The Digital Learning Enhancement Plan for Grade 1-12 Students

Launched in 2022 by Taiwan's Ministry of Education, the Digital Learning Enhancement Plan aims to transform teaching and learning across all grade 1–12 schools.

The plan focuses on three key areas: enriching digital content and teaching resources, improving internet access and device availability, and developing a national educational big data system. With a total investment of NTD 20 billion (USD 630 million) over four years, the initiative supports both teacher development and student learning, with a particular focus on strengthening self-regulated learning and improving academic outcomes.

Plan Structure and Key Initiatives

Digital Learning Enhancement Plan

The Digital Learning Enhancement Plan aims to support the integration of digital tools in teaching and to promote students' self-regulated learning and academic development. To achieve these goals, it is structured around three projects that address digital content development, device and infrastructure provision, and educational data analysis.

Mobile Devices and Wireless Internet

The MOE allocated 610,000 mobile devices to elementary and secondary schools. In rural areas, each student is provided with an individual device. In non-rural areas, one class set of devices is allocated for every six classes.

All devices are equipped with Mobile Device Management (MDM) systems and support Chrome OS, iOS, Windows, and Android, allowing for unified and efficient device management.

In response to increasing infrastructure demands for digital learning, the MOE has strengthened school connectivity by installing wireless networks in standard classrooms and upgrading external bandwidth.

Taiwan Adaptive Learning Platform

The Taiwan Adaptive Learning Platform (TALP), developed by the MOE since 2017, provides digital learning resources for Grades 1 to 12. It includes core subjects, competency-based materials, issue-oriented themes, interactive lessons, and game-based modules.

TALP Homepage

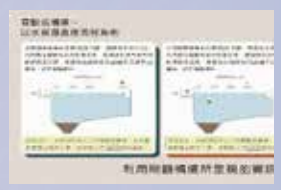
The MOE collaborates with public and private sectors to develop free learning materials in various formats, including videos, animations, e-books, games, interactive modules, virtual reality (VR), and augmented reality (AR). These are integrated into TALP and made freely available to schools nationwide. The platform also features adaptive tools for cross-grade diagnostics and assessment, helping teachers monitor student progress and support individual learning needs.

