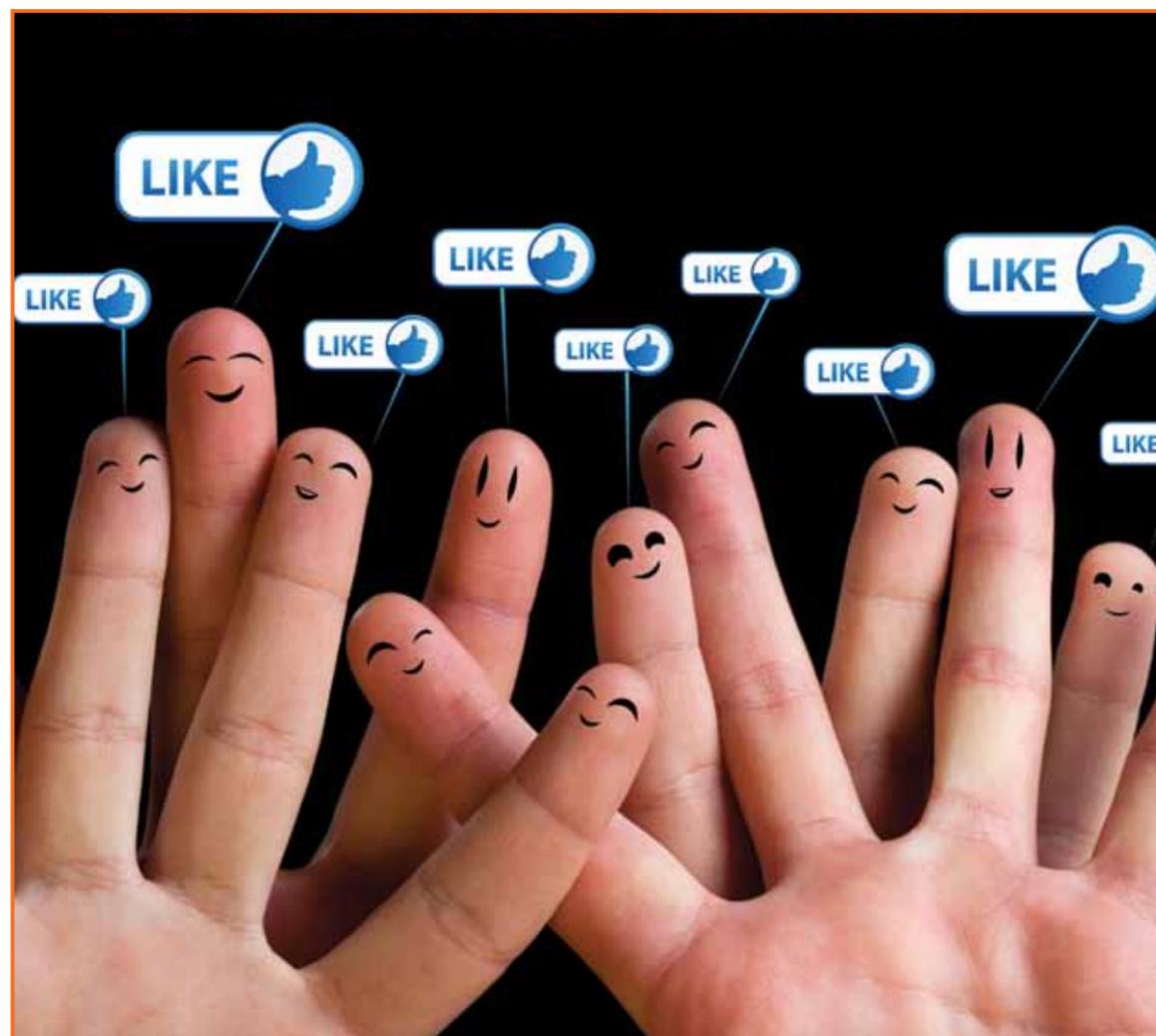


Using social networking to promote IBSE



Summary:

Using social networking to enable students to understand the process of scientific discovery through role play (in the context of Darwin's voyage on the Beagle).

Aims:

To enable students to understand the scientific process in action, as mediated by people doing scientific research.

Main activities:

Students develop social networking profiles as members of Darwin's correspondent group, as reflected in the Darwin letters held at the University library and online. They then role play Darwin's communication with his correspondents, before, during and after his voyage on the Beagle.

