

China AI Education Agent Technology Assessment, 2025

Hongyu Cheng

IDC OPINION

Since the breakthrough in GenAI technology in 2023, AI agents with autonomous decision-making and execution capabilities have rapidly evolved from a technological concept to an industrial application. The education sector, with its dual demand for personalization and scalability, has become a key use case for AI agents. Starting in 2024, driven by factors, such as the maturation of multimodal interaction and dynamic memory technologies, along with policy initiatives, such as the digital education initiative, AI education agents are expected to see accelerated integration into classrooms. Some practices indicate these agents can improve learning efficiency by 40% and increase engagement by 50%, demonstrating a rapid fusion of technology and education.

The underlying reason for this explosive growth is that the AI agent technology is the perfect solution for the deep-seated contradictions in traditional education systems. On one hand, a shortage of high-quality teachers and uneven distribution of educational resources make standardized teaching difficult to meet personalized needs. On the other hand, AI education agents, through a closed loop of four core technological features — multimodal perception, task planning, tool usage, and dynamic memory — establish an intelligent teaching mechanism of perception–decision-making–execution–iteration. This provides a novel approach to address the challenges of educational equity and quality. Against this backdrop, AI education agents are moving beyond their role as an assistive tool to become a key force driving the transformation of education from large-scale coverage to precise delivery.

The closed-loop intelligent teaching mechanism: a qualitative leap from technological features to educational capabilities

The deep integration of four core technological features creates a teaching closed-loop analogous to that of a human teacher. Multimodal perception acts as the neural endpoints to capture student states, task planning serves as the central brain to formulate instructional strategies, tool usage functions as the executive hands to integrate educational resources, and dynamic memory operates as the experience repository to optimize long-term teaching. This mechanism enables the AI education agent to perform the complete teaching workflow of "real-time diagnosis, precise intervention, and continuous optimization" similar to that of an accomplished teacher.

Multimodal perception acts as the information collection point of the closed loop, capturing student status by integrating data from text responses, vocal tone, micro-expressions, and other inputs to build a holistic profile. For example, when evaluating an essay in Chinese language, an AI education agent can simultaneously identify logical gaps in the text, emotional deficiencies in vocal reading, and even frowning gestures captured via camera, thereby comprehensively diagnosing superficial understanding masked by surface fluency and avoiding misjudgment caused by single-dimensional data.

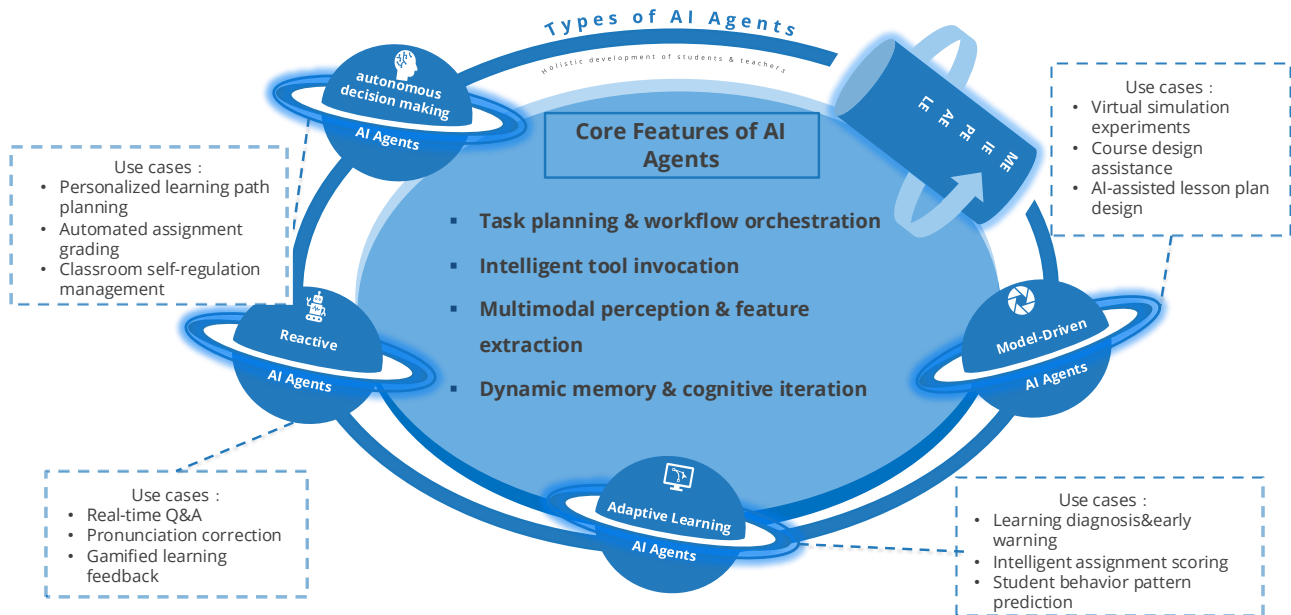
Task planning serves as the decision-making core, breaking down complex teaching objectives into executable steps based on perceived data. In a history paper writing task, for instance, the agent can generate a progressive path encompassing historical source selection to argument refinement to logical verification and dynamically insert a mini-lesson on argumentative structure if a student struggles with vague thesis statements. This capacity for dynamic path adjustment ensures teaching goals remain aligned with student capabilities.