AR / VR

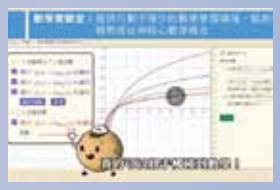
Nature Observation

Civil Engineering & Construction

Interactive Content



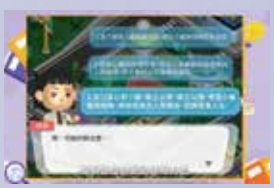
Competence-based



Mathematics Virtual Learning Tools

Game-based Learning / Gamified Learning

Plant conservation



Proper network usage

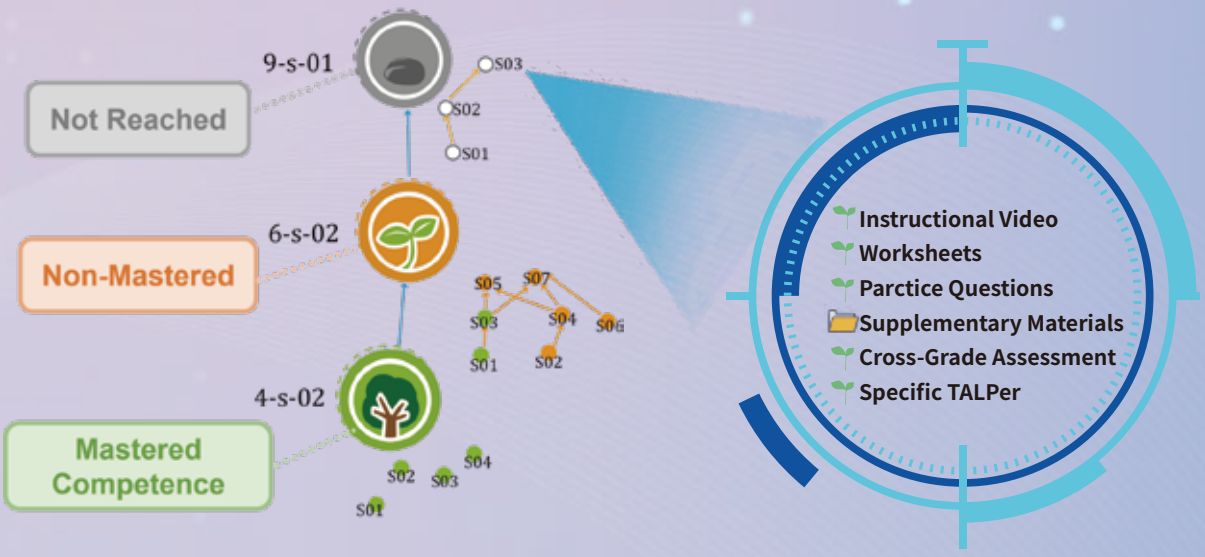
National Museum and Library Resources

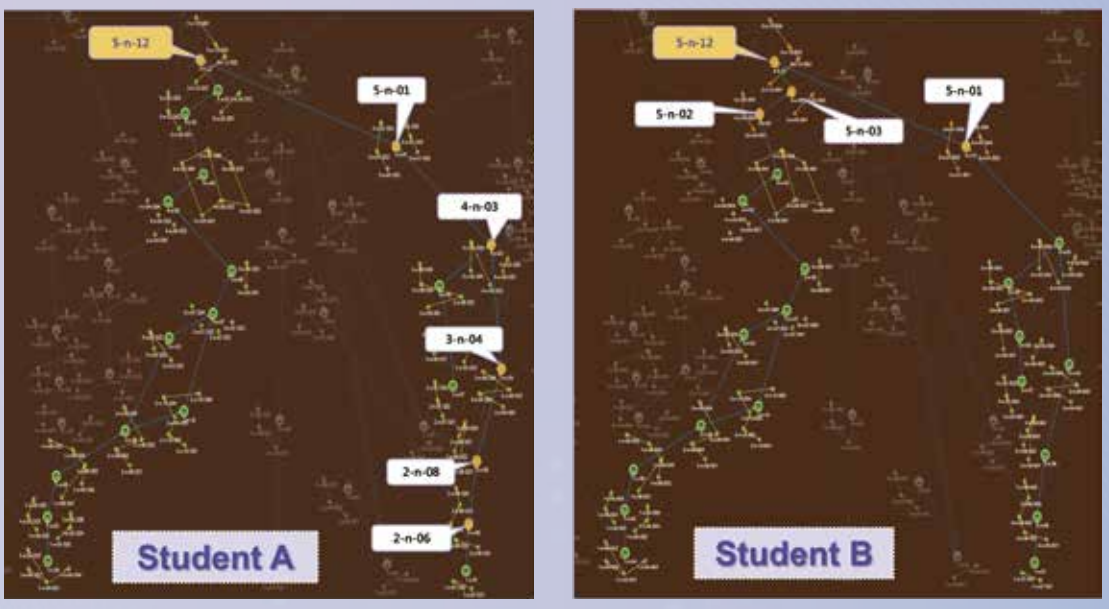
Taiwanese History

Natural Sciences

Knowledge Structure-Based Learning

TALP organizes subject content into a visualized knowledge structure based on the 12-Year Basic Education Curriculum Guidelines. Nodes represent learning concepts connected by prerequisite relationships across grade levels. Each node integrates instructional resources and diagnostic tools to support student progress, with mastery levels indicated by node colors to help identify learning needs.





