



Inspiring Students with a Visual Impairment – Event Case Study

A collaborative event for students with VI, their parents, carers and SEN teachers, delivered by: the National HE STEM Programme; the Widening Participation Office of the University of Bath; and Sensory Support Services for South Gloucestershire, Bath & North East Somerset, North Somerset, Bristol City Councils in March, 2012

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Abstract:

The question of learners with disabilities' under-representation in STEM subjects in the UK universities is recognised as one of the important issues in the debate for fair access to higher education. The youngsters with visual impairment at this event were aged 13-17, and participated in Computer Science and Maths activities, as well as having a chance to meet other pupils with VI alongside current undergraduate and postgraduate students with VI. The concerns about progression to higher education and choosing STEM subject were openly shared in the group during the event. The aim of the day was to inspire young people to look at the science and technology subjects in a different way and to consider STEM when progressing onto higher level learning.

Event outputs:

The event:

- Offered learners, their parents and teachers a creative, dynamic and supported environment that enabled 'different-thinking' about STEM subjects in higher education
- Provided an opportunity for learners with VI to explore science subjects
- Introduced 'positive role-model' examples by introducing current undergraduate and postgraduate students with VI to pupils from schools and colleges
- Raised awareness of the issues that pupils with VI face when thinking about HE STEM study
- Identified barriers for learners with VI progression to HE STEM subjects
- Encouraged learners to think about independent living

- Identified and shared good practice in managing VI in higher education and in schools & colleges
- Enhanced the university's inclusive culture

Main steps in preparing for the event:

1. Introductory presentation about STEM and VI to the Sensory Support Services staff for four local authorities in the region
2. Formation of a working group between the WP Office University of Bath and Sensory Support Services from the local councils, with a WP officer taking the lead
3. Promotion of the event at a National HE STEM workshop at the University of Bath through delivery of a presentation about the wider VI STEM project, communicating VI-STEM issues to academics at the University
4. Promotion of the event to all schools that currently have pupils with VI in the West region
5. Event delivery
6. Post-event publicity in the local press and on the university web
7. Event acknowledgement / dissemination at the CLARO Learning Conference for the learning support staff

Background and rationale:

UK HEI surveys have suggested that learners with VI are less likely to take degrees in STEM subjects. Higher education is delivered in a very visual way. When studying STEM subjects, students are required to learn from demonstrations and to perform experiments in laboratories in addition to reading and note-taking. Requirements of laboratory experience might represent a major barrier when students with VI are making a decision about higher education and what subject to study. However, there are success stories in higher education where students with VI have successfully overcome barriers in learning and have achieved high results; some excellent examples are included on the [STEM Learning & Teaching Reconfigured](#) web resource

The event aimed to explore the barriers to higher learning in STEM subject and to raise pupils' aspiration to progress. It was felt that the process of transition to HE for learners with VI could be optimised by a collaborative approach of disability practitioners across sectors and through changes in teaching strategies, support and use of specialist equipment.

Agenda/Programme of the day	Alignment with the aims of the day	Delivery
Welcome from SW Regional Officer, National STEM Programme	Introduce the group to STEM and; explain what STEM subjects are	
'Ice Breaker' with Ben Rushgrove, Para-Olympian Athlete	<p>Raise awareness about complex barriers that people with different disabilities anticipate; demonstrate how positive strategies can be helpful in overcoming these barriers - positive, 'different-thinking' about 'what is possible' if one is focuses and follows a dream</p> <p>The main objective was to create a friendly, 'family-like' atmosphere so that all pupils felt included, supported and could share their concerns / discuss issues</p>	Ben shared 'his story' and was very open about his feelings and experiences. This was followed by Q&A session bringing the group together
Maths session led by a University of Bath student	Provide an opportunity to explore science subjects; enable the group to think differently about STEM subjects in higher education; raise aspiration to STEM subjects	In preparation for the session, Nicki Godbold (the student) visited Chris Stonehouse at New College Worcester, to ensure that her session was accessible and inspirational for participants
Computer Science session with a Bath graduate and current PhD student who is blind	Provide an opportunity to explore science subjects; enable the group to think differently about STEM subjects in higher education; raise aspiration to STEM subjects; introduce a positive role-model; share experience about overcoming barriers in learning	The student who delivered the session has always felt passionate about Maths but was discouraged at school to follow this subject because of his disability. However, his passion for Maths was picked up at a later stage, leading to his PhD study
Two 'Personal Experience' sessions with undergraduate and postgraduate students	Focus on independent living from undergraduate and postgraduate perspectives	Students 'shared their story'. Both sessions were followed by Q&As

who were blind and from different universities		
Workshop ' <i>Going to University</i> ' led by the Disability Service Manager at Loughborough University	<p>Questions that were addressed included:</p> <ul style="list-style-type: none"> • What I am worried about; • What I would like to know about HE; • What my parents might think if I decide to go; • Why I don't want to go to Uni; • What I most look forward to at Uni; • What I hope for 	Pupils worked in a small groups led by Student Ambassadors
Biotechnology Session on learning about microscopy	To explore STEM subjects; to 'break the boundary' by introducing a session that potentially could be exclusive to pupils with VI; to demonstrate the inclusive and supportive university environment in overcoming challenges and barriers; to demonstrate subject diversity and complexity at a higher level; to demonstrate the potential for high achievement and 'following a dream'; to demonstrate how different teaching techniques might be employed to enable achievement	The session was the last activity of the day and optional as it was designed to 'push across the boundary'; however it was fully attended by all participants
Session with Senior Disability Adviser (for parents / carers / teachers only)	To provide information, advice and guidance about the support available in HE	The session was designed for the teaching and support staff as well as parents to enable independent group working for pupils