Tool invocation functions as the resource execution layer, integrating external tools to implement teaching strategies. When a student inputs a mathematical formula via handwriting, the agent can concurrently invoke formula recognition tools, graphical visualization engines, and an error question database to generate a combined solution featuring "error localization + dynamic demonstration + similar problem recommendations." This one-stop resource integration frees up teachers from cumbersome operations, allowing them to focus on innovative instructional design.

Dynamic memory acts as the experience iterator, enabling the continuous optimization of teaching strategies through the coordination of short-term (real-time classroom data) and long-term (historical learning patterns) memory. For example, for students struggling with quadratic equations, the agent can draw from long-term memory data on elementary algebra foundations to create a cross-grade remedial plan. This memory-driven precision teaching represents a core advantage that is unattainable by traditional standardized instruction.

FIGURE 1

AI Education Agent Use Case Taxonomy



Source: IDC, 2025

Industry evolution and education ecosystem restructuring

The development of AI education agents currently exhibits three key trends. First, the deepening of human–machine collaboration is creating a division mode called agents for knowledge transmission and teachers for value guidance, transforming teachers from knowledge transmitters into learning designers. Second, the accelerated technology convergence brings the combination of augmented/virtual reality (VR/AR) with AI agents to create immersive use cases (e.g., virtual labs with real-time guidance), making abstract concepts visual. Third, the refinement of ethics within the industry is establishing the evaluation framework centered on data privacy, algorithmic fairness, and educational ethics, ensuring technological applications remain aligned with the essence of education.

This transformation is reshaping the allocation of educational resources. Through cloud deployment, AI agent services can reach rural and remote regions, alleviating teacher shortages. Meanwhile, dynamic memory management offers continuous, personalized support for vulnerable groups, including left-behind children, thereby helping narrow the urban–rural education gap. This technology-empowered educational equity is becoming a core issue for educational informatization in the coming years, aiming to provide every student with educational services tailored to their individual needs.

From technological innovation to educational paradigm revolution

The ultimate value of AI education agents lies in driving a fundamental shift in the education paradigm from teacher-centered to learner-centered. The closed-loop

mechanism composed of the four technological features has transformed teaching students according to their aptitude from an ideal to the norm: multimodal perception enables more comprehensive diagnosis, task planning clarifies goals, tool invocation makes resources more efficient, and dynamic memory ensures continuous development.

The impact of this shift on the educational ecosystem is profound. It redefines the standard of quality education, moving from a uniform elite model to personalized growth pathways, and reshapes the educational evaluation system by shifting from a singular focus on test scores to assessing comprehensive competencies, such as cognitive abilities and innovative thinking. The development of AI education agents must consistently adhere to the principle of technology serving the essence of education by balancing innovation and ethics to steer education toward a future that is more targeted, fairer, and more humane.

IN THIS STUDY

AI education agents, as specialized models fine-tuned on foundation models, are better aligned with the demands and characteristics of educational teaching use cases. Focusing on AI education agent platform technologies and their supporting solutions in teaching and learning, this study aims to comprehensively assess the capabilities of China edtech providers' products and solutions across four key domains: business, technology, functionality, and service through technological evaluations of those providers and objective interviews with end-users (such as schools, teachers, students, and educational institutions) in educational industry, providing more thorough insights into the development landscape of China's AI education agent and teaching application market as well as future trends in technology and application.