Based on cross-grade assessment, the system identified two students who encountered difficulty with the same knowledge node (5-n-12). TALP assisted in identifying different sources of misunderstanding: Student A had not mastered prerequisite nodes from earlier grades (e.g., 2-n-06, 3-n-04), while Student B struggled with recent nodes in the same grade (e.g., 5-n-01, 5-n-02). The system generated personalized learning paths to address each student's specific learning gaps.

Generative AI in TALP

TALP features an AI-powered learning companion, TALPer, designed to support personalized and self-regulated learning. Integrated with the platform's knowledge structure and content, TALPer supports students in addressing learning challenges and provides teachers with interactive feedback. Since its launch in September 2024, TALPer has reached over 400,000 users, with approximately 50,000 active daily.

TALPers are designed based on expectation-misconception tailored (EMT) pedagogy and Auto tutor-style dialogue with domain and specific knowledge.

Domain General TALPer

G-TALPer is embedded throughout the platform, allowing students to engage at any time in areas such as math problem solving, science inquiry, writing, and drawing. It provides real-time guidance through Socratic questioning, enabling students to clarify ideas and maintain focus throughout SRL.

Domain Specific TALPer

S-TALPer is designed based on the knowledge structure and diagnostic system used in TALP. Student progress is analyzed at the node level, and personalized learning paths are recommended according to mastery levels to support both remediation and extension.

Review prerequisite concepts after incorrect answers.

Advance to higher-level concepts after correct answers.

Enhancing Teacher Competencies

Guides for Digital Instruction

The MOE has developed a set of practical guides for school leaders, teachers, and parents, with regular updates to reflect evolving digital learning practices. These guides offer principles and strategies to support the planning, implementation, and communication of digital learning in schools.

Digital Learning Leadership Guide

Digital Teaching Guide v3.0

Parent Digital Learning Guide

Digital Strategies for Support Self-Regulated Learning

With the support of digital platforms and tools, teachers design learning experiences that incorporate self-learning, co-learning, mutual learning, and teacher-directed learning. This four-phase model fosters diverse learning interactions and strengthens students' self-regulated learning abilities.

Self-Learning

Students access digital learning content and complete practice tasks on TALP to plan learning strategies, explore key concepts and identify learning challenges accordingly.

Co-Learning

Students collaborate within groups to discuss assigned content and build shared ideas and understanding through peer interaction.

Teacher-Directed Learning

Teachers review students' learning status to clarify concepts, address common difficulties, and guide reflective thinking.

Mutual Learning

Students share their group outcomes and engage between groups to compare ideas, resolve misconceptions, and extend their learning.

Digital Teaching Training Framework

The MOE has developed a structured training framework consisting of foundational (A) and advanced (B) workshops. While A-level courses focus on digital teaching fundamentals, B-level workshops emphasize applied strategies, subject-specific practices, and the integration of generative AI through AIPACK-related modules.

A. Foundational Courses (Compulsory)

Courses required for all teachers to establish a foundation in digital teaching.

A1 Digital Learning Workshop (3hrs)

Introduces technology-assisted self-regulated learning and the national teaching guides, laying the foundation for digital lesson planning.

A2 Platform Application Workshop (3hrs)

Provides hands-on training on MOE-approved platforms, focusing on system operations and classroom implementation.

A3 Digital Literacy Workshop (3hrs)

Covers essential digital literacy skills, instructional resource usage, and basic information security practices.

B. Advanced Courses (Elective)

Optional workshops that support implementation, subject-specific applications, and AI integration in teaching.

B1 Technology-Assisted SRL Workshop (12hrs)

Deepens understanding of SRL theories and supports teachers in implementing SRL strategies through digital tools.

B2 PBL and the Four Learning Model Workshop (6hrs)

Combines SRL, project-based learning (PBL), and the four-phase learning model into integrated classroom practices.

B3 Digital Teaching Guide Workshop (6hrs)

Applies the National Digital Teaching Guide to structure and design digital lesson plans.

