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Education

From textbooks to tablets

Colegio San Narciso equips 300 students with Intel® Atom™ processor-powered tablets as part of innovative digital learning program

Using the Papyre EDU* digital learning solution delivered by Intel and its collaborators in the OMNIA* initiative, Colegio San Narciso in northwest Spain has equipped 300 students with tablets and compelling, interactive learning materials. Used across all subjects in the school, the devices and the tailored content have helped cut the cost and inconvenience of relying on paper textbooks while making the learning experience more personalized, engaging and rewarding.

Challenges
- **Bridge the divide.** Bring digital tools familiar in the home and workplace into the classroom
- **Enhance learning.** Provide students with more educational content while cutting the cost, inconvenience and environmental impact of large numbers of textbooks
- **Empower teachers.** Support teachers with flexible, adaptable, rich content for higher-impact lessons

Solutions
- **A tough tablet.** Robust Papyre EDU 1015 tablet from Grammata is powered by Intel® Atom™ processors
- **Tailored environment.** Android* operating system-based platform features personalizable Papyre Desktop*
- **Rich content.** Materials from Grammata, Edebé and Vicens Vives provide a wide range of adaptable content for schools to choose from

Impact
- **Multiple users.** Teachers can adapt interactive content in a variety of formats to support any type of lesson
- **Student effectiveness.** Learners can control how and when they learn, making them more focused and better prepared for class
- **Flexible teaching.** Teachers can create their own lesson plans, content and tests that are personalized yet still meet educational standards

"With innovative digital content and student-friendly tablets powered by Intel® Atom™ processors, we're demonstrating that it's possible to bridge the divide between today's digital world and the traditional educational model."

Diego Rosales Galiñanes,
Head Teacher,
Colegio San Narciso

The digital divide

Today many students – from elementary school to university – are digital natives. They have grown up with computing devices and can't remember a time without the Internet. At home and in the workplace that they will soon join, it's normal to use tablets, PCs and smartphones to conduct a wide range of tasks that would previously have relied on more manual, paper-based methods.

This situation presents a stark contrast to the way most educational institutions operate. José Luis González, director at Grammata, a provider of tablets and e-readers for schools, explains: "We live in a digital world, and it's developing in a way that has nothing to do with current educational models. The world is now interactive and three-dimensional, but traditional book-based education doesn't reflect this."

Grammata, in collaboration with Intel, Spanish Linux* distributor Trisquel de Galicia, and educational content providers Edebé and Vicens Vives, wanted to address this misalignment of twenty-first century digital needs with traditional teaching methods. The companies created an initiative called OMNIA* (previously called Proyecto E-volución) which aimed to:

- Develop and support a digital teaching model that was compatible with the prevalence of technology in modern life
- Eliminate the need for students to carry heavy bags full of books, which can result in health and posture problems
- Reduce the cost for schools and parents of buying new textbooks

- Introduce free standards for schools that would enable teachers to tailor content for their students while following approved lesson frameworks
- Make the educational process more personalized for each student
- Remove the environmental impact created by producing large volumes of new textbooks on a regular basis.

A tablet fit for school

The OMNIA team worked together to develop a digital education solution that would combine compelling content with a student-friendly device. The result was the Papyre EDU 1015, a robust tablet powered by the Intel Atom processor and equipped with a stylus to use with the touchscreen. Running on the Android operating system, the Papyre Desktop was developed by Grammata and is designed to include personalization features like an agenda and notepad, as well as access to learning content. The content platform includes an online library from Grammata featuring dictionaries, an encyclopedia, an atlas and the periodic table, as well as applications such as a scientific calculator and virtual laboratory. Able to read various formats of documents, the device connects over the Internet with e-learning content from Edebé and Vicens Vives, enabling schools to select which of these external resources they want to use and make available to their students.

The Papyre EDU tablet was first deployed to 60 students at the Colegio San Narciso de Marín, a secondary school in the northwest Spanish region

Pioneering school uses Intel® Atom™ processor-powered tablets to introduce digital learning

of Galicia. The number of students using the devices at the school rose to more than 300 over five years, with the eventual aim being to equip around 1,000 students with their own devices.

In addition to rolling out the devices to pupils, the school worked with the OMNIA team to deliver training to both students and teachers on how to get the best results from the new digital model. "It was important for us to provide education for our staff on how to use the technology in lessons, and also to show the students that the device is a tool and not a toy. We also appointed a teacher as Information and Communications Technology (ICT) Coordinator, who is responsible for ensuring the children are educated on how to use the Internet ethically and safely," explains Diego Rosales Galiñanes, head teacher at Colegio San Narciso. "We showed the teachers which software to use, how to run simulations and exercises, and so on. Those who needed help with the device itself were assisted by our IT teachers. At the same time, we provided parents with guidance on how to ensure their children are getting the most out of the devices. We've also incorporated an application called Esemtia* which parents can use to communicate with teachers."

