Sunderland College: Engaging AS Physics students with blogs and wikis

Summary

Marianne Hill, Curriculum Leader for Science and Mathematics (Sunderland North) introduced a blog and wiki pages to her AS Physics students to engage them in the wider subject of physics and develop their written skills. The project has successfully encouraged students to communicate with each other, research and share their interests and this has had a positive effect on both pass and progression rates and the number of students interested in pursuing physics at university.
About Sunderland College

Usworth Sixth Form College in Washington and St Peter’s Sixth Form College in Monkwearmouth represent Sunderland North and are part of City of Sunderland College. The Sixth Form Colleges offer A-level subjects as well as a range of vocational courses.

The challenge

Many AS Physics students show stronger numerical skills than literacy skills, some even specifically selected to study science A-levels as they believe that these qualifications did not require much writing! Another issue is the underrepresentation of girls in physics and girls choosing not to continue with their study of physics.

Marianne wanted to find a way to:

- Develop learners' written communication skills and encourage them to write frequently and openly.
- Engage learners with learning outside the classroom.
- Encourage students to create their own pages, research topics of interest and share their interest with other students.

Provide particular support and encouragement for the girls who study AS Physics.

The activity

Marianne says: "A lot of the educational research suggests that girls like the more social aspects of learning. It is something that I have known as a teacher but has been crystallised in a report on girls and physics. So whilst I can’t change the specification of an examination based subject, I thought that I could try different approaches to make the learning outside of the lesson more social".

Marianne set up wiki pages and a blog in Blackboard for her AS Physics students using the college’s Virtual Learning Environment (VLE), Blackboard. The blog and wiki features were already part of the Blackboard system, but Marianne didn’t know any lecturers who were using it. She got some help from the Learning Resources manager on how to set the blog and wikis up and it was easy after that.

"The blog/wiki idea was to dip into the students interests in social networking, encouraging them to write for each other and read each other's work".

The wiki site offered learners the chance to create their own page and write about their interests in physics. This student had a grade A* in Physics, A in Maths and a B in English Language and was representative of many of Marianne’s students who demonstrated stronger numerical skills than literacy skills. This is a paragraph from one particular student (sic):

I chose to study physics because astronomy, and learning about our universe or how atoms behave interests me. I find stuff to do with mechanics quite interesting. I like knowing how and why thing work, I wish to do something interesting involving maths physics and biology.
Towards the end of the first term students were given the opportunity to develop their own blog, which allowed more scope for individual development than the wiki site. The blog and wiki pages continued throughout the academic year.

The outcomes

The wiki and blog were very popular with the students; they uploaded their own material, shared useful websites and YouTube clips, kept online diaries of their learning, and discussed some of the wider aspects of physics. The project had some additional outcomes besides engaging the learners with physics and developing their writing skills:

- Marianne got to know the students very quickly as the wiki pages revealed a lot about their personality, interests and engagement with the subject.

- It proved to be an alternative method of communicating with each other, particularly when lecturers have to work at different centres. It provided a forum for exchanging ideas and keeping in touch electronically.

- One of the students suffers from Asperger’s syndrome and he became the first student to set up the pages, adding to them on a regular bases. For this student, it was a means to communicate with other students when regular verbal communication within the classroom posed a particular problem.

- It encouraged students to look at the wider aspects of physics outside of the classroom and research topics on the internet. Students came up with some extremely imaginative sources, ideas, interactive applets and one student photographed cracks in the pavement that reminded him of Feynman Diagrams:

  "I was walking down the street the other day when I carelessly tripped over a piece of physics (a crack in the pavement). I was preparing to sue the council until I noticed something very odd about the crack. It reminded me of Richard Feynman’s diagrams. I was unsure whether or not to take a picture of the crack, but after a little contemplation, a near road accident, I took the picture and legged it"
A picture of an actual Feynman Diagram

The ‘odd’ crack that resembles Feynman Diagram

- There were only three girls in Marianne’s classes. One of the girls wrote a book review of ‘Angels and Demons’ as she wanted to share with the class how physics was incorporated in this popular novel and how the novel had encouraged her to consider to study physics in college. Another girl wrote about physics in sport, as she was particularly interested in gymnastics and explained how balance, centre of mass and angular momentum are important features of performance.
The impact

Marianne believes that the blog and wiki were successful for the wider engagement of students with the subject.

- The learners’ pass rates improved significantly in 2010. Marianne firmly believes this is due to using the VLE that enabled the students to engage with the subject.
- More students are interested in pursuing Physics at university.
- The progression rate from AS to A2 Physics has also significantly increased.

Marianne is now interested in exploring wider means of engaging students through technology, such as using i-phones and apps for physics, as well as developing podcasts and other ways of reaching out the students outside of a traditional classroom environment.

Useful links

- Jisc RSC Northern
- Sunderland College
- Girls in the Physics Classroom

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