B4 Domain-Specific Digital Teaching Workshop (3+ hrs)

Supports instructional planning and classroom practices tailored to specific subjects through case analysis and lesson design.

B5-1 Generative AI in K–12 Education Workshop (3 hrs)

Presents the role of AI in education and the use of generative AI tools in classroom instruction.

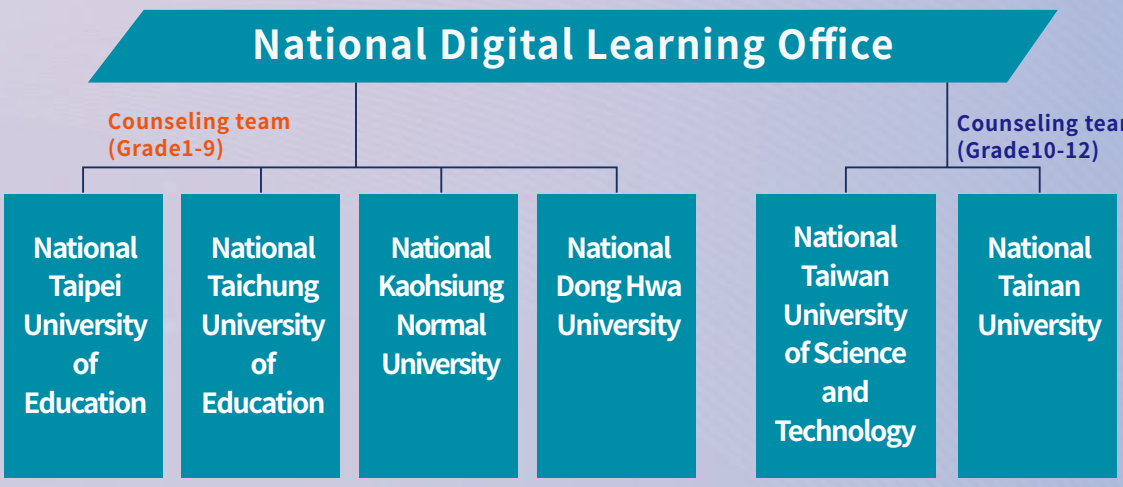
B5-2 Subject-Specific AIPACK Workshop (6 hrs)

Focuses on integrating generative AI into subject teaching, guiding lesson design using the AIPACK framework.

Implementation Support for Schools

Regional Support and Coordination

The Digital Learning Enhancement Plan has established a national support structure for digital learning across elementary and secondary schools. The National Digital Learning Office coordinates regional counseling teams formed by universities in northern, central, southern, and eastern Taiwan. These teams work with local governments to provide regional assistance with infrastructure, teaching practices, administration, and substitute staffing.



In-Class Teaching Support

Local governments recruit experienced educators to provide on-site support in classrooms. The initiative forms part of a structured mentoring system aimed at assisting teachers with limited experience or less familiarity with technology. Mentor teachers provide practical guidance in lesson planning, co-teaching, and classroom implementation, with the goal of enhancing instructional quality and advancing school-based digital learning practices.

Parent Engagement in Digital Learning

Digital Learning Workshops for Parents

In collaboration with local governments, the MOE organizes parent-oriented workshops to introduce national digital learning policies and their application in schools. The sessions include hands-on activities and guided presentations by instructors for parent sessions, who demonstrate how families engage with Self-Regulated Learning through diagnostic tools and diverse digital content.

These workshops aim to enhance parents' understanding and recognition of the digital learning environment for their children, fostering stronger parent-child engagement.

Parent Learning and Instructor Training

To further support parent engagement in school-based digital learning, the MOE has established a structured system for parent learning and instructor training for parent sessions. These training programs familiarize parents with TALP features for parents and promote joint learning that connects school learning with home support.

Digital Bilingual Education

Expanding Access to Bilingual Education through Digital Platforms

Cool English plays a key role in supporting English language learning for elementary and secondary students. Its features include pronunciation feedback through speech recognition, AI-based writing review for teachers, and simulated conversation tasks that develop students' speaking and communication abilities.

