Electronic forms are a must.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

Go for it. And give degree credit.

How is your scheme funded?

From a variety of sources including the HEA (Higher Education Academy), EPSRC (Engineering and Physical Sciences Research Council), industrial sponsorship, science city Bristol, British Science Association. Costs about £4k per year to run.

Do you have any further comments?

All universities should run such schemes!

University of Cambridge – STIMULUS Programme



Please describe briefly the general set up of the student ambassador scheme at your institution.

Students apply for a placement in the Michaelmas and Easter terms. They work as volunteer Teaching Assistants working alongside class teachers in local schools. They either work in the classroom helping generally, with a small group or an individual. The amount of time varies between 1 hour and a whole afternoon per week.

The schools include State Primaries, Secondaries, Sixth Forms and one Special School. This year we have now included two Independent Secondary/Sixth Forms and one Independent Primary/Secondary School. Students can choose the age range and subjects they want to work with. Placements are then arranged to fit around their timetable and choices. There is a part-time person (0.3 FTE - 1½ days a week) employed as the Coordinator of the scheme.

How do you recruit students onto your scheme?

Emails are sent out to Departments and Faculties to forward to their students. Posters are sent for display in Junior and Senior Common Rooms. There is a 2 day stall at the Societies' Fair in October, followed by a 'Squash' party. Many are recruited by word of mouth – friends recommending the scheme.

What training and support do the students receive?

Sessions are run during the Autumn and Spring school half term holidays. These are for Science and Mathematics, run by University of Cambridge teaching staff. In addition there is a session run by Teach First in the Autumn half term entitled 'Teaching Children with Challenging Behaviour'.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

As the scheme has been running for 24 years we have built up a database of local schools. These are contacted by mail in September with a pack sent that informs the Head about the scheme and how it works. The schools then fill in their requests for support online. If there are any queries e.g. from a new Head who does not know the scheme, the coordinator will visit the school and explain how the scheme operates. The coordinator has also attended staff meetings for schools that have just joined. Feedback forms are completed by the school at the end of each placement.

The coordinator chooses two schools (one Primary and one Secondary) to visit each Lent term to take photographs and talk to the staff and students concerned. If there are any problems the coordinator will visit the school as soon as possible. An Annual Report is sent to each school and school department on the database each year.

What do your students do whilst they are in schools?

This depends entirely on how the teacher concerned is using their volunteer. Generally this is either helping in the whole class on a hands-up basis, working with a small group or working with an individual. This can include working with the weakest children or extending the most able.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

No, it is not.

Do you pay the students for their time and do you pay travel expenses?

No.

What effect do you think this particular approach of paying/not paying students has had?

The students are keen to volunteer and the fact they are not paid has not stopped the number of volunteers growing year-on-year. Students are keen to give something back to the local community in Cambridge.

They also see STIMULUS as an ideal opportunity to try out teaching as a career. Many go on to take up PGCE places, or work in teaching through Teach First and the Graduate Teaching Programme. STIMULUS gives them the opportunity to work in different types of schools, in different subjects and with different ages.

What kind of impact does completing the scheme have on students?

Over $\frac{2}{3}$ of the students participating last Michaelmas term continued in the same placement for the Lent term. Feedback shows how much they enjoy the experience. A number of students each year go into teaching as a career but numbers are difficult to ascertain. We are working on how we can measure and monitor this.

What sort of feedback do you get from schools on the impact of the scheme?

The vast majority are positive. Schools apply year after year so do appreciate that the occasional weak student is a rarity.

Examples of feedback from volunteers:

"I have been in a STIMULUS placement at ***school (Maths) for a couple of weeks now and have had a great experience. The teachers have been very positive, and I feel like I'm able to really make a difference by being an extra hand for the teacher. I also feel useful when I can respond to probing questions from a 'university' perspective."

"My job in the class mainly involves helping the class teacher with assisting the children in their work. I tend to float around in the class and speak to different individuals about what they are doing, and of course answer any questions they may have."

"Going to the school has now become a highlight of my week. Seeing the smiles on the children's faces just warms my heart! I have also learnt a lot in terms of communicating with children, and also in terms of how to think in their shoes... I would strongly recommend other Cambridge students to sign up for a STIMULUS placement, even if you are not thinking about a career in teaching! You will be surprised by how much you learn from the experience!"

Examples of feedback from teachers:

"Daniel worked with most students on a one-to-one basis. Quite a few of the students struggle with learning to program and so it is very difficult getting around all the students in class so that they can all make progress. They can get restless if they don't get help quickly. With

two people helping the students (Daniel and myself) it has made a great difference. I have asked Daniel to work with the weak students particularly and it has made a difference to these students' confidence and their programming skills."

