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Advancing Technology Adoption and Student-Centered Learning to Develop Future-Ready Talent in Indonesia

School At A Glance

Taruna Nusantara Senior High School is a prestigious boarding school located in Magelang Regency, Central Java, Indonesia. Operating within a fully residential campus, the school integrates academic learning with structured character and leadership development in a highly disciplined environment. Students follow the national curriculum alongside programs that emphasize nationalism, leadership, and personal responsibility. The school is widely recognized for producing graduates with strong academic performance and a strong commitment to national values.

Challenge

As a prestigious institution committed to national development goals, including the vision of Golden Indonesia 2045 for a high-quality, globally competitive, and future-ready generation, Taruna Nusantara Senior High School sought to integrate technology to further strengthen human capital and equip students with future-ready skills.

> *"Students were given greater space to read independently, engage in discussions, ask questions, and explore their understanding with the support of digital tools and AI."*
>
> – Teacher, Religion and Culture

Solution

The pilot deployed Chromebooks alongside Google Workspace for Education (GWfE) and AI Pro licenses, establishing a unified, cloud-based ecosystem to support teaching and learning.

This was complemented by 40 hours of structured training for both teachers and students, delivered by professional development partner REFO Indonesia, with a focus on practical adoption and effective classroom integration. The training aimed to improve teacher productivity, enable more student-centered instruction, and strengthen students' 4Cs(*) skills.

To ensure the pilot's impact was evidence-based, Universitas Ahmad Dahlan ("UAD") conducted pre- and post-pilot research, measuring changes in adoption, efficiency, and teaching and learning outcomes.

Together, this integrated approach combined technology, capacity building, and research to drive meaningful and sustainable transformation.

(*) The 4Cs of 21st-century learning: Critical Thinking, Creativity, Collaboration, and Communication

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SPC 14" Ryzen 3 Chromebook

chromeOS Chrome Education Upgrade

Gemini Google AI Pro

Key Benefits

The pilot delivered strong impact across teaching and learning. Teachers experienced reduced workload and greater confidence in using technology, while students became more engaged and collaborative. The integration of Chromebooks and GWfE streamlined administrative tasks, enabling teachers to focus more on high-value instruction and personalized support. At the same time, the access to digital tools fostered a more interactive, student-centered learning environment, leading to measurable gains in both student performance and technology adoption.

Reduction of Teachers' Existing Heavy Workload

100% of teachers agreed that the integration of GWfE and AI-powered tools directly addressed teachers' heavy workload by automating routine administrative tasks such as lesson planning and grading. This enabled teachers to reduce their working hours from 56 hours to 51 hours per week, closer to the OECD global average of 46 hours per week.

Removal of Technology Adoption Barriers For Teachers

Through 40 hours of localized training, teachers who initially felt overwhelmed by technology developed strong confidence in both tools and pedagogy. The Chromebook ecosystem further minimized technical barriers. There was a 60% increase in number of teachers having challenges in using technology to manage instruction at the end of the pilot.

Strong Shift Toward Student-Centered Learning

With the integration of technology and corresponding pedagogical shifts, 100% of teachers transitioned into facilitator roles focusing on providing real-time feedback and personalized guidance. This shift created a more interactive classroom environment, where students felt more engaged and empowered in their learning.

Enhanced Student Performance & Technology Adoption

The shift toward student-centered teaching, combined with more personalized feedback improved students' understanding of learning materials. As a result, 66% found complex subjects more accessible, 74% reported improved academic performance, and 80% recognized the benefits of technology.

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