Cool English Homepage

AI Speech Tool for Pronunciation Practice

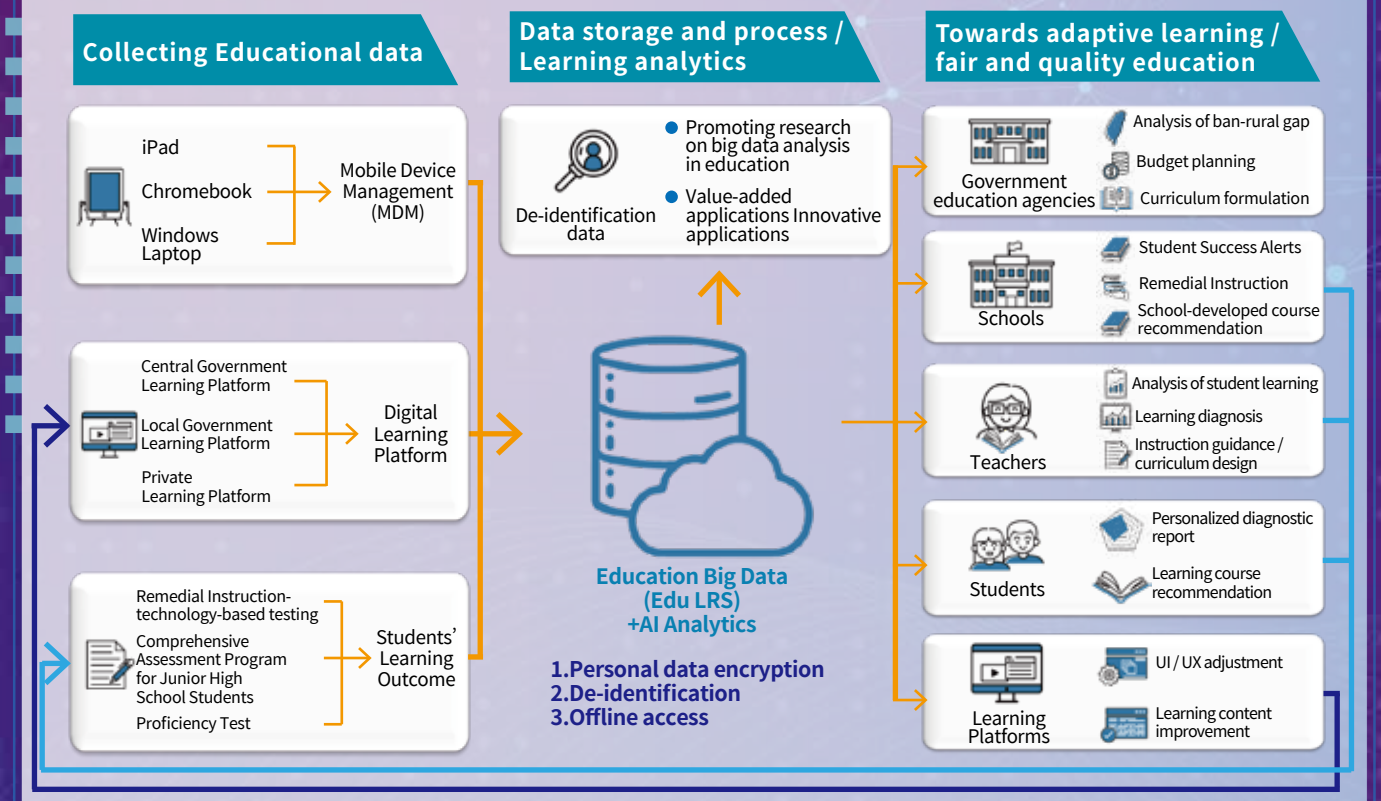
AI Writing Assistant for Feedback and Revision

AI Chatbot for English Conversation

Through the initiative of Bilingual Digital Education, the MOE integrates digital learning platforms and interactive tools to support real-time instruction in both English and local languages. This approach enhances student motivation and expands access to high-quality bilingual learning resources nationwide, with particular attention to underserved areas.