TABLE 1

Description of AI Education Agent Assessment Metrics

Level 1 Metrics	Level 2 Metrics	Description
Technological capability dimension	Knowledge processing and inference	This refers to the AI agent's abilities to possess, invoke, integrate, and infer with educational knowledge, correlate knowledge point hierarchies and granularity through knowledge graphs, and identify and trace the root causes of weak knowledge points.
	Learn analytical and assessment	This refers to the AI agent's abilities to identify learning patterns, and perform multidimensional and precise diagnosis of the learning situation by analyzing learner behavioral data and evaluate and quantify learning outcomes based on principles of educational measurement.
	Personalized teaching and optimization	It refers to the AI agent's abilities to adjust teaching strategies based on user feedback, and to integrate and invoke existing educational tools to enhance teaching quality and the degree of personalization.
	Technical support and assurance	This refers to the agent's abilities to accurately collect and parse various learning data, correct semantic ambiguities, ensure model interpretability and intervenability, and incorporate dual engines to balance performance and security.

TABLE 1**Description of AI Education Agent Assessment Metrics**

Level 1 Metrics	Level 2 Metrics	Description
Educational capability dimension	Instructional content presentation and delivery	This refers to the AI agent's abilities to present instructional content clearly and accurately and diagnose students' knowledge weaknesses across learning stages based on student inputs, guiding students' learning by tracing problems to their roots.
	Personalized teaching and adaptation	This refers to the AI agent's abilities to customize learning content paths, dynamically match teaching resources, and design adaptive learning recommendations based on student progress, learning style, and cognitive state.
	Interactive guidance and collaboration	This refers to the AI agent's abilities to stimulate student thinking, guide the learning process, and provide heuristic interactive solutions tailored to teaching plans based on students' thinking results.
	Learning assessment and feedback	This refers to the AI agent's abilities to evaluate student learning performance, provide constructive feedback timely, and offer multidimensional assessments to meet the needs of learners in interactive scenarios.
Teaching outcome dimension	Core learning outcome metrics	This refers to metrics that measure an AI agent's effectiveness in helping students broaden their knowledge, improve application accuracy, reduce learning time by minimizing ineffective study, and enhance the ability to apply knowledge in new scenarios and across disciplines.
	Learning literacy cultivation metrics	This refers to metrics that assess an AI agent's abilities to stimulate and sustain students' learning interest and motivation, help them develop good learning habits, enhance critical thinking, and foster self-planning abilities.
	Educational value realization metrics	This refers to metrics that evaluate an AI agent's contribution to ensure

TABLE 1

Description of AI Education Agent Assessment Metrics

Level 1 Metrics	Level 2 Metrics	Description
		equitable access to educational resources for students from diverse backgrounds, consistently track teaching effectiveness, provide support to major national examinations, empower large-scale on-campus teaching, and deepen educational and teaching collaborations.
Service capability dimension	Service capabilities	This refers to comprehensive abilities to ensure the AI agent's stable operation and sustainable service delivery, thereby properly desensitizing and encrypting collected student data, ensuring teaching content complies with educational ethics and be user-friendly for both students and teachers, demonstrating appropriate emotional attitudes in communication, and providing personalized interactions based on user characteristics.

Source: IDC, 2025

SITUATION OVERVIEW

State of the market

The AI education agent market in 2025 is rapidly advancing, characterized by accelerated policy guidance, expanded use cases, and deeper technological iteration. The on-campus market is driven by government procurement and focuses on standardized teaching tasks, whereas the off-campus market is demand-driven, with personalized learning and vocational skills training as key growth areas. The industry is in its early growth stage, with technological maturity and use case adaptability continuously improving, although unified standards and scalable profit models have yet to emerge.