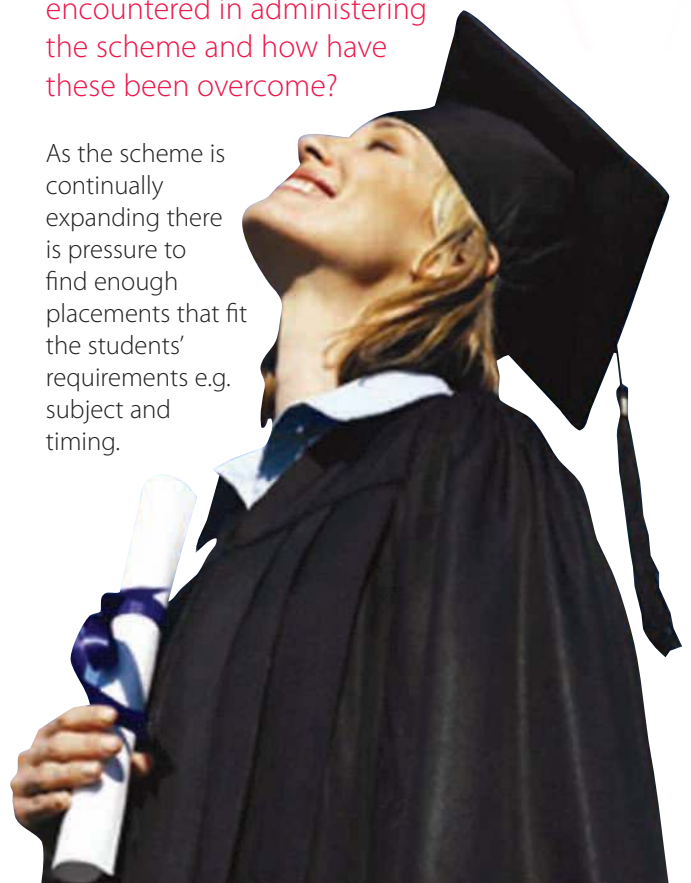
"I would love a STIMULUS student in all of my lessons! I would like to let you know which topics are being taught so you can send me the expert STIMULUS student for that topic."

"Frances continued to come into school each week until the end of the Spring Term. She was very enthusiastic and was willing to work with the children both in whole class, group and individual situations. She regularly gave whole class input alongside myself. She was very informative and used a variety of techniques to interest and motivate the children. She would use the children themselves to give demonstrations in a practical and fun way, she would use diagrams and equipment to show how things work and she would find relevant and interesting information and video on the internet to support the topic and learning the children were undertaking. Frances was a huge asset both to the children and myself and we all enjoyed her visits. She was flexible and came up with exciting ideas at short notice. I have only the highest praise for her support and attitude towards the teaching and learning for the children. I am quite confident that she would make an excellent teacher if she decided to take this route!"

“As the scheme has been running for 24 years we have built up a database of local schools.”

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

As the scheme is continually expanding there is pressure to find enough placements that fit the students' requirements e.g. subject and timing.





Schools are reminded that more volunteers are available in the afternoons than in the mornings. Post graduates are now filling some morning slots.

We moved into accepting three independent schools onto the scheme this year in an attempt to find more Science placements for our volunteers and this has been a success.

The constant need to raise funds. The Deputy Director of the Millennium Maths Project shoulders the burden, with the scheme coordinator doing as much as they can to assist with this, mainly by writing the appeal letters.

CRBs (Criminal Records Bureau): These take up a tremendous amount of the coordinators' time. Unfortunately they are necessary in this day and age. Half our schools require the volunteers disclosure to have arrived before they can start their placement so this creates a frustrating delay for all concerned.

Are there any additional practical considerations which you need to consider when administering your scheme?

Finance:

A fair amount of time each year is spent appealing for support from colleges and departments within the University, as well as external sponsors. Occasionally

support is offered by individual alumni and businesses. The scheme is very cost effective, costing around £14,000 p.a. to run (the equivalent of approximately £5 per student volunteer contact hour in schools, or approximately 25 pence per hour per school student directly benefiting from the volunteers' help in classrooms), but this has to be raised each year and in the current financial climate this is proving increasingly demanding.

The coordinator needs to be fairly capable IT-wise. However support is freely available from the technical staff in the department, which the current coordinator relies upon heavily at certain points in the year!

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

Having a coordinator who knows the local schools is a great advantage. It would mean a steep learning curve for anyone without that local knowledge.



University of Leeds



Please describe briefly the general set up of the student ambassador scheme at your institution.

A 'Maths Into Schools' module is offered to 2nd year Maths Undergraduates, a chemistry into schools module is offered to 3rd year chemistry Undergraduates and a physics into schools module is offered to 3rd and 4th year physics Undergraduates. It is a 10 credit module (20 credits for 4th year MPhys students), requiring students to spend 25-30 hours in school and carry out a project e.g. develop some kind of resource(s) for the school.

How do you recruit students onto your scheme?

A meeting is held for the Undergraduates in the year before they are eligible to apply to give them more information about the scheme, usually inviting a current student who has taken the module to give an account of their experiences. Students then apply through the Access Academy and register with their academic school.