National Digital Learning Database

Developing Infrastructure for Educational Data Integration



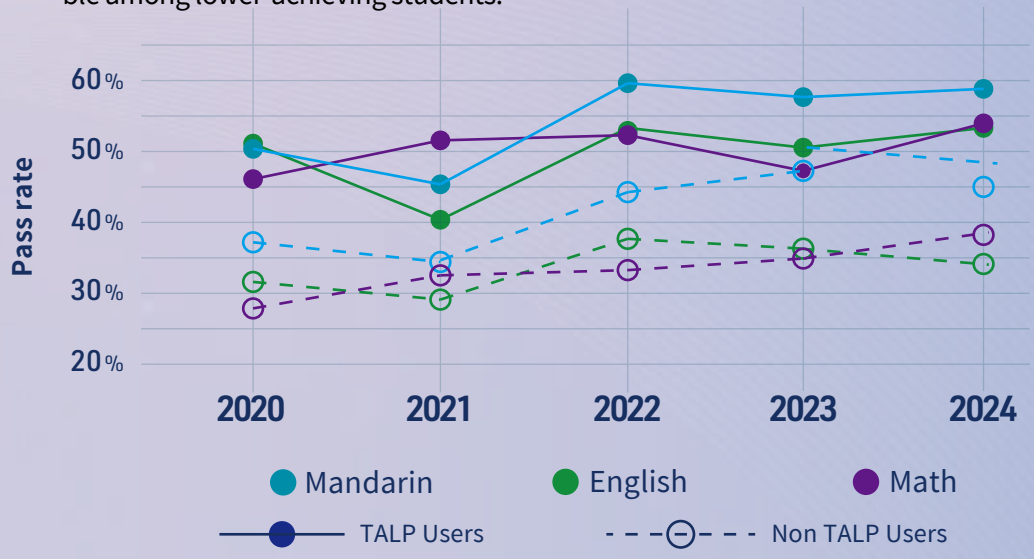
As part of a key project under the Digital Learning Enhancement Plan, the MOE has established a centralized educational big data system integrating device usage records, learning data from MOE-approved platforms operated by public and private institutions, and national assessment results to help schools and local governments evaluate digital learning effectiveness, identify learning challenges, refine instruction, improve content and platform design, and guide long-term education planning and system improvement.

Learning Outcomes Under the Digital Learning Enhancement Plan

Educational data analyses show that the effective integration of digital and personalized learning can enhance student performance and significantly strengthen self-regulated learning abilities.

Improvement in Performance among Lower-Achieving Students

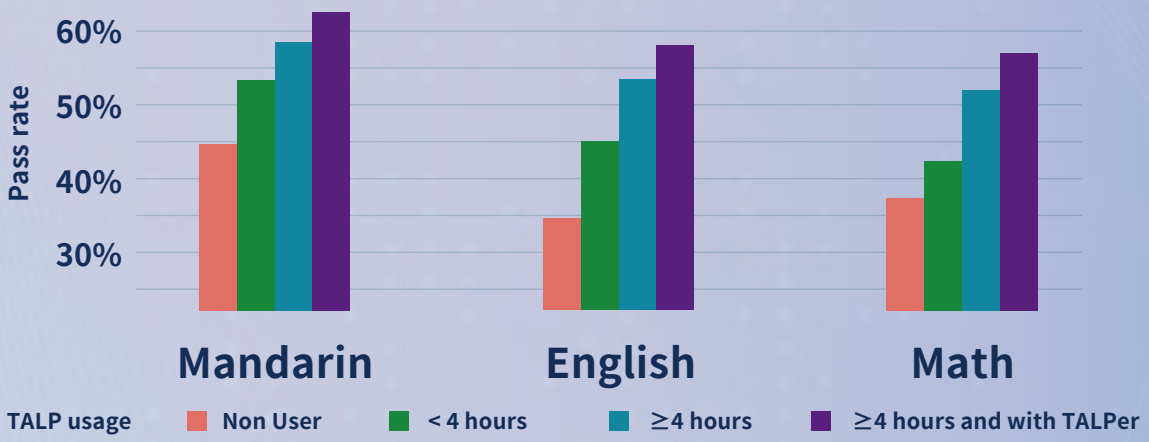
Data from the Technology-Enhanced Assessment Growth Test (2020–2024) in Mandarin, English, and Math show that Grades 1–8 students who consistently used TALP achieved higher pass rates than non-users. The improvements were particularly notable among lower-achieving students.



