NFER Classroom

Taking a pupil-centred approach to using multimedia tools in maths and science

Education technology is rapidly evolving. A recent study by NFER, funded by White Rose Education, suggests the teacher's role may be just as important in determining the effectiveness of multimedia resources for improving learning outcomes as the technical design of the resource itself.

But what should teachers consider when bringing a pupil-centred approach to technology used in the classroom? Here's what the evidence suggests.

Choosing the right technology

- Not all education technology is created equal. Teachers are ideally placed to select resources that are not only high quality, but appropriate to the needs of the pupils who will use it.
- Technology resources with storylines and characters may help younger primary school pupils, and those with SEND, find a route into, and remain engaged with, maths and science topics.
- Younger primary pupils may also benefit from 'emotional design' features such as face-like shapes and warm colours. However, older primary and secondary pupils may start to find this a distraction where higher-order thinking, such as problem solving, is involved.

Guiding pupil interactions

- Teachers play a crucial role in pupils' engagement with technology resources and multimedia content. It is significantly more than just facilitating pupils' access to resources and tools.
- Consider varying group sizes, whether the content needs to be actively watched, or if it can be used as background during related activities.
- Adding teacher-led activities such as quizzes and games can deepen pupils' engagement with resources such as videos or eBooks.

Creating learning opportunities

- Evidence suggests there is no additional learning benefit when multimedia resources are used to replace regular teaching.
- Consider how multimedia resources are integrated into classroom teaching to capitalise on learning opportunities.
- When planning use of multimedia resources, reflect on how they can play the role of 'provider of knowledge', using them as the basis for teacher-led conversations, questions and reflections.

Making the most of multimedia

When introducing multimedia and technology-based resources into the classroom, evidence suggests that teachers should reflect on:

- **WHY** that specific tool will add value to the learning experience of your pupils.
- **HOW** pupils will engage with the resource (in terms of learning as well as technologically).
- **WHO** pupils can refine their interpretations and understanding with, to maximise their learning outcomes.

For more information:

Read the full article on the review **Effective use of multimedia in maths and science teaching and learning** via nfer.ac.uk

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