Policy-driven framework reshapes development

China's Ministry of Education's digital education initiative identifies AI education agents as a key component of the new education infrastructure. It aims for the universal

coverage of the "three classrooms" initiative by 2025, which directly stimulates on-campus procurement demand. Through the pilot–evaluation–promotion mechanism, this initiative promotes AI applications, such as automated assignment grading and learning analytics, in basic education, while encouraging research assistance and general course question and answer (Q&A) in higher education. The "double reduction" policy further redirects off-campus AI agents from discipline-based advanced teaching to quality education and vocational training, forming a policy-driven trend of mastering basics on-campus, strengthening specialties off-campus.

Upgrading educational needs drive market demand

Schools face challenges, such as an uneven distribution of quality teachers and excessive workload, making AI education agents an efficient solution. Rural and remote areas utilize AI and tailored classes to address teacher shortages, resulting in a 60% improvement in quality course coverage in pilots. Urban schools deploy AI agents for repetitive tasks (e.g., objective question grading), thereby freeing up teachers for more valuable instructional design. In the off-campus area, the strong demand for personalized tutoring in K-12 and scenario-based, fragmented learning in adult education pushes AI agents into niche areas, such as quality education and vocational skills.

Technological iteration enhances product capabilities

Advances in multimodal interaction technologies (e.g., speech recognition accuracy of over 98%, image understanding precision of over 95%) enable AI agents to simulate the explanation–interaction–feedback loop of human instructors. Educational knowledge graphs covering over 95% of discipline knowledge support cross-grade knowledge linking and personalized path recommendations. Edge computing eliminates hardware barriers, enabling AI agents to run on low-end devices and extend their reach into rural areas. Data security technologies (e.g., federated learning, data desensitization) comply with the security specifications for AI applications in China's education sector, enhancing product compliance.

The current market shows uneven use case penetration, pragmatically focused research and development (R&D) on technology, and early-stage growth characteristics. On-campus applications emphasize standardized functions in basic education, whereas off-campus K-12 quality education and vocational training grow significantly. Technology R&D prioritizes interaction naturalness and data security, continuously improving user experience and compliance. The challenges the industry faces are insufficient personalization and weak cross-use case adaptability, transitioning from technological validation to scaled application.

TABLE 2**Taxonomy of AI Education Agents**

Use Case		
On-campus use cases	Preschool education	Basic education
	Early cognitive development	Teaching, exam assessments, administration
Off-campus use cases	Higher education	Early childhood education, primary and secondary education
	Teaching	Education for children up to three years old, homeschooling
	Scientific research	After-school tutoring
	Administration	Physical education and sports
	Training	Arts training

Source: IDC, 2025

Major vendor assessment results

Based on its assessment criteria for AI education agents and teaching solutions, IDC assessed the technical and implementation capabilities of leading product and service providers in the educational technology sector through in-depth interviews, customer interviews, and product testing. The assessment results and key technological strengths of the major vendors are summarized and listed in alphabetical order.

BBK Education Electronics

BBK Education Electronics (BBK), as a pioneer and leader in China's educational smart hardware sector, was founded in 1995 in Dongguan, Guangdong. It has consistently focused on the R&D, content integration, and service implementation of educational hardware for the K-12 segment. Guided by its core mission to make learning more efficient, the company operates two flagship brands: BBK and Xiao Tiancai. Its product evolution spans from tape repeaters, electronic dictionaries, and talking pen learning machines to video learning tablets and modern tutoring tablets, establishing a comprehensive educational hardware solution lineup that covers the entire learning journey from early childhood to high school.

In terms of market presence, BBK has built an integrated online and offline omni-channel network covering cities and the countryside, which has created a significant competitive barrier. As of 2024, it boasts a nationwide network of over 18,000 retail outlets, covering shopping malls, supermarkets, bookstores, and telecom chain stores, with 2,000

strategically located in prime shopping centers. Concurrently, it has established more than 400 4S service experience stores and 170 after-sales service centers, extending its service coverage to over 90% of county-level regions in Mainland China. This extensive network adopts a one-stop service model of presales experience, in-store guidance, and after-sales support and offers a distinct advantage in lower-tier markets. Its penetration rate in townships and counties reaches 37%, far exceeding the industry average. This positions BBK as a key driver in the adoption of educational hardware in grassroots communities.