What training and support do the students receive?

Students are given a few hours training before going into school, covering reflective learning (to help them complete a reflective learning logbook) and aspects of working in a school. For example, learning styles, terminology, child protection issues, information sources, what to do if..., etc. Students are encouraged to highlight any problems or concerns throughout the placement, either with their subject tutor, module co-coordinator or the Access Academy. They have e-mail contact and one to two meetings through the year with the subject leader.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

The schools were originally written to by the Access Academy and invited to a meeting to find out more about the module. The schools involved can vary each year depending on how many students take the module, but we generally have a core few that stay the same. Some schools are asked to take part after working with us in another capacity (e.g. attending an outreach event) and colleagues occasionally pass on contact details of teachers who may be interested. There are sometimes opportunities to promote the module at events for teachers (held either in school or here at the University).

What do your students do whilst they are in schools?

They begin by observing and helping in the classroom. In conjunction with the teachers they decide what project they will undertake. They may develop resources e.g. revision materials, starters for lessons, develop part of the school website/ intranet. They often work with specific groups e.g. high or low ability pupils, they may take a lesson or part of a lesson, run a Maths or Science club, give a presentation on careers in their chosen subject and life at University. Ultimately they are there to help the teacher where they need it most and act as a positive role model in their subject.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

There are four main methods of assessment. This is how the requirements are presented to the students taking the module:

1. An end of module written report including teaching material/resources (40%)

A written report (40%) (Between 2000 - 2500 words) based on the Special School Project, this should include copies of all teaching resources/materials produced for the School. The report should be based around a description of the Special School Project covering aspects of research, preparation and identification of targets prior to commencement of the module and evidence of how these objectives were achieved. Also including content, methods, reasoning, planning, delivery and reception.

2. A Learning Log Summary (20%)

A summary report (20%) (Approx 1000 words) of your Learning Log Book of skills developed during the module, reflecting and evaluating on your own progress and experiences.

3. A 10 minute oral presentation (20%)

A presentation (20%) to the module co-ordinator and other students on the work produced. Describing the aims, approach, methods, results, conclusions, highlights and shortcomings.

4. An assessment by the teacher (20%)

Teacher assessment (20%) of how well the student has succeeded in achieving the aims that were agreed at the outset and of the student's general development during performance of duties.

The overall aim is to assess the extent to which you have succeeded in acquiring and developing key skills, your knowledge of a working educational environment, your ability to observe and analyse, your ability to apply subject knowledge in ways relevant to your environment in an enthusiastic and helpful manner, and to critically evaluate your own progress. You will not be assessed on whether or not you have shown yourself to be a potential teacher.

Do you pay the students for their time and do you pay travel expenses?

Travel expenses are paid.

“ They begin by observing and helping in the classroom. In conjunction with the teachers they decide what project they will undertake. ”

What effect do you think this particular approach of paying/not paying students has had?

Students generally take the module because they are interested in teaching as a career or they prefer a module with no exam. No doubt more students would apply if we paid them as well, but they wouldn't necessarily be of a higher standard.

What kind of impact does completing the scheme have on students?

All of them say they gain more confidence and improve many of their transferable skills. It helps them decide whether or not they wish to go into teaching as a career (either after graduation or further down the line). Very few have negative experiences that can't be overcome.

What sort of feedback do you get from schools on the impact of the scheme?

Most are very appreciative of the help they have had

during the students placement and feel it has been worthwhile taking part. A minority experience less useful students.

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

Due to the long lead time required for applying for the CRB (Criminal Records Bureau) it can be problematic getting students to apply in time, especially when some students are on their year abroad. We have tried to overcome this by setting the deadline before the end of the summer term and sticking to it.

We ask the teachers if they want to continue taking part the following year around Easter time, at the end of the placement. Occasionally there are changes in circumstances between then and the following Autumn term which leads to the school dropping out and we then have to try and find a school at the last minute.

Are there any additional practical considerations which you need to consider when administering your scheme?

Teachers can be difficult to make contact with, having an e-mail address is definitely an advantage.

How is your scheme funded?

Funding was originally received from UAS to start the module. Now the academic departments fund it and the Access Academy pays for the travel expenses.

Quotes from Undergraduates in Leeds:

'I would definitely recommend the scheme to others, even if they aren't planning on a career in teaching. It taught me some valuable skills like communication, thinking on my feet and how to adapt to different situations.'

Quotes from teachers/pupils in Leeds:

Chemistry Teacher: "I felt the aspirations of the year 12 group Magnus worked with were already high, however I thought the experience [visiting the University] may well have helped them decide or confirm that studying science further was a sensible and enjoyable route through Higher Education. Magnus had a very positive relationship with the younger students that he worked with and encouraged them by discussing the value of education and explaining about his studies."