Pass rate trends for TALP users and non-users across three subjects, 2020–2024.

Higher Pass Rates with Increased Use of TALP and TALPer

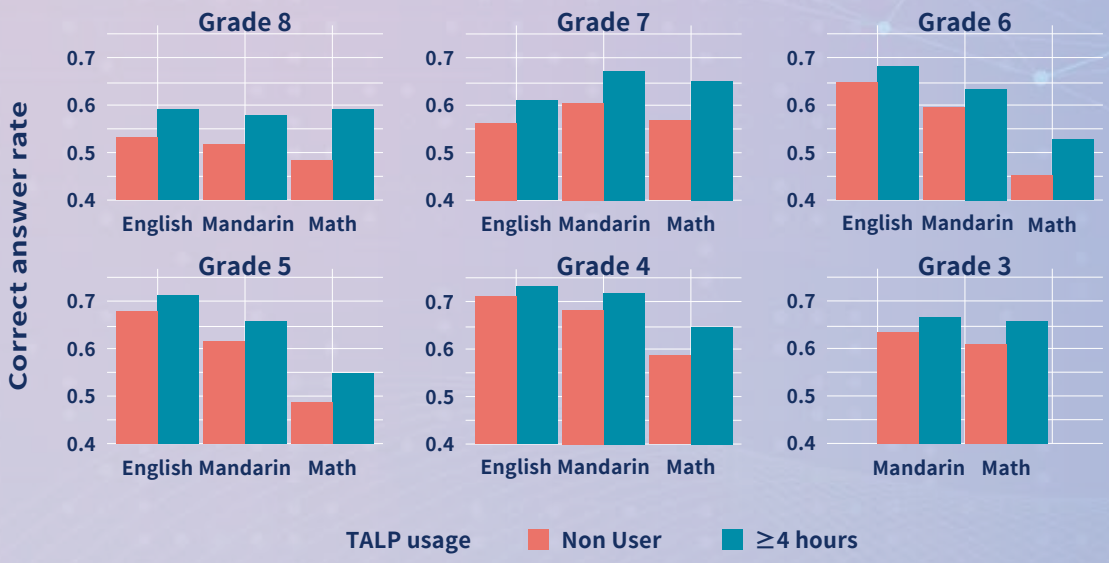
In 2024, following the launch of TALPer, TALP user with extended periods and engaged with TALPer achieved the highest pass rates across key subjects, particularly those who combined sustained TALP use with active engagement through TALPer.



Pass rate trends by TALP usage duration and TALPer engagement, 2024.