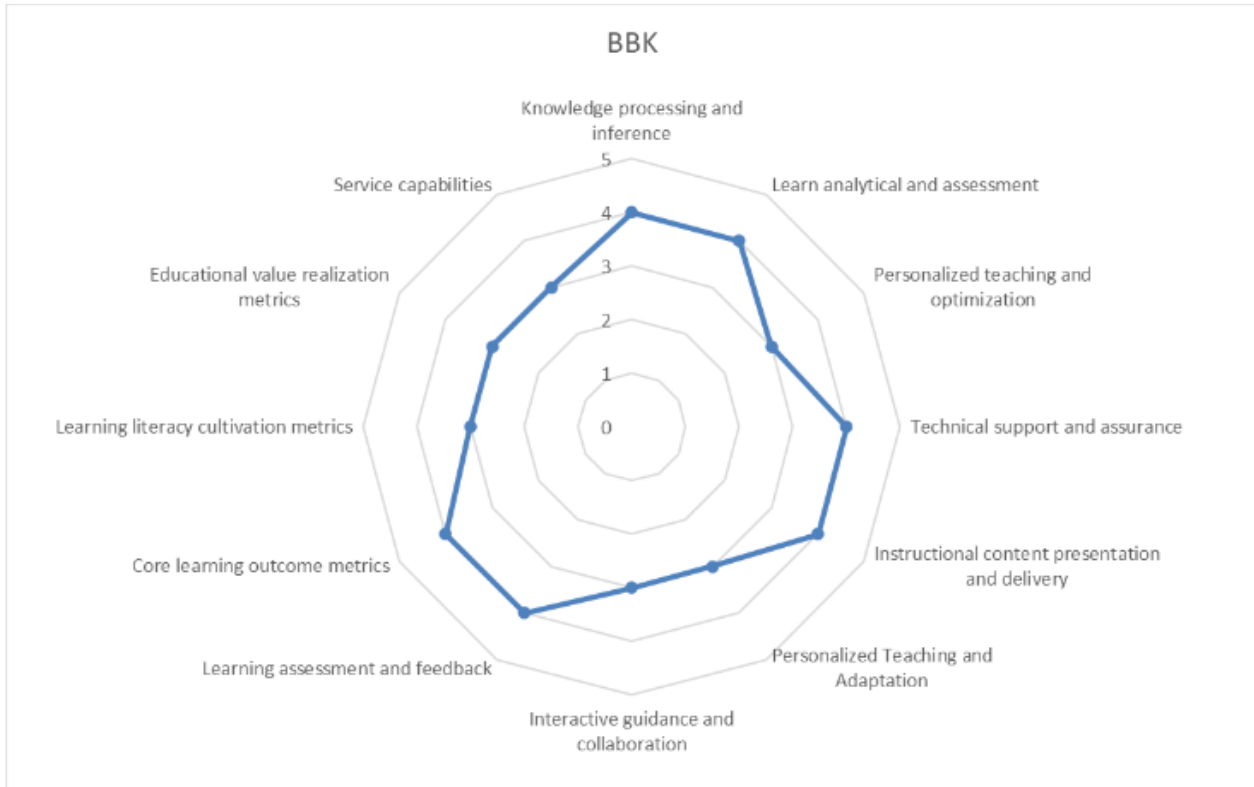
Technology advantages

BKK offers the following advantages:

- **Large model-driven autonomous cognitive task planning system.** Leveraging the DeepSeek large model, this system implements a three-stage process for learning tasks: task decomposition, priority sequencing, and resource matching, including dynamic sequencing of mathematical problems. This system reduces cognitive load through attention mechanisms and generates time heat maps and knowledge point assessment reports, forming a closed loop of planning–execution–feedback.
- **Context-aware multitool coordinated scheduling mechanism.** This system establishes a demand recognition–tool matching–achievement consolidation framework. For language learning, it activates a contextual engine and enables multimodal interactive error correction. For mathematics and science, it matches errors to pinpoint knowledge gaps and triggers transfer learning to deliver a three-stage consolidation of concept–variation–extension.
- **Multimodal-fused precision interaction interface.** Built on a multimodal perception framework, handwriting, voice, and image data (utilizing transformer-based visual encoding, beamforming-based noise reduction, and tactile sensing) are all integrated, achieving interaction latency less than 200ms and supporting parallel multimodal interactions.
- **Dