VISUAL INFORMATION IS A FUNDAMENTAL ELEMENT IN LEARNING

GOLDFARB, 2002

ENGAGING PUPILS IN LEARNING:
USING INTERACTIVE VIDEO, QUIZZES, AND GAMES

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DO YOU WANT TO KNOW A SECRET?

The secret of the success of digital resources like games, videos and quizzes is the engagement in learning that they stimulate.

Words and flat diagrams in a book do not have the same power to enliven the brain.

Video, particularly animated models, enriches the exposition of complex topics:in the same way games and quizzes provide opportunities for an interactive learning experience in which visual learning is promoted, high-level thinking is stimulated and problem-solving skills can be exercised.

Digital literacy is another valuable opportunity that the use of digital resources can develop.

Schools who chose to integrate digital resources into their teaching and learning strategies are encouraging pupils' visual learning and digital literacy capabilities.

Another advantage where pupils have access to their own devices is the opportunity for independent learning: access to digital resources at home extends this learning autonomy.

OAKDALE'S DIGITAL STRATEGY

Oakdale Junior school in the borough of Redbridge, East London is a mixed community school of 344 children aged 7-11.

The school performs above national average in the percentage of pupils achieving Level 4 or above in reading, writing and maths.

In 2013-14 they spent £78 per pupil (2% of budget) on ICT learning resources.
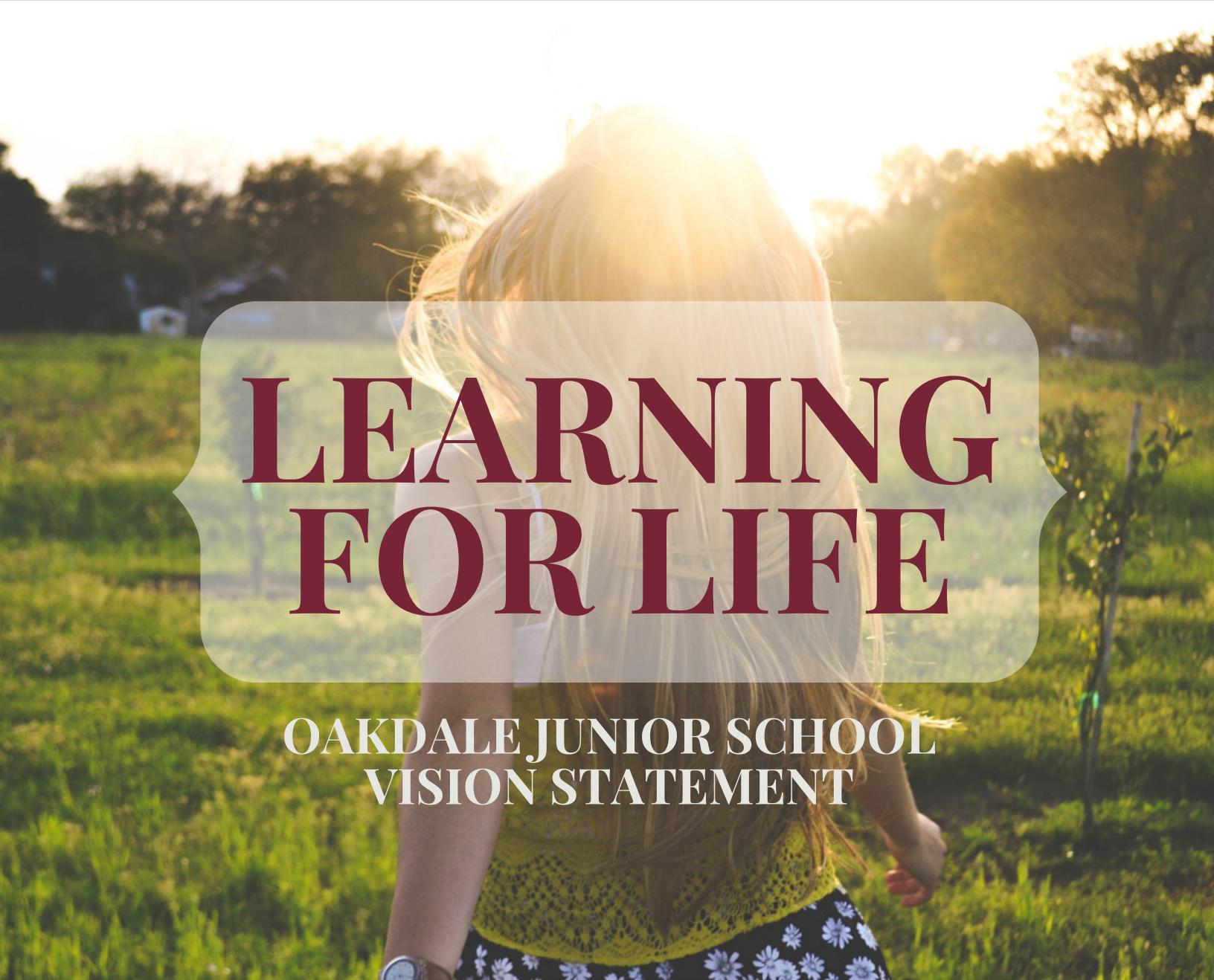
2013-14 PER PUPIL SPEND ON ICT RESOURCES

£78

38%

PUPILS WHO DON'T HAVE ENGLISH AS THEIR FIRST LANGUAGE

LEARNING FOR LIFE

OAKDALE JUNIOR SCHOOL VISION STATEMENT

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We are committed to high standards of attainment and progress for all pupils and for every pupil to be given the opportunity to shine.

Our school community celebrates its rich diversity at all times ensuring equality of opportunity. We strive to work as a team, enabling us to offer a safe, welcoming and inspiring environment.

We believe that children can develop responsibility, with respect for themselves and others, thus creating a community, which has values and attitudes which will stand them in good stead for lifelong learning.

VISUAL LEARNING, DIGITAL LITERACY AND INDEPENDENT LEARNING ARE HIGH ON THE AGENDA OF OAKDALE JUNIOR SCHOOL IN EAST LONDON.

As a professional development exercise, staff at Oakdale have been reviewing these teaching and learning strategies with Professor Christina Preston who founded the MirandaNet Fellowship, a professional organisation of thought leaders in education innovation.

The MirandaNet action research programme, Sprint, is designed to give teachers space to reflect on the ways in which they are currently using digital learning tools and to contribute ideas for improving their teaching and learning strategies.

Pupils are also included in the reflection process and all the participants, as co-researchers, receive a MirandaNet award for their contribution to improving achievement in teaching and learning.

The Oakdale staff decided to investigate whether their growing use of video, gaming and quizzes was enriching their pupils learning and what they could do to improve their practice further.

The value of visual learning and digital literacy has also been an element of this exercise.

To develop this professional agenda the staff chose to focus on their use of BrainPOP because it has been in use for many years and remains popular.

In her Sprint reflection on how digital technologies are used in the school, Jenny Berriman, the head, talked of her belief that all children have the ability to gain a wealth of varied knowledge and skills. Digital technologies provide an important opportunity for all children to achieve their full potential.

In Jenny's view combining different resources has been a better approach than embracing an overall product solution. BrainPOP is integral to this strategy particularly as Jenny sees the use of a variety of digital resources as one means of ensuring that the school motto, 'Learning for Life', is supported, developed and embedded through experiences for the pupils.

THE HEAD EXPLAINED THAT BRAINPOP PROVIDES A SUITE OF INTERACTIVE LEARNING OPPORTUNITIES THAT ARE VARIED AND ENGAGING.

The resources have been used consistently because of the variety of resources and the coverage of the curriculum.

This education portal offers cross curriculum games, videos, apps and quizzes. The videos can be used for exposition to a whole class or chosen by independent learners at home and at school to fit in with a curriculum topic. Games, quizzes, worksheets and apps reinforce and extend the learning.

The head works closely with her deputy, Dawn Hallybone, who is the lead in the Computing Curriculum in the school and also an international expert in gaming in school.

Because of her expert interest she bought BrainPOP for the school almost as soon as it appeared on the market.

