

**Boulder Valley
School District
3D Pilot Program**

Texas Instruments DLP® projection technology earns high marks from classroom teachers in pilot tests

3D Displays Create Greater Student Enthusiasm and Higher Scores



Ask almost any teacher and you'll get a consistent viewpoint: abstract concepts are often the most difficult to convey and explain – particularly in lower grades. And for students, these topics can be among the most challenging lessons to grasp – often leading to frustration and disengagement. Now, thanks to advanced DLP projection technology from Texas Instruments, classrooms are harnessing the power of 3D projection to take a variety of lessons to entirely new levels – literally adding a new dimension that creates engaging and effective instruction on challenging subjects.

The DLP 3D display captures the attention of students – bringing the “wow” factor from the movie theater to the classroom - and creates an immersive environment in which students can learn more and retain that information from clear and vivid presentations.

A 3D-ready DLP projector typically costs no more than a standard 2D projector used in classrooms today and, unlike other 3D technologies, only one projector is needed to create

vivid 3D imagery. DLP 3D-ready projectors – available from a wide variety of manufacturers - function normally as regular 2D projectors and switch to play 3D content and back again.

“A tremendous teaching and learning experience”

In Colorado, the Boulder valley School District has been leveraging the application of DLP 3D projection in some of its fourth-grade classrooms. When Dawne Mangus fired up the 3D projector in her classroom, she saw something in a whole new light – her students. “We had previously been studying the sun and moon,” she said. “But I didn’t prep them for what was to come – I just let them explore the solar-system lesson in 3D from Classroom3 and they were so engaged. They were guessing the planets and marveling at the asteroid belt. What really pleased me was they were able to guide the discussion and make their own discoveries and use their own prior knowledge. When we looked at Jupiter, one of them said, ‘Hey, that’s the planet with all the moons!’ so that was great to see.

Client:

Boulder Valley (Colo.) School District encompasses 54 schools across more than 500 sq. mi., serving approximately 28,000 K-12 students.

Challenge:

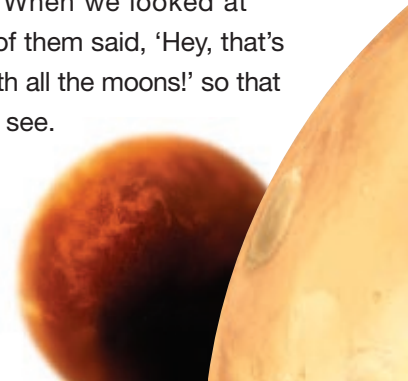
Deploy forward-thinking, vivid display technology that supports rich, interactive learning for today and minimizing total cost of ownership (TCO) while future-proofing their investment to support 3D content and instruction in the near future.

Solution:

An 18-month deployment of more than 1,000 fixed-mount Vivitek projectors based on Texas Instruments DLP® technology, providing clarity and visibility from anywhere in the classroom. Vivitek projectors are fully 2D and 3D compatible today.

Results:

Superior clarity and readability for students and teachers, a very low TCO, and immediate compatibility with emerging 3D curriculum content.





We went through the material in about 40 minutes and we never stopped talking – in many ways, they taught each other. It was just a tremendous teaching and learning experience for them and me.”

Although not statistically rigorous, Mangus delivered a simple five-question pre- and post-lesson test and compared results. “I had a learning gain of 54 percent and virtually every student had improvements in the post-test,” she said. “I want to see some more of these lessons – I think this could be very valuable in the classroom.”

Boulder Valley is also assessing the use of 3D projector technology in classrooms within a low socio-economic middle school, a high-performing high school, and a unique

day-treatment program funded by a community partnership. In their efforts, Boulder Valley has focused on the what, how, and why of classroom 3D:

- **What** - Concentrating on locating and employing effective 3D learning objects, micro-simulations, and complex simulations that support the mastering of BVSD curriculum essentials.

- **How** - Using the 3D experience in creative ways, including preloading and reloading course content, extending the learning, using the content with higher-order questioning to probe for deeper understanding, aiming at misconception, and creating what-if situations from simulated environments.

- **Why** - Using the 3D experience to leverage the benefits of visualization, concreteness in learning, and to eliminate persistent achievement gaps found in classrooms.

Based on these preliminary findings, Texas Instruments will continue to work with existing pilot sites and seek new schools with various student and teacher dynamics to continue refining its approach to 3D in the classroom.

DLP technology uses millions of microscopic mirrors that reflect light to create a stunning picture for the best projectors on the market. This imaging technology is so fast, it can actually project TWO images on the screen at the same time: One for the left eye and one for the right eye. Then 3D glasses combine the two images to create an amazing 3D effect. DLP 3D technology is available from a wide variety of projector manufacturers.



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Classroom3® is a library of 3D simulations for K-12 created by JTM Concepts, Inc., located in Rock Island, Illinois. You can read more about the results achieved using Classroom3® 3D simulations in the Texas Instruments Case Study. For more information on Classroom3®, please contact Tracey Masamoto at 309.794.1057 or visit their website at www.jtmconcepts.com.

Vivitek projectors models D832 and D837 were used in this program.
www.vivitekcorp.com

XpanD was created by industry veterans in theatrical exhibition, entertainment, film production & distribution, and specialty film and digital technologies and is funded by a European investment fund. This broad range of professional entities are the driving force in creating the ultimate Digital 3D experience. Learn more at www.xpand3dtv.com.

**Materials for this
3D Pilot Program
provided by:**



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