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Case Study

Jeonggwan Middle School

Establishing its role as a hub for future education based on digital and AI innovation

Enhancing student competencies by adopting Lenovo Chromebooks and Google Workspace for Education

Located in Gijang-gun, Busan, Jeonggwan Middle School has continuously worked to build an educational environment that strengthens the digital and AI competencies of both teachers and students since its opening in 2017. After being designated as a software-leading school by the Ministry of Education, the school has consistently provided various software and digital education programs, including autonomous driving coding class, digital literacy, and game development. Many students have actively participated in these activities. In addition, club activities involving 3D modeling, 3D pens, and drones are also actively conducted. Students also voluntarily participate in after-school programs, further establishing the school as a leading institution for software education and future-oriented digital learning.

In 2023, the school established a Digital Education Center as a future education hub in the Haeundae district of Busan. The center provides training and experiential spaces designed to promote the mainstream adoption of classes using digital technologies related to the Fourth Industrial Revolution, including software, AI, big data, the Internet of Things (IoT), robotics, AR/VR, and the metaverse.

To enhance digital literacy and AI understanding across the entire school community, Jeonggwan Middle School adopted the Lenovo 500e Chromebook Gen 3 and Google Workspace for Education. The school has been providing training programs for teachers alongside digital competency programs for students, continuously working to improve teacher expertise while building a future-ready educational environment.

Challenges

Over the years, Jeonggwan Middle School has actively incorporated various digital devices and applications into the classroom. Its students have demonstrated a high level of digital proficiency, earning the school a designation as a software-leading school by the Ministry of Education.

As generative AI has become more widely used in education, Jeonggwan Middle School recognized the need to further strengthen digital and AI literacy by introducing hardware devices that balance usability, efficiency, and durability—alongside software that students and teachers can easily use—thus reinforcing its position as a leader in future education.

Accordingly, the school surveyed the requirements for digital devices and educational applications to be provided to students. The school found that the devices needed to be not only portable for both indoor and outdoor use and highly durable enough to withstand drops or impacts that may occur during the school day. The school also sought ways to maximize classroom utility by identifying user-friendly, education-specific applications that would enhance real-world teaching and learning.

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Solution

To strengthen students' digital and AI literacy, Jeonggwan Middle School adopted Google Workspace for Education and the Lenovo 500e Chromebook Gen 3 as a digital learning tools. These tools help teachers manage class assignments more efficiently, enhance productivity, and foster a collaborative learning environment.

The Lenovo Chromebook reliably supports educational tools such as Google Workspace for Education and provides an efficient learning environment with high interoperability and accessibility, enabling students to collaborate and complete assignments effectively. Generative AI tools like Google Gemini are also actively utilized through the Lenovo Chromebook.

The school also offered a professional development program (PD session) to support teachers in technical and instructional aspects of lesson planning. The PD session paired each teacher with an expert for personalized training, offering guidance on how to use tools like Google Workspace for Education and generative AI in real-world classroom settings. Through this training, teachers were able to design lessons using generative AI and actively incorporate these tools into their classes, increasing student engagement and participation.

"The biggest difference between the Lenovo Chromebook and the tablet PCs we previously used is keyboard and pen. Students actively used the keyboard and pen that come with the Lenovo Chromebook to complete assignments more efficiently and collaborate more smoothly on group tasks. Even during research tasks, both the speed of work and the quality of outputs improved noticeably. Thanks to its strong durability and long battery life, the device has also been evaluated as highly suitable for use in school settings.

Google Workspace for Education has played a major role in transforming students' attitudes toward learning by making it easier to share content, communicate, and collaborate with one another. One particularly impressive aspect was that the PD sessions provided to teachers enabled them to design a wide range of lesson plans tailored to students. Based on what they learned in the PD sessions, teachers incorporated generative AI into their lessons, which not only increased student interest and participation but also attracted considerable attention when the class examples were shared with the broader teaching community."

– Teacher A, Jeonggwan Middle School

Lenovo 500e Chromebook Gen 3

The Lenovo 500e Chromebook Gen 3 is ideal for any learning environment, offering powerful performance, high durability, and a sleek design. With a battery l ife of up to 12.1 hours, it can be used throughout the day, helping to elevate the learning experience. As a convertible device with a 360-degree hinge and a built-in USI stylus, it enables students to express their creativity both inside and outside the classroom. It also supports a variety of AI tools provided by Google, such as Gemini. With Wi-Fi 6 support, students can participate in lessons, share documents, and collaborate with faster connectivity from anywhere.

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Benefits

Jeonggwan Middle School has greatly enhanced students' digital and AI literacy across the board by actively incorporating Lenovo Chromebooks, Google Workspace for Education, and various AI features into classroom assignments and collaborative activities. Generative AI tools have improved students' problem-solving and creative thinking skills, while collaborative and research-based activities using Google applications were seamlessly integrated throughout the curriculum.

One science teacher at Jeonggwan Middle School introduced an escape room–style lesson and used generative AI to develop the scenario, significantly increasing student engagement and participation. This lesson also sparked open dialogue among teachers about applying generative AI in classroom.

Students also used Google's generative AI tool, Gemini, in technology and home economics classes to design clothing, or to complete drawing assignments more easily and effectively with AI support. Through these experiences, students developed a more positive perception of AI.

Compared to traditional tablets or laptops, Lenovo Chromebooks have received high marks in both teaching and learning environments, proving their effectiveness in the classroom with durable hardware and strong compatibility with a wide range of Google-based educational tools.

This adoption marked a shift from teacher-centered instruction to learner-centered, activity-based classes, resulting in more active student collaboration and interaction. Teachers also found it easier to utilize a wide range of teaching and learning resources, saving time across lesson planning, grading, delivering feedback, and completing administrative tasks.

Most notably, following the adoption of Lenovo Chromebooks and Google Workspace for Education, both teachers and students reached a high level of proficiency in AI literacy. Students developed a positive perception of AI by designing and using AI tools directly in the classroom, which naturally led to continued learning and application. Teachers likewise made active use of AI tools to enhance classroom effectiveness in multiple areas, including providing feedback, facilitating collaborative learning, managing Q&A, sharing resources, encouraging student participation, and guiding instruction.

> "Since adopting Lenovo Chromebooks and Google Workspace for Education, Jeonggwan Middle School has seen increased interaction not only among students but also between students and teachers. Generative AI has been used to complete assignments and support instruction, demonstrating significant benefits in improving AI literacy.
>
> The introduction of these new solutions has also positively impacted teachers' personal and organizational motivation. Teachers expressed high satisfaction with lesson preparation and delivery using Chromebooks. Elements such as the educational community, hardware, and software played a key role in boosting their motivation toward teaching. These changes have naturally translated into stronger digital and AI competencies among students."

Source
Study on the Effectiveness of Google for Education Products, 2023-2 Albus Project, Center for Future Education Innovation, Seoul National University

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ILenovo is partnering with Google to operate the InnovED program, aiming to expand access to smart education through technology for all. Through this program, Lenovo supports future-ready learning environments and helps enhance the digital education capabilities of students, teachers, and schools.

Lenovo InnovED program provides access to Lenovo Chromebook and diverse resources from Google Workspace for Education, driving creative education for students and teachers as well as establishment of digital-based learning environments.

Take your first step into the future of smart education with the Lenovo InnovED.

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