Consistent Use of TALP Enhances Student Achievement

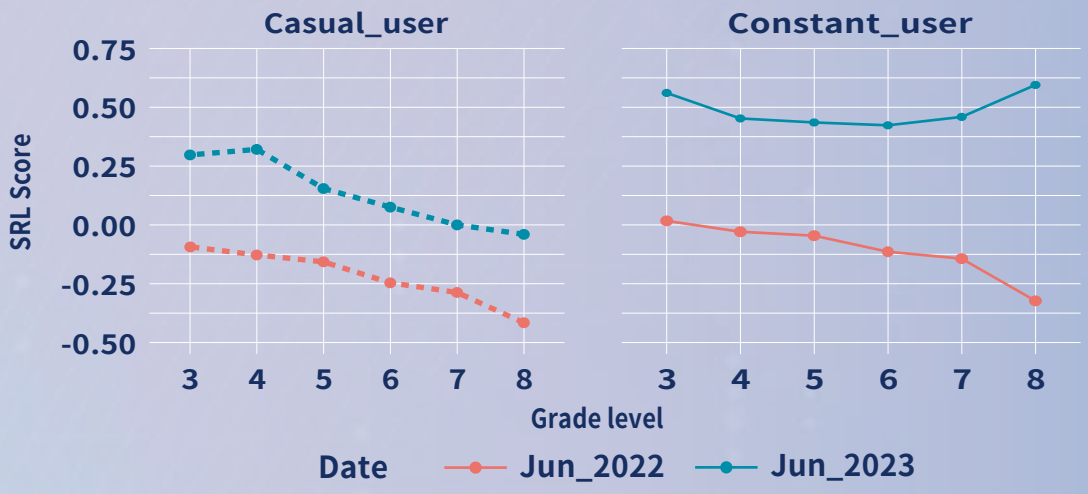
In 2023, data from Grades 3–8 students across 15 cities and counties indicated that those who used TALP for at least four hours consistently achieved higher correct answer rates in English, Mandarin, and Math proficiency tests than non-users.



Students' correct answer rates by grade level with ≥4 hours of TALP use versus non-users, 2023.

SRL Growth among Consistent Users after Plan Implementation

SRL scores among Grades 3–8 students improved notably from 2022 (before plan implementation) to 2023 (after implementation), reflecting the impact of the Digital Learning Enhancement Plan. Students who consistently used TALP also achieved higher SRL scores compared to casual users.



The improvement of SRL ability before and after plan, 2022–2023.

Initiatives and Highlights

Awards for Digital Learning Excellence

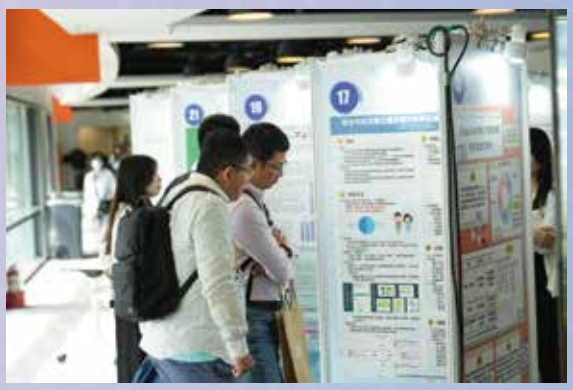
The MOE honors outstanding cities and counties through a national award program that promotes excellence in digital learning and encourages innovation in digital learning approaches.

International Digital Learning Forum

The MOE organizes the International Digital Learning Forum annually, where experts from government, academia, and industry gather to share global perspectives on digital learning. The forum provides a key platform for in-depth discussions, collaborative research, and strategic planning that foster innovation in elementary and secondary education.

Taiwan Self-Regulated Learning Festival

The festival features open classroom observations, program exhibitions, keynote speeches, and seminars, highlighting how digital learning tools support self-regulated learning. It offers insights for educators, students, and parents, showcasing how these approaches foster student autonomy and improve learning outcomes.



EdTech Taiwan Exhibition

As part of IT Month, this exhibition invites the public and schools to explore digital learning achievements through interactive activities, live demonstrations, and a wide range of new digital learning products.

The Digital Learning Enhancement Plan for Grade 1-12 Portal

Taiwan Adaptive Learning Platform

The MOE Digital Learning Portal

Cool English

MINISTRY OF EDUCATION 教育部

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