Narrative:

Students can think that science has a pre-determined process, frequently finding results which you fully expected to find, and frequently taking place in the objective and close environment of a laboratory. In fact, scientific discovery is influenced by people, both by individuals and their correspondence with others. This project aims to engage students in scientific inquiry, but through role playing correspondents who informed Darwin's development of the theory of evolution by natural selection. Each student will be allocated a role as one correspondent. Within facebook,

they will develop a profile about that individual, and read the correspondence between them and Charles Darwin. They will then adopt that role, and engage in correspondence with Darwin, and with his wider network by instant messaging, wall posting, and tweeting (via twitter). By enabling them to role play this process, they develop a greater understanding of the process of theory building, of hypothesis formation and of pattern seeking in observational (rather than experimental) data. This aspect of science, and particularly biology, is frequently overlooked in curricular documents, with a fully controlled experimental model often prioritized.

End user:

Students aged 14-18 can undertake this activity.

Involved actors:

Teachers and researchers

Location: At school and at home. The case could be extended to be used in museums.

Languages available: English

Where to find the application or case:

The Darwin correspondence is online at www.darwinproject.ac.uk/ The technological framework for running the role play will be stored online (location yet to be decided)

Duration: 8 weeks, 30 minutes per week.

Evaluation parameters:

Work with role play and the Darwin correspondence has already been evaluated very positively by trainee teachers and by ITT mentors through the

course evaluation programme, as well as via informal feedback. Qualitative data about students' learning is collected from selected cases undertaking this activity to judge its efficacy.

Connection with the curriculum:

The activity links directly into national curricula which focus on evolution by natural selection, and on the process of scientific inquiry.

Teachers' Competencies

1	subject matter/content knowledge	x
2	nature of science	x
3	Multidisciplinary	x
4	knowledge of contemporary science	x
5	variety of (especially student-centred) instructional strategies	x
6	lifelong learning	
7	self-reflection	x
8	teaching/ learning processes within the domain	x
9	using laboratories, experiments, projects	
10	common sense knowledge and learning difficulties	x
11	use of ICTs	x
12	knowledge, planning and use of curricular materials	x
13	Information and Communication Technologies with Technological Pedagogical Content Knowledge	x

Mapping best practices with main principles



1. Building interest in natural science phenomena and explanations:

By role playing Darwin's correspondents, students will empathize with the characters involved, and develop an interest in the theory of evolution by responding to Darwin's correspondence within the role play.

2. Building up informed citizens: Students understanding the nature of Science @ Science in society:

By understanding more about the theory of evolution by natural selection, students can take informed views on the nature of science, and on the relationship between science and religious belief.

3. Develop multiple goals:

- understanding big ideas in science including ideas of science, and ideas about science
- scientific capabilities concerned with gathering and using evidence
- scientific attitudes

Students will learn about evolution and adaptation as one of the big ideas of science. They will examine others' attitudes to science, prompting reflection on their own attitudes.

4. Understanding students' concepts and learning style about of science phenomena:

By enabling students to learn about science through familiar and recreational technology, students may be enabled to access their learning more effectively than through conventional means.

5. Relevance of the content to daily life of students:

The debate between religious belief and the theory of evolution is given (undue) prominence across the media in the UK and beyond. By being enabled to take a view on this debate which is informed both by evidence, and by an understanding of the development of the theory of evolution by natural selection, students will learn about interpreting and judging stories in the media, which may not be so well-informed.

6. Understanding science as a process not as stable facts. Using up-to-date information of science and education:

Given that the role play models the process of science, this activity would appear to meet this criterion very well indeed.

7. Activities for gaining knowledge, not for entertainment, nor for simple imitating of results:

By building knowledge constructively as part of the role play, students are not asked to simply 'take on board' the ideas in a rote learning fashion, but they are required to evaluate, understand and apply the ideas in the context of the role play.

8. Doing science: experimenting, analyzing, interpreting, redefining explanations:

By modeling the process which Darwin went through in analyzing, interpreting and redefining explanations, they can see and role play the 'doing of science', rather than necessarily undertaking those activities themselves.

9. Assessment: formative ~ of students' learning and the summative ~ of their progress:

Because the role play happens in an online environment, students' understanding can be easily monitored, and interventions applied as and when necessary.

10. Cooperation among teachers and with experts:

This project involves teachers, but also the education officer from the Darwin Correspondence Project and Faculty of Education lecturers. The activity can take place in collaboration with history students and teachers.