Key highlights:

- The relationship with Sensory Support Services proved vital to successful recruitment for the event. The University's Progression Co-ordinator was the initial contact for establishing the link with the Services and it was important to present the idea for the event formally to the Sensory Support Services staff. As a result of the event, a stronger link with the Service lead has been established.
- Plans for the event were pulled together collaboratively and roles and responsibilities were agreed. 21 schools in the South West region were identified as having pupils with VI so the event was promoted within these schools – 17 pupils attended the event in addition to their parents and support staff.
- In the process of preparing for the event, an excellent working relationship developed between the University's WP Officer and the Sensory Support Services lead. This relationship, combined with successful delivery of the event, will guarantee future collaborative activity.
- The pupils from different schools had a chance to meet each other, share their interests and experiences and to develop friendships. Parents and support staff had the opportunity to share their own experiences, to discuss issues and to learn from each other.
- An assistive technology display generated a lot of discussion about different practical matters such as programmes that tools that can be useful for in the context of higher education. Parents and support staff from schools were interested in adopting their teaching styles and techniques to enable progression to higher levels for their pupils.
- It was beneficial to have a group of pupils with VI only rather than a group with 'mixed disabilities' as the concerns and experiences among pupils with VI were similar. It was therefore possible to have in-depth discussion, addressing all questions and developing links for the future.
- Young learners with VI explored science subjects, learnt more about higher education, and found out about a range of careers open to maths and science graduates.
- Current HE students with VI were crucial in discussions about transition to the HE.
- It was established that, for some students, the event was their first opportunity to learn about HE and to think through how their needs might be met within the university.
- Travel was identified as one of the major barriers to students attending WP activities.
- The event preparation had its own value on and exposed academic departments to the needs of VI students.

Learning points:

Learning point 1 – Although the inclusion agenda is high at schools, pupils with VI need extra input from professional across the sector to ensure equal opportunities are available to them. There is a need for WP activities that focus on a specific disability such as VI.

Learning point 2 – It is usually one or two pupils with VI per school and these pupils will be in the different age groups. So, pupils with VI felt isolated within their own school environment.

Learning point 3 – The logistics / support for VI events can be difficult to manage as the severity of VI is varied.

Learning point 4 – Major barriers to HE STEM study are created due to the low occurrence of VI in HE, so STEM academic departments need to be ‘exposed’ to the idea VI and STEM.

Learning point 5 – WP events can be used to inform pupils about the wider benefits of HE, such as building up confidence and resilience.

Learning point 6 – The event necessitated high staff involvement, so without additional funds or a collaborative approach, it would have been difficult to deliver.

Key impacts:

The event:

1. Transformed learners’ thinking about HE and STEM, building their confidence and allowing them to explore science as an opportunity. The event was ‘a first **essential** stepping stone’ in the process of progression to HE for such students.
2. Transformed ‘thinking’ within academic departments about VI and STEM and about the diversity of student needs and how these might be met to deliver the best experience of HE possible.
3. The event ‘exposed’ existing practices and stimulated discussion as to how improvements could be made. For example: more good practice sharing and awareness-raising; adopting more inclusive teaching styles and techniques; staff development activities.
4. Developed valuable links that can be sustained in the future. An event for practitioners will take place in October 2012 at the University of Bath, with major areas for future collaborations identified as IAG and the sharing good practice.

Quotes from event participants:

School pupils:

My parents didn’t want me to go to university because of my disability but I wish I can be a student now.

Maths can be fun!

I thought I won’t ‘fit in’ but it is cool to be a student.

Sensory Support Services:

It was a useful day and well received. I hope that we can work together again in the future.

University of Bath:

It was challenging and exciting to work on this project that brought together our university, schools, and community to deliver something wonderful and empowering for youngsters. It has allowed also professionals to share good practice and increase our collaboration in the West region.

People involved at the University of Bath:

Department of Computer Science (Professor James Davenport, PhD Student Mesar Hameed); Maths Department (Professor Chris Budd and student Nicki Godbold); Biology Department (Dr Momna Hejmadi); MAS (Ursula Potter); Disability Service (Louise Miller)



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This activity was undertaken as a part of the National HE STEM Programme, via the South West Spoke. For more information on South West Spoke projects, please see www.hestem-sw.org.uk. For more information on the overall national programme, please see www.hestem.ac.uk.