She still feels this was a wise decision as other more expensive competitors seemed to be too overpowering and undifferentiated to fit in with a digital strategy that promotes variety.

In contrast the cost of BrainPOP at about £1 per pupil per year continues to be affordable.

The value is even greater because BrainPOP is available online for home learning at no extra cost.
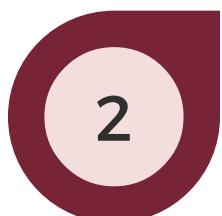
Parents told the teachers that they liked the safe environment as they are concerned about unsupervised use of Youtube.

FINDINGS

THE OAKDALE STAFF AGREED THAT THEY USE BRAINPOP VIDEOS AS A TEACHING RESOURCE IN ALL KEY STAGES IN TWO DIFFERENT WAYS.

1 As a tool for use in planning and delivering lessons

2 As a learning tool to provide engaging visuals for various topics.

All the teachers at this school used BrainPOP videos as an extra curriculum resource for Science and History: some also used the videos in PSHE, computing, English and Geography.

Help with Computing Science was popular; as was literacy - one pupil specified that they'd used BrainPOP to understand the difference between a dictionary and a thesaurus.

Pupils who increasingly worked on the resources independently at home and school commented specifically on the learning value of subjects like:

- Space and the Solar System
- Understanding flower growth
- Sentence structure for English
- Descriptions of different religions

EVIDENCE OF LEARNING

The staff compared their experience of using combinations of video, gaming and quizzes that were enriching their pupils' learning.

Teachers were particularly pleased at the high level of correlation between their views about the most successful lessons and those of the pupils.

Progress was recorded in the teachers' and the pupils' evaluation of learning and in analysis several learning categories emerged:

1. **MOTIVATION TO LEARN**

2. **COMPLEX CONCEPTS**

3. **COLLABORATION**

4. **VISUAL LEARNING**

5. **RECALL**

6. **REWARDS**

7. **IMPROVING PRACTICE**
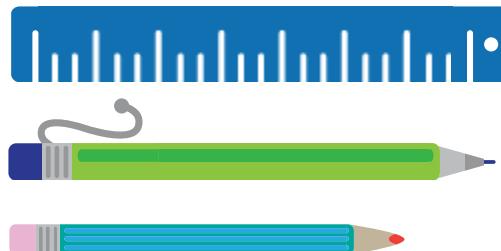
1 MOTIVATION TO LEARN

- Pupils enjoyed the interaction between the two well-known characters, Tim and Moby who keep the narration about the topic at the child's level which engaged them all the time.
- One outstanding feature was the pleasure their pupils took in BrainPOP humour. Even the top classes who were more sophisticated enjoyed the playfulness and related well to the characters Tim and Moby. Some of the tensions were eased when sex education was introduced via these characters, for example. Pupils confirmed that the humour made the learning more fun.
- When videos were set up to introduce more difficult concepts the children were immediately engaged, excited and ready for a challenge.
- Looking forward to, and understanding, the routine of watching the video clip and answering the quiz helped children to feel secure in their learning patterns.
- Pupils returned to discuss the subject with the teacher, especially the weaker ones, because they had the vocabulary and confidence gained from exposure to BrainPOP.

2 COMPLEX CONCEPTS

- Learning about binary concepts was difficult and, at first, incomprehensible to the teachers and the pupils. However, after watching BrainPOP's 'Binary' video, children were all able to engage with this topic. One teacher explained that in a lesson about Binary the children used BrainPOP worksheets in pairs – with no prior knowledge of binary code. Pupils recorded that re-watching the video helped to internalise the learning and both teachers and pupils enjoyed a sense of achievement.
- The animated modelling aspects of the videos were popular because this mode can cover effectively for lack of physical props: using and applying knowledge is vital. Modelling the pulleys, for example, helped pupils to understand the principles in a way that using paper diagrams would not have achieved.
- Quizzes were valuable for consolidation of understanding and to set a benchmark in learning.