Pupil: "That's the first time I've finished all my work in class" (after completing some set 1 work during the undergraduates visit after recently moving up from set 3 to 2).

University of Nottingham



Please describe briefly the general set up of the student ambassador scheme at your institution.

This module provides an opportunity for 3rd year Mathematics Students to gain first-hand experience of being involved with providing mathematical education. Students will work at local schools alongside Mathematics teachers in a classroom environment and will improve their skills at communicating Mathematics. They will work with classes for half a day per week for about 15 weeks during the Autumn and Spring semesters. They will be given a range of responsibilities, from classroom assistant to leading a self-originated mathematical activity or project.

This module operates within the general framework of the Undergraduate Ambassadors Scheme (see www.uas.ac.uk for details; there is a link from the module homepage).

How do you recruit students onto your scheme?

Recruitment is by application form, interview and successful completion of a CRB (Criminal Records Bureau) check.

What training & support do the students receive?

First induction session in September is run by the University School of Education Mathematics PGCE team. Second induction session in October is run by the University Widening Participation team. The module convenor is available for support/to deal with problems as they arise.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

I think we started with four schools. I had personal

connections with senior staff at two of the schools and I approached the schools via my connections. The other two were suggested by the Widening Participation Outreach Manager.

What do your students do whilst they are in schools?

While classroom experiences will obviously vary, the first two weeks or so will probably be spent mainly in observation. As students become more familiar and confident with the class, they will take on more responsibilities as assigned by the teacher. Specific tasks could include taking over the teaching of the class for ten minutes or so to explain an interesting application of Maths; taking a small group of more able pupils to one side to teach them a more advanced topic; or possibly giving extra support to less able pupils in the class.

When students are comfortable with such tasks they will be expected to devise and carry out a special project involving Mathematics education within the school. Suitable topics or activities should be decided in conjunction with class teachers, but students will have to show that they can address a specific teaching issue, and design and prepare appropriate material. This special project will form the basis of the final report on which the bulk of marks for this module rest.

During the Autumn term and in the first four weeks of the Spring semester, each classroom visit must be supplemented by an entry in the student's log-book, and log-book entries must be sent to the module secretary on a weekly basis. The completed log-book will be assessed and form a part of the final module mark.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

The formal assessment for this module is as follows:

- 20% Weekly log of classroom activities, to be sent electronically to module secretary on a weekly basis (Max 350 words per week).
- 10% Group seminar, to take place in the last week of the Autumn term.
- 50% End of Year Project, a written report focussing on a special topic or classroom activity of the student's own devising.
- 20% End of Year Presentation on the student's experiences.

Do you pay the students for their time and do you pay travel expenses?

Students are not paid, but may claim bus fares for travel to and from the schools.

What kind of impact does completing the scheme have on students?

Students think that the module is hard work, but invariably get a lot of satisfaction from it.

What sort of feedback do you get from schools on the impact of the scheme?

Schools generally appreciate the extra pairs of hands, however competent the students may be. Good committed students are warmly received, but schools do not usually provide a great deal of feedback when things progress smoothly.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

“Recruitment is by application form, interview and successful completion of a CRB (Criminal Records Bureau) check.”

Almost weekly emails between each student/module convenor ensure an appropriate level of communication, so

issues are dealt with quickly. Less frequent communication between convenor/schools occurs as necessary, once arrangements for the year have been made (selection of students, and assignment to particular schools). It's emphasized that it's part of the module for students to deal with practical problems that arise, and most accept this and get on with it. Just the same as any other module in the degree programme.

Quotes from Undergraduates

“I found that I learnt a lot during my time at **college. My organisational skills have improved so much and I realized the productivity of getting up early and being punctual. My confidence grew and I learnt to speak up and out. I learnt that it is Ok to ask for help, both as a student and a teacher – I never asked any of my teachers at school for help and I have found out how frustrating that is as a teacher.”

“Some of the things I have learnt, gained or developed over the past few months are: confidence, self belief, an insight into teaching at secondary level, classroom management and how to approach things

differently for different students.”

“This module has shown me more of the life of teachers and I enjoyed every moment in school. Yes, I returned to university in the afternoon feeling tired but I always wanted to return to the school the next week. I feel that I could now enter a PGCE course with no false images of what it is like to teach.”

“When I look back through my log book in the ‘final thoughts on completion of the day’ section, it is a complete mixed bag. Some weeks I came home completely drained and not wanting to go back, sometimes I was delighted with the way the day went and was eager to return. That is the nature of the job; no two days are the same and you never know what's going to happen next. I think that this variety is definitely what I want in a career; it certainly beats a job where each day is the same.”

Quotes from teachers/pupils

“It was good to meet the students yesterday and they will be a real asset in addressing some of the issues raised by Ofsted.”





"We benefit from having these students by further enriching the Mathematics curriculum for our most able children, particularly those in Years 5 and 6. With the students joining the school with a real Maths specialism, this promoted the profile of Maths across the school and enthused those children who demonstrate a real ability in Mathematics. The students also provided a sounding board for some of the teachers which then offered some CPD (Continuing Professional Development) in subject knowledge. We are looking forward to working with more students again during this academic year."

