

NEC Display Solutions Pilot Project **Germany**

NOW I GET IT!

NEC 3D DLP® PROJECTORS HELP SCHOOL CHILDREN ENGAGE WITH THE LEARNING EXPERIENCE

A hand reaches out for the hammer. It's right there, next to the anvil and the stirrup. But that small hand passes straight through, because this particular model of a human ear is just a 3D projection. Primary school pupils at Munich's "Grundschule an der Simmernstraße" are experiencing new ways of learning. And innovative technology is helping them better understand what they are learning. A special classroom has been set up with computers and interactive whiteboards, along with both 2D and 3D projectors.



The primary school is offering a glimpse into the possible future of education in Germany. This effort is, however, still just part of a study being conducted by the Ludwig-Maximilian University (LMU) in Munich. The room has been designed as a UNI classroom, and gives teachers and teacher trainers the chance to familiarise themselves with various types of technology-led learning. Classes can even be recorded onto high-quality video for in-depth analysis later on.

THE CHALLENGE

"We want to explore how combining traditional learning methods with multimedia PC programs and 3D projections can help children retain what they have learned," explains Dr. Michael Kirch, research associate in the Primary School Education department at the LMU. This is all part of a research initiative covering several European countries, which aims to investigate academic learning supported by 2D and 3D technologies. DLP Technology innovator

Texas Instruments is supporting the project every step of the way. Professor Anne Bamford, an internationally recognised British education expert, is in charge of coordinating the project and evaluating its findings.

THE NEC SOLUTION

Technology in the classroom offers a wealth of promising opportunities, not least because in recent years have seen various technological innovations emerge that were practically destined for use in schools. Ultra-short throw projectors do not have to be installed at the other end of the room or suspended from the ceiling, but let you project onto a screen from only inches away. They produce no distracting shadows, and teachers are free to move around the room or stand right in front of the class. NEC's solutions are pioneering in this field. It has created a range of products with the education sector specifically in mind. "Easy to use, robust enough to cope with day-to-day school life, low noise levels,

and minimal operating and maintenance costs. These are just some of the features that schools and colleges look for," says Ulf Greiner, Product Line Manager Business Projectors at NEC Display Solutions Europe. "Projects like this give us the chance to gather valuable feedback, which we take and incorporate into the continuous development of our solutions," he adds.

Short throw projectors are the perfect companions for 3D visualisation. NEC's new U Series of ultra-short throw projectors are 3D-ready and do not require any additional equipment or modifications, making them a popular choice in the education sector. "Universities and schools are hugely in favour of sustainability, and want products that work equally well in both 2D and 3D situations," says Greiner.

The entry-level V Series and ultra-short throw models in the U Series all feature the latest in DLP Technology. As with modern 3D-capable TVs, the device transmits images alternately for the left and

right eye at 120Hz. Active shutter glasses separate out the images meant for each eye so that the image appears three-dimensional to the viewer. The process of syncing a projected image with the glasses is essential, and DLP Technology accomplishes this by sending additional visual signals between video frames, which are picked up by a sensor integrated into the glasses. This eliminates the need for extra emitters and makes the set-up as easy as setting up traditional 2D projection.

However, Dr. Kirch does not believe that technology is a panacea for education. Used incorrectly, it could even detract from the true objectives of modern-day teaching: "It's time to leave the 'teacher up front' approach behind. Let's get our children learning together in groups and motivate them to start teaching each other. For this to work, the children need to have their own interactive experiences." At the Munich primary school, pupils are assigned specific tasks that they have to complete in groups of two. Each of the individual 'stations' around the room gives them another clue to discovering the mysteries of acoustics. One of the most popular stations is the NEC 3D projector. At the moment there is only a limited amount of content available in German. "Ultimately, the content will be the deciding factor in relation to how fast this technology spreads. Many 3D providers in various sectors are in the process of adding educational content to broaden

their portfolios. Producers of more traditional teaching materials are in demand here on account of their pedagogic experience," says Greiner.

Dr. Kirch asked children who had taken part in 3D lessons whether they would prefer their teacher to give a presentation, or to try things out themselves via interactive content. The surprising response was that many children would actually choose the comprehensive explanation provided by a teacher first. Afterwards, however, they would like the opportunity to explore the various functions of the ear at their own pace. For example, to choose which part of the ear they want to find 3D information on.

Another key finding of both Dr. Kirch's and Professor Bamford's studies was the notably high levels of media literacy in children when working with 3D content. Many of those surveyed had already seen several 3D films at the cinema or had a 3D television at home. "Schools need to take account of the children's surroundings and incorporate that into their teaching concept. The omnipresence of 3D technology makes it a fantastic jumping-off point for learning as well," says Dr. Kirch.

THE RESULTS

Using technology in lessons has definitely been worthwhile. Professor Anne Bamford describes a

distinct, measurable effect in all the schools across Europe that were involved in the LiFE 1 project. "The content that was taught was noticeably more present in before-after comparisons; the children were far better able to retain the material," according to Bamford. "Many of the children said 'I understand much better now how hearing works'." Dr. Kirch observed the same phenomenon in the Munich school. "The results were overwhelmingly positive. The children were especially attentive when they were faced with 3D content."

He nevertheless emphasises the fact that technology alone cannot replace lessons that stimulate all the senses. This is the only way to accommodate all types of learners and ensure that they receive the information they need. Haptic learning, using a physical model, for example, is just as much a part of this approach as traditional reading of a text. For Dr. Kirch, 3D technologies really come into their own when imparting facts that are almost impossible to present in other ways. Scientific processes are the obvious example, but another could be field trips that might otherwise be difficult to organise. A virtual visit to the pyramids, for example. Or a journey through the inside of a human heart. All feasible in a single school day thanks to 3D. And that's why Dr. Kirch can say with certainty: "3D technology enriches the learning experience enormously."

INSTALLATION

SITE INFORMATION

LOCATION

Grundschule an der Simmernstraße, Munich, Germany

PROJECT COLLABORATION WITH

TEXAS INSTRUMENTS

EQUIPMENT AND BENEFITS

NEC V SERIES 3D READY DLP PROJECTORS

NEC U SERIES ULTRA SHORT THROW PROJECTORS

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