Flor García Rodríguez teaches foreign languages at the school. She adds: "It was a challenge for some of us initially. We're used to working with paper, but it's also important that teachers keep up with the latest technology trends, or they'll be left behind by the students. I saw it as an opportunity to improve my skills and make my job easier as well as helping improve my relationship with my students."

Making a difference in the classroom

With the devices now in the hands of students and teachers, the school was ready to start making use of the OMNIA digital learning approach. "It enables us to make classrooms much more dynamic," says Galiñanes. "The technology is fully integrated into the learning environment and enables us to aggregate communication, self-assessment and knowledge in a single device."

In a typical class, a teacher begins with some explanation around the day's lesson and uses a tablet connected to the room's interactive whiteboard to show supporting information such as videos or diagrams. The students can follow along on the whiteboard or see the content on their own tablets at the same time. They then have an opportunity to ask questions and discuss the topic as a group before breaking off to review related content on their devices and doing some interactive exercises using the digital resources available to them as necessary. "The students do not use any paper or books in their lessons anymore," says Galiñanes. "The tablets are their daily tools and are an essential part of every lesson."

The devices support the school's philosophy of encouraging learning by doing. The students spend about 40 percent of their time in the classroom dedicated to practical work, which is important for the completion of their end-of-school quali-

fication (the Spanish baccalaureate), particularly in subjects like the sciences. Being able to offer tailored software, materials and simulations to support these practical courses helps the school ensure that its learners are able to get extra value from their practical sessions.

It's not just the traditionally practical subjects that have benefitted from the tablets, however. Elsewhere in the school, Grammata has worked with the Religious Studies Department to build a tailored application to help students learn about St. Vincent Paul, a seventeenth-century priest and missionary who lived and worked in France. Students and teachers were invited to participate in the design, creation and updating of the application, again giving the pupils a chance to learn by doing.

"There are tones of apps that we can use, so we have access to more information," says Juan Rosales Fernández, a 2nd year Baccalaureate student at the school. "I really like the HandyCalc calculator app which I use for all my calculations in maths and science classes, and I also use an online translation tool in my English and French classes which is really useful."

A new learning experience

Since Colegio San Narciso implemented its paperless learning model, the students' school day has been transformed, starting from the moment they leave home in the morning. "Their bags are much lighter now, as they don't have to carry around a lot of books all the time," Galiñanes says. "Once they get to class, they're not as easily distracted as they would be during a traditional lesson, because they're required to pay close attention to keep up with the more interactive class format. It's project-based learning, where they not only need to answer questions, but also to research, use simulators and test their answers and conclusions. There's no time to get bored."

The school has found that the digital learning solution gives students more control over their own education. They can access information when and how they want to, making learning more agile. With a whole digital library of content at their fingertips, they can find what they need faster, completing homework in less time but with greater accuracy. "We find that they come to class much better prepared," says Galiñanes. "Each student is able to get a deeper level of knowledge through using video and sound as well as text to learn new things, and they're more likely to retain what they'd learned, as they've done it in their own way."

Juan adds: "I'm much more organized with the tablet. I've got all my documents in one place, sorted by folders, and can access whatever else I need through the Internet, or by communicating online with my teachers if I have a question. This means I can get my homework done faster, but I feel I'm learning more." The ability to work as effectively at home as in the classroom means that students who are off sick, or unable to travel in to school, are now able to keep up with assignments with ease.

While it's still too early for the school to be able to identify a correlation between tablet use and improved grades, Galiñanes observes that with student involvement in the digital learning model at over 98 percent, it's clear to him and his colleagues that students and their parents trust the solution and believe it is beneficial. "Parents also appreciate the significant cost savings they will enjoy from not having to buy new books every year," he explains.

Rodríguez concludes: I feel more motivated now. The way I teach has changed for the better. I'm more active in the classroom now and can move around to spend more time interacting with students rather than being tied to the blackboard at the front of the room. Classes have become more productive for myself, my colleagues, and our students, which in my view is a great improvement."

Empowering teachers

At the same time, the teachers can use their own devices to adapt the content and plans they use to ensure their lessons resonate with their students. For example, a Spanish literature teacher might develop a reading plan for her class to follow as they start to study a new novel, creating a work record which is saved in the school's cloud for students to update from their own tablets. The teacher can also run online tutorials to give students extra help when they need it.

Teachers can develop their own content, tests and simulations to support their lessons and engage their students. These materials are then reviewed and approved by educational professionals to ensure that the quality of teaching and resources delivered through the digital model remains high and consistent. Having these innovative tools at their disposal, and being able to create more exciting lessons, also helps teaching staff to improve their motivation and job satisfaction.

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