"The university Maths students placement has been very successful at Estover- the students have primarily worked with the more able or gifted and talented children from each year group. The students have been responsible for planning short series of lessons/ activities based on information given to the students via the class teachers. The children have benefitted as their self esteem and enthusiasm for Maths has improved. The children from the various groups looked forward to the sessions and enjoyed the activities planned. We are very pleased to be able to have another student this year to do some work with our lower ability children, trying to consolidate their basic Maths skills."

Quotes from HE staff

"As a PGCE tutor, I can say that this scheme gives the students exactly the sort of experience that we look for in applicants. It is clear that the students who do this module, not only learn more about what it is to work in school, but are able to decide if teaching is the right career for them."

"As the module leader for the scheme, I can say that the experience the students gain whilst on placement is a rich and varied one. One of the things I notice most is the growth in the students' self confidence that occurs as the year progresses. They also learn what it is like to be learners from a teachers perspective and this impacts on their attitude towards their own studies in other modules."



University of Plymouth



Please describe briefly the general set up of the student ambassador scheme at your institution.

This is a 20 credit module that is available to 2nd and 3rd year students although it will soon only be available to 3rd year students due to restructuring of the degree. The students spend one morning per week in school helping teachers for the first two terms. Early in term 2 they give a presentation on their placement work. At the end of the second term they submit a portfolio which shows what they have done while in school and a reflective essay on their own personal development during the placement.

How do you recruit students onto your scheme?

Students on the BSc Mathematics with Education are required to take this module. Students from other degree programmes in the Mathematics area can opt to take the module as one of their elective modules. They are given information on the module at a module choice meeting and can select it if they wish to.

What training and support do the students receive?

The students are interviewed late in the summer term to ensure that they are interested, motivated and understand the requirements of the placements. They also complete CRB (Criminal Records Bureau) forms at this point. The handbook contains briefing on the expectations for their school placement. Early in the first term the students visit the schools with the tutor to set up a programme of work. The students are visited in school while on placement. The students are required to keep a logbook of their time in school & to submit regular reflective reviews on how the placement is progressing. These are in the form of a blog so that the other students on the module can comment & offer advice as well as the module leader.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

We have excellent relationships with many schools in our locality due to a long history of good connections through G&T (Gifted and Talented Students) events, local CPD (Continuing Professional Development), work with the Further Mathematics Support Programme and AimHigher. The relationship is based on a long term commitment.

What do your students do whilst they are in schools?

They do a whole variety of tasks, but the main emphasis is on helping in the classroom. Often students will work with small groups of pupils who need extra support or who need to be stretched. Most students will get the chance to undertake some direct teaching either with a whole class or a smaller group.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

Yes it is assessed.

Do you pay the students for their time and do you pay travel expenses?

No.

What effect do you think this particular approach of paying/not paying students has had?

The students view the module as any other module on their degree programme and have never raised the issue of payment. Students are not put off doing the module due to them not being paid.

What kind of impact does completing the scheme have on students?

They clearly gain insights into teaching and are able to decide if teaching is the right career for them. It provides them with good presentation skills, both written and orally – something that they do not always get a chance to develop on a Mathematics degree.

What sort of feedback do you get from schools on the impact of the scheme?

The module leader often meets the teachers in the placement schools at other meetings and events and so will informally catch up with how the students are doing. As part of the introduction, the teachers are told that they should contact the module leader if they are in any way concerned about the student. The schools are always happy to take students the following year, commenting that they have found it very useful to have the students in school the previous year. On a number of occasions, schools have asked specifically if we will have any students for them as they have particular tasks for the students that would be beneficial for the school.

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

Not too many. We have been going for some time now and smoothed out most issues that have arisen.

“ Students on the BSc Mathematics with Education are required to take this module. Students from other degree programmes in the Mathematics area can opt to take the module as one of their elective modules. ”

Are there any additional practical considerations which you need to consider when administering your scheme?

It is important to get the CRBs (Criminal Records Bureau) done early and make sure that you use an address that the students will be living at when the CRB is issued. Sending the forms at the end of term and using the students' home addresses has worked well for us. We have found it beneficial for the students if they can go into a school in pairs, they have a different timetable whilst in the school but it does give the students a bit of moral support as they settle into the school.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

Make sure that you build good relationships with the schools.



The University of Warwick – Warwick in Africa



Please describe briefly the general set up of the student ambassador scheme at your institution.

Our Warwick in Africa Teaching Project was set up in 2006 to send undergraduates who had completed the Student Associates Scheme, to teach Maths in township schools in Johannesburg, South Africa. It was designed to enhance the educational opportunity of learners in African schools, focusing on Maths teaching. The Project has now expanded, enabling us to send 48 students to three countries – South Africa, Tanzania and Ghana, for between 4 and 6 weeks in July and August in 2010.

