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➤ Villa Education Trust brings Virtual Reality to the classroom

By integrating the latest VR equipment, computer hardware and software, the Trust's three Auckland schools have added a new dimension to the way students learn.

SUMMARY

Villa Education Trust provides a pathway to opportunity to students from diverse backgrounds. Its three schools (one Private and two Partnership) in Auckland are devoted to project-based learning and alive to the potential of technology to enhance education.

With a vision of integrating Virtual Reality into the classroom, Principal Alwyn Poole and his team asked Lexel and HP to assist in specifying and implementing a VR facility from scratch. The proposed solution would need to integrate specialist hardware, a workstation, monitor and software to deliver a functioning 3D world to users. It would need to be practical for classroom use, flexible to set up and move around sites, and robust enough to cope with Middle School students. With a limited budget, the Trust's VR solution had to be reliable as well as functional, minimising wasteful downtime and maintenance.

Lexel advised the Trust on the most appropriate workstation and monitor configuration to work with the VR equipment provided gratis by HTC. Thanks to HP and Lexel, the Trust now has a working VR capability that is already delivering unique experiences to students.

THE CHALLENGE

With three schools in Auckland, Villa Education Trust caters for all students and modes of learning. Class sizes are small, the teachers are highly qualified and the students come from diverse backgrounds.

Central to the Trust's mission is the concept of bringing the outside world into the classroom, and taking the classroom outside. Students are highly engaged throughout the day, with a project-based curriculum that teaches the core subjects and works through cross-curricular projects. Students spend an hour a day on the project work.

Academic Adviser to the schools Alwyn Poole and his teaching staff are always looking to make the most of the opportunities presented by technology.

"We are open to things that are new and different," he says. "Virtual Reality has the potential to give children experiences that are out of the ordinary and will enhance their education. Imagine doing a project on the oceans and taking a virtual dive on the Great Barrier Reef, or studying art history on a virtual tour around The Met."



But before the Virtual Classroom can become a reality, the technology behind it needs to be thoroughly assessed. Alwyn looked into the computers, VR equipment and content libraries on the market. He talked to Villa's regular ICT partner, Lexel, to create a system that could deliver on the promise of Virtual Reality in a classroom environment.

A standard workstation wouldn't be up to the job. Ensuring the optimum combination of processing power and reliability was key to the success of the project.

LEXEL'S SOLUTION

Lexel recommended an HP Z440 Workstation for its ability to process complex data very quickly and realistically simulate environments in three dimensions. Combined with an HP E242 24" HD monitor, this set-up would provide a cost-effective capability using proven technology.

The content library includes a painting programme that places the user in a virtual room where he or she can choose a range of brushes, colours and stylistic options to create original artworks. Students can save their creations and submit it as project work – all within a virtual world. With the system up and running, Villa Education Trust is perfectly placed to build on its VR capability as new educational software becomes available.

THE LEXEL SOLUTION FOR VILLA EDUCATION TRUST

- HP Z440 Workstation including ASUS RX480-8G graphics card.
- HP E242 24" HD monitor.
- HTC Virtual Reality sensor boxes, headset and handpieces.
- Windows 10 Professional Operating System.

CONCLUSION

"Our students are learning by doing," says Alwyn.
"Because the set-up includes a monitor, the children and teachers can observe the experience and suggest actions. It's not an isolated experience like a gaming box, but something the whole class can help develop and refine."

Already there are plans to use the digital capability to create a 'Virtual Villa Museum.' This will be a 32-room virtual building where students' project work can be hung on the walls and added to over time. With the addition of new content software as VR technology matures, the Trust will be able to add interactive explorations of topics. Year 7 students could be visiting the Antarctic while Year 10 students are experiencing in an Elizabethan performance of Shakespeare's plays to supplement their study of the Bard's texts. The possibilities are endless.

With the introduction of coding to the NZ Curriculum from 2018, Villa Education Trust and its three Auckland schools are perfectly placed to implement its requirement of treating coding as a core subject. Students are being introduced to a new technology and are able to see it develop in front of their eyes as the software becomes more sophisticated.

Alwyn is conscious that the 'blue sky' potential of such technologies must always be balanced by a down-to-earth appreciation of their costs and benefits. The Trust, like most schools, must shepherd its resources carefully. Alwyn acknowledges the vital part played by Lexel in maximising the school's ICT investment.

"Lexel have been a great IT partner – superb at maintaining and upgrading our systems. But they also understand what we're trying to achieve educationally. They gave us a lot of helpful advice in selecting the right VR hardware and they helped set it up so we could focus on the educational opportunities instead of worrying about computer performance."



KEY BENEFITS OF THE VIRTUAL REALITY SOLUTION PROVIDED TO VILLA EDUCATION TRUST:

- Seamless integration of appropriate hardware (HP workstation and monitor).
- Flexible set-up that can be used across the Trust's three sites so all students have the opportunity to experience Virtual Reality as part of their education.
- Pro-active introduction of a new technology ahead of the new NZ Curriculum, which will have Digital Technology and Coding as a core subject from 2018.
- New capability for immersive, value-adding education experiences to supplement the Trust's project-based educational philosophy.
- Bringing high-end VR within the reach of students from all backgrounds without relying on a BYOD approach.

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