Title:

Does ICT and in particular, Internet-based learning improve pupil attainment and enjoyment in Geography?

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Research topic:

Technology-integrated pedagogical strategies; Secondary geography teaching and learning.

Geographical research area:

England - Eastern region

Educational sector of participants:

Secondary

Abstract:
The study considered the effective use of the Internet in the teaching and learning of geography at secondary school level. Pupil attainment, motivation and enjoyment were examined by comparing an Internet/multi-source group with an equivalent ability control group taught using traditional methods. The classes involved were in Year 9, studying Italy. Evidence was collected using questionnaires, exam/project results and teachers' perceptions.

Findings:
The main findings were that the Internet group was well motivated towards geography and was capable of producing some excellent project work showing high ICT skills. The Control group was also capable of producing a high standard of work, although not to the same standard as the Internet group. However, the attainment of the Internet groups in exams and tests was significantly lower than that of the Control group.

Participants information:

Two Year 9 groups (Internet and Control)
Both mixed ability

Internet group:

19 pupils; 11 girls and 8 boys.
These included:
6 pupils (4 girls and 2 boys) on stages 1 to 3 of SEN register
1 pupil who was a traveller

Average national Curriculum level for Geography at start - 4.2

Control group:

20 pupils; 5 girls and 15 boys.
These included:
9 pupils (2 girls and 7 boys) on stages 1 to 3 of SEN register

Average national Curriculum level for Geography at start - 4.5

Equipment used:
Internet group - this group was taught without the use of text books. Most work was done solely with the Internet, although CDs were used to focus certain aspects of the work.

Control group - this group was taught using traditional methods. This did not mean just text books, but also videos, Internet, Resource Centre (library), etc.

Applied method of analysis:
The two sets being studied were of similar ability. They were both mixed ability in the mid-ability range. Evidence regarding pupils' attainment was collected from test and exam results. Both sets took the same tests, so comparison was made simple. Motivation and enjoyment were measured in two ways. Firstly, pupils from both sets completed questionnaires (which incorporated a basic test of Italian physical and human geography) that asked questions on their feelings/thoughts

about the work. The questionnaires were repeated at the end of the research period. Secondly, teacher perception was used, with notes on how well pupils worked, their motivation during lessons, etc. kept in a research diary.

Conclusion/discussion:

The overall enjoyment and motivation of the Internet group was similar to that of the control group at the start and this was improved throughout the project period. However, the attainment of the Internet group was well below the Control.

Enjoyment and motivation

The most significant indicators were as follows:

"I look forward to Geography lessons"

Internet group = 54% at start, 68% at finish.

Control group = 58% at start 60% at finish.

"I always enjoy Geography lessons"

Internet group = 50% at start, 80% at finish.

Control group = 56% at start 62% at finish.

"I do well at Geography"

Internet group = 34% at start, 42% at finish.

Control group = 42% at start 45% at finish

Attainment in Geography

The results were very different for the main Year 9 exam.
The average mark for the Internet group was 43%, whereas the average for the Control group was 61%. This is a large disparity considering the groups were of similar ability.

Attainment in ICT

The 'Internet' group significantly enhanced their ICT skills through the course of the project as evidenced by their project work.
Their perception of their skills and their readiness to use ICT as a research tool also improved. At the start of the project they were asked to rate their ICT and www skills on a scale of 1 to 5. None rated themselves at 5, the average rating

was 3.2 and the lowest was 1. At the end six rated themselves at 5, the average had improved to 4.3, and the girl who had rated herself at 1 now moved to a 4.

Recommendations:

The overall conclusion of this study is that traditional teaching methods (text book and teacher) are more effective for helping students understand the theory work, whereas the Internet can enhance the attainment and motivation of pupils when conducting project work.

<u>The positive aspects of using the Internet as a teaching and learning tool are:</u>
The potential range of information available to the pupils. This often stimulates and raises the levels of motivation.

The quality of project work is greatly improved with the use of computers. Once children have appreciated the importance of reading through and analysing work downloaded from the Internet, the work they produce can be very detailed. Teachers do need to be careful not to accept work that is simply taken directly from Internet sources.

<u>The main problems arising from teaching pupils entirely using the Internet are:</u>
• The difficulty in finding suitable websites/information when trying to teach theory. Much information which appears from a standard search is written by University researchers and is subsequently targeted far too high for 12-13 year olds.

• The problems of getting pupils to read what is in front of them on the computer screen. When filling in an Interactive worksheet pupils are tempted just to cut and paste from the website.

• The lengthy preparation time - it takes a long time to find suitable websites for the children to use. If lessons are not prepared properly, pupils are likely to waste entire lessons ploughing through search engines trying to find a useful site. It is also necessary to produce very clear Lesson sheets, which guide children through the lesson with a list of tasks they need to do. These sheets can be put onto the schools shared drive to reduce photocopying.

• Logistics - with an Internet class of 20 and a room with 16 computers some pupils have to do work in pairs. This inevitably results in one person doing most of the work and the other sharing the credit. Also block booking a computer suite can be difficult and annoy other staff.

• Homework - setting homework is difficult. Some children have computers at home, some do not.

• Revision - since all their work is done on the computers at school, they have nothing to revise from when preparing for tests and exams. To overcome this a lot of teacher time was spent preparing worksheets and information sheets for revision.

• Room layout - the Internet group were taught in a room where all the pupils faced the wall. This does not aid talking to the whole class and therefore pupils' concentration and attention is sometimes lacking.

Research evaluation:

The main benefit of this research for my own teaching is the increased awareness I now have concerning ICT potential in geography lessons. I include the use of the Internet - and other ICT resources - in all the units that I teach. The quality of pupil-centred project work, a key part of the geography Key Stage 3 scheme of work, has greatly improved with the use of the Internet and computer competent pupils.

I am pleased to see, however, that there are clearly huge benefits in traditional teaching. Through test and exam results the two groups have proved that the most important resource is still the teacher !
 It is, therefore, evident that successful geography teaching and learning should incorporate both traditional methods and ICT-based activities. This has been a characteristic of geography teaching at Soham Village College over recent years. However, teachers should be prepared to experiment with different activities, since many of them will prove to be not only successful, but also enjoyable for the pupils involved.