How do you recruit students onto your scheme?

We recruit both SAS students and PGCE trainees using an online application form and select the most suitable students to attend a Recruitment Day at the University, from which we select the best candidates. This involves team building activities, lateral thinking exercises, discussions on addressing a range of scenarios the students may meet in the African schools and a mock 'Dragon's Den' pitch to potential funders of the Project. The selectors include experienced teachers, including one with expertise in team building aptitudes, a lay member of the University Council who is a director of an international financial company and an academic with firsthand knowledge of Africa.

What training and support do the students receive?

As the students have all received some teacher training they attend three twilight training sessions, each of 2-3 hours. These involve a range of presentations and activities covering team building exercises, discussions on teaching and learning styles suitable for an African context, features of a 'good lesson', teaching without access to the internet and computers, discussions with

previous Warwick in Africa participants as well as developing their understanding of their individual responsibility to personal and group safety issues.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

The links with the African schools have all been made through our partner universities in each country. We have colleagues from these universities who are responsible for liaising with the local schools, arranging transport and identifying suitable/safe accommodation for our students. Staff from the University of Warwick also visit the students in their schools during the summer placements.

What do your students do whilst they are in schools?

Our students primarily teach, averaging 20 hours+ per week but they also run clubs and activities for the children, particularly in the afternoons when lessons have finished for the day. They also work with the African teachers on developing their subject knowledge and teaching styles.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

Warwick in Africa is not an accredited module. However our SAS students can take an 'Introduction to Secondary teaching' module in Maths, Physics or Chemistry.

Do you pay the students for their time and do you pay travel expenses?

The participating students are not paid but all costs are covered by the University from philanthropic giving.

Our WiA Project is funded by alumni, the ExPat Foundation and other Trust Funds. This year the participants were asked to raise £250 which was used to buy resources for the schools they worked in.

What effect do you think this particular approach of paying/not paying students has had?

In our evaluation questionnaire 93% of the students said that they would advise future students to apply for a place even if they had to make a financial contribution.

What kind of impact does completing the scheme have on students?

All our WiA students reported that participation in the project increased their confidence, improved their organizational and teaching skills, raised their awareness of the social and cultural context of their placement schools as well as giving them a passion for finding other ways of supporting youngsters in Africa. Before the trip, 45% of students planned a career in teaching, after going to Africa, 65% plan to go into teaching.

What sort of feedback do you get from schools on the impact of the scheme?

- More than 6500 African learners have been taught by Warwick students which has increased the aspiration and motivation of African learners and more than 90 teachers.
- Improved class attendance by up to a 75% increase within the first week of a Warwick student teaching.
- Improved performance demonstrated by test results for learners up by 30 – 40%.
- In Tanzania, Warwick students initiated a Maths Club which 30 – 100 learners attend regularly.
- 14 township teachers have visited the University of Warwick to increase pedagogical knowledge through school visits and seminars with the Warwick academic community.

“Your presence really made a difference to my life and my teaching career. Your contribution and your teaching techniques were very effective” (Teacher - Fons Luminous School, Soweto).

Are there any difficulties which you have encountered in administering the scheme and how have these been overcome?

The main difficulties have been logistical which have been overcome by developing a clear structure using project management principles and developing excellent working relationships with staff in Africa.

Are there any additional practical considerations which you need to consider when administering your scheme?

“ The links with the African schools have all been made through our partner universities in each country. ”

A key issue is the security and safety of our students which we address in training sessions before the summer as well as in identifying safe accommodation and transport in Africa.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

Have very clear aims based on specific needs in the area to be supported.





Quotes from Undergraduates

“One of my Grade 12 students spoke highly of all the Warwick student teachers saying that she felt more confident and interested in Mathematics and was making much better progress as a result of our teaching and support.” SAS undergraduate at a school in Alexandra, Johannesburg.

Quotes from teachers

“your presence really made a difference to my life and my teaching career. Your contribution and your teaching techniques were very effective” (Teacher Fons Luminous School, Soweto).

Quotes from HE staff

“the Warwick students have improved the lives of our learners and they have improved my life too!” Academic Mentor from Witwatersrand University.

A report from a student ambassador who took part in Warwick in Africa.

“The aims of the scheme were clear to us from the start. We were to teach Maths but also to impart sustainable teaching ideas to the staff there. Additionally we wanted to promote a positive attitude towards Maths amongst the learners. In the schools of the townships, Maths is widely seen as a difficult subject with unattainable demands.

Our expectations were immediately dismissed as we realised that everything from the way the institution operated, to the lack of resources, couldn't be compared in any way to our experience of schools in England. The classrooms did not give the learners any kind of positive learning environment: the walls were blank and the windows, doors, tables and chairs were usually broken. The learners were exposed to bare wiring and there was no heating or electricity.

Possibly one of the biggest impressions made on us, was that common teaching styles in school had failed to communicate an understanding of Mathematics to the majority of pupils and in addition to this, teachers would not always attend the lessons. It was common place that during normal teaching periods the majority of learners would be stood out on the balconies chatting with friends or playing, rather than being in lessons.

Despite these issues, teaching in Alexandra was a very rewarding experience. The learners in school were bright, enthusiastic and so grateful to us that we found it was extremely enjoyable to teach them. We introduced a range of interactive teaching methods, including role play, group work, use of miniature whiteboards, making posters and getting the learners to write on the board. The learners began to pick up new ideas more quickly and often commented upon how much they enjoyed the lessons. They had not realised that education could be fun. Our impact was evident in the compliments we received from the learners, their increased attendance to class, and the improvement in the environment within the classroom. In every case that Warwick students were given a topic to teach a class, the test marks showed significant improvement. This was not just evidence for us that our time there had been beneficial to them, it also served as a significant boost to the confidence of many pupils. We watched this translate to a heightened interest and enthusiasm for Mathematics, bringing obvious value and sustainability to the project.

Warwick in Africa allowed us to gain an insight into a new culture, a new way of living and a new attitude towards education. We learnt as much from the learners and educators as they learnt from us and it was truly rewarding to see the immediate benefits of our work. We have great confidence in the potential of this project and we hope to see it expand in the future.”



The Undergraduate Ambassadors Scheme (UAS)



Information about the UAS scheme which helps many HEIs (Higher Education Institutions) start up and run their student ambassador scheme:

The Undergraduate Ambassadors Scheme (UAS) works with universities to develop a module that provides Science, Technology, Engineering and Mathematics (STEM) and Languages undergraduates with an opportunity to gain academic credit by working as teaching assistants and acting as role-models in local schools. It is designed to encourage undergraduates to consider teaching as a career in the shortage subject areas whilst giving them valuable transferable skills developed in the classroom that they will be able to use in whatever career path they follow. It provides teachers with a knowledgeable and enthusiastic assistant who is able to offer practical help and engage pupils in Science and Mathematics. For universities it offers an opportunity to build further links with local schools and to boost long-term recruitment into the shortage areas of science, technology, engineering, Maths and languages.

“ UAS provides guidance on key aspects of the Scheme including administrative issues, placing the undergraduates in schools and training for the participating undergraduates. ”

Based around a suggested module structure, the Scheme is adaptable to fit in with specific course requirements for individual university departments. Each undergraduate is paired with a Science or Mathematics teacher in a local school and works closely with them on one day every week (or equivalent) for a full semester of roughly 10 weeks. Ideally there will be some basic matching between undergraduates and teachers. The

module is designed to operate across all age ranges of school pupil, from primary to tertiary levels.

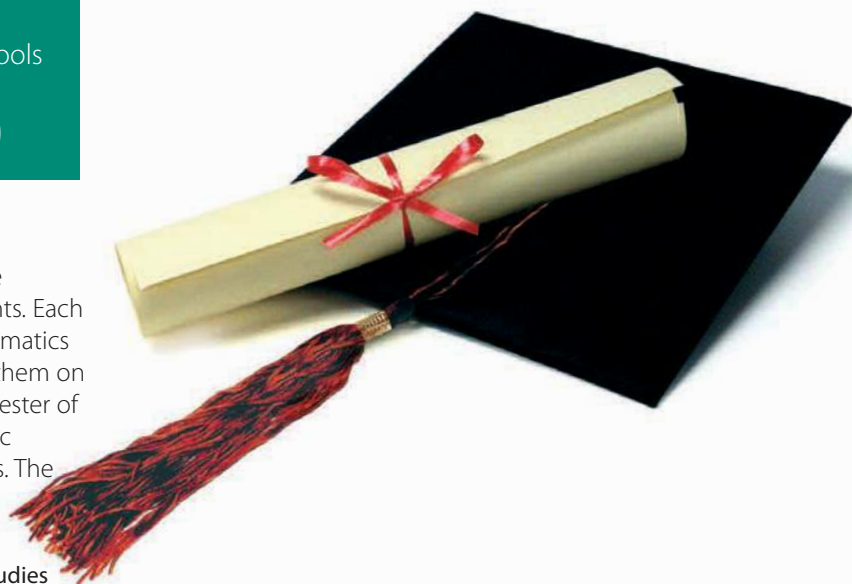
UAS provides guidance on key aspects of the Scheme including administrative issues, placing the undergraduates in schools and training for the participating undergraduates. By providing a suggested outline for a course unit, (perhaps called 'Science Education and Communication' or similar), some associated materials and advice on matters such as recruiting schools, training etc., UAS hopes to encourage university departments all over the country to take part in the scheme.

Where student tutoring schemes are already established within the university, UAS seeks to facilitate effective communication between existing schemes to ensure that it is not covering the same ground. It encourages participating departments to allow undergraduates already involved in a voluntary student tutoring scheme who wish to participate in UAS to do so without giving up their existing work.

UAS is an independent organisation, operated on a not-for-profit basis by a company limited by guarantee, Undergraduate Ambassadors Limited. It was founded by the writers and broadcasters Simon Singh and Hugh Mason. 139 departments in 48 universities have committed to running the UAS module which has grown from a pilot scheme in 2002/3 involving 4 departments in 3 universities.

If you want to find out more about UAS support for universities then visit:

www.uas.ac.uk





STEMNET Ambassadors in South Yorkshire



Please describe briefly the general set up of the student ambassador scheme at your institution.

As holders of the STEMPOINT contract in South Yorkshire we are responsible for the management of the STEM Ambassadors programme in the region. Within South Yorkshire there are approximately 600 such ambassadors some of which are students but most of which are drawn from industry, university academics, hospitals etc. The scheme does support student ambassadors at both universities: SHU (Sheffield Hallam University) and the University of Sheffield.

These programmes include:

- Student Engineering Ambassadors at the University of Sheffield.
- Undergraduate Teacher Education Science students at SHU.
- FE student ambassadors at Sheffield College and Barnsley College.
- Students in departments such as Architecture that have departmental ambassador schemes.
- PhD Students at the University of Sheffield - particularly in Biomedical science.
- Undergraduate Physics students at the University of Sheffield who work closely with primary schools.

We have fixed training days each month within the university. We are also able to go out to organisations and deliver bespoke training. We have a monthly newsletter that is e-mailed to all STEM Ambassadors with activities and events they can take part in. Ambassadors can also find their own activities at any school within the country.

How do you recruit students onto your scheme?

We have contacts in both universities and industry, where we receive most of our student recruitment. We will be advertising within Sheffield Hallam University this year to recruit more academics and students within our own organisation.

What training and support do the students receive?

We have a monthly training session that lasts for 1.5 hours. At this training CRB (Criminal Records Bureau) documents are checked and processed. The training involves an overview of what a STEM Ambassador can expect when they go out into school, a brief summary of the education system, risk assessments, working on case scenarios within a school. They are also provided with information about activities they can attend. In addition some of the programmes listed above have further training specific to their subject needs.

Please describe how you made first contact with the schools involved and how you maintain that relationship.

We have regular contact with all schools in South Yorkshire on a cyclical basis, and also through ad hoc contacts. All schools are contacted by post 3-4 times per year. Some Schools are now using the STEM NETWORKING site (<http://networking.stemnet.org.uk>) to identify their needs for ambassadors.

What do your students do whilst they are in schools?

They can do whatever activity they like. KNEX challenge, careers events, an activity they have of their own. All activities need to promote STEM in some way. For some students their work forms part of a programme of university outreach and may involve acting as role models when schools visit the university. For others, such as the Physics undergraduates, a visit into school is the more important engagement.

If your scheme is part of an accredited module please describe what the students have to do to pass the module and how they are assessed?

STEMNET require STEM Ambassadors to fulfill three criteria to become a STEM Ambassador. (1) register on-line, (2) complete an enhanced CRB (Criminal Records Bureau) check and (3) attend an induction session.

Do you pay the students for their time and do you pay travel expenses?

No, the STEM Ambassador programme is a voluntary programme.

What kind of impact does completing the scheme have on students?

In the first instance, we are looking at the impact the STEM Ambassadors have on schools and pupils, in inspiring young people to take more of an interest in STEM. We achieve this by first hand experience from STEM Ambassadors promoting their particular discipline and/or STEM Ambassadors giving their time to talk about their own experience and expertise in STEM.

By supporting students in their STEM learning, you will bring them the following benefits:

- Science, Maths, Design And Technology, and Engineering become relevant to the everyday experience of students.
- Better motivation, more confidence and enthusiasm.
- Opportunities to improve key skills as well as increase understanding in Science, Maths, Design And Technology, Engineering.
- Better understanding of the opportunities that a career in Science, Technology, Engineering and Maths can offer.

Would you have any additional advice for a HEI (Higher Education Institutions) which wanted to operate a similar scheme?

Please be aware that much of this work relies upon setting up extensive networks of contacts in many fields.

“ Please be aware that much of this work relies upon setting up extensive networks of contacts in many fields. Whilst management systems are important, the need for personal knowledge and contact is vital. ”

Whilst management systems are important, the need for personal knowledge and contact is vital.

How is your scheme funded?

Via STEMNET in a bidding process.

To find out more about how your HEI could work with your local STEMNET contact, go to: www.stemnet.org.uk/contact

Many thanks to all those who took time out of their busy schedules to complete a case study.



University of Cambridge

University of Nottingham

University of Leeds

University of London

Queen Mary, University of London

University of Bath

University of Plymouth

Undergraduate Ambassador Scheme

University of Warwick

Undergraduate Ambassador Scheme