3 COLLABORATION

- The format of the video exposition at the beginning and questions at the end of a lesson helped to drive collaboration through class discussion
- Where a topic is complex, less able children were often pulled up to the next level because they share ideas with others

4 VISUAL LEARNING

Children who were struggling to understand an idea found the visual stimulus helped significantly: for example, pupils with English as an Additional Language students

5 RECALL

Pupils commented on their recall after using BrainPOP resources. For example: after using the Volcanoes video they could recall the detail on Magma and Lava, evaporation and water cycle quite easily: researching the 'Rocks', 'Soils' and 'Black holes' topics on BrainPOP helped them answer questions in class. One pupil reported helping his father with information he needed for a speech about Shakespeare from knowledge derived from the BrainPOP video on the topic.

6 REWARDS

BrainPOP rewards for learning were popular and motivating: the badges, certificates and especially the chance to meet Moby. Teachers mentioned the badge competition in particular as all children like winning recognition. This competition prompted the pupils to think about the content of the video in detail and explain to others what it was about.

7 IMPROVING PRACTICE

Staff agreed that they were mostly using the videos for exposition at the start of a topic and discussion at the end. They decided to increase the opportunities for independent learning at home and at school. The recent provision of tablets in school made this strategy more possible. Staff learnt from the pupils' perception of their most efficient learning and decided to make more use of the games. The IT coordinator decided to publicise home access more frequently to the parents and pupils.

ACTIONS

- **Set up team of digital champions amongst the pupils who would help the staff technically and alert everyone to good content**
- **Extend the opportunities without home access to use school facilities**
- **Make better use of planning tool overview with links to strands of curriculum**
- **Consider changing to more topic work**

CONCLUSIONS

This Sprint study has only been conducted in one school but it provides information that other teachers may find useful in planning how to use digital learning tools.

Sharing professional strategies can be valuable and teachers are becoming more sophisticated in how they use the tools.
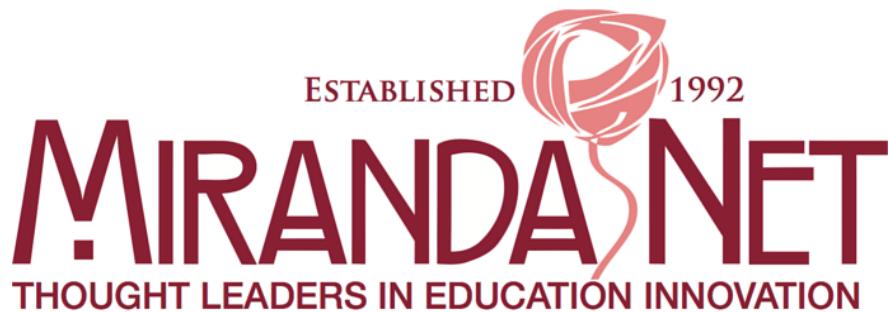
In the last couple of years, Jenny has noticed a tipping point in teachers' understanding about what computers can do.

This change can be attributed to the exponential growth of ownership of tablets and smartphones.

Now that teachers use these devices competently every day for personal efficiency and fun, they can envisage what education innovation might mean for learners and adapt their lesson plans.

They also now have devices in the classrooms for the children to use which stimulated the debate about the new ways to exploit BrainPOP.

The head and the staff agreed that they had learnt from the Sprint process, especially from the children, would like to give more time to ensuring value for money from digital purchases through professional development, particularly an innovation audit and a workshop sharing practice.

Thank you to the staff and pupils at Oakdale Junior school for sharing their insight and feedback

The MirandaNet Fellowship offers professionals engaged with digital technologies a means of informal networking and professional development as well as opportunities for research and consultancy.

MirandaNet is a global network based in London, UK. To learn more about MirandaNet and their work please visit http://mirandanet.ac.uk

BrainPOP® creates animated, curricular resources that engage students, support teachers, and bolster achievement. Used in classrooms, at home, and on mobile devices, our award-winning offerings include BrainPOP Jr. (ages 4-7), BrainPOP UK (ages 7-14), and for English language learners, BrainPOP ESL. We offer teachers a rich collection of professional development opportunities, implementation tools, and lesson plans to meet the rigor of the 2014 National Curriculum for England, Curriculum for Excellence in Scotland, and the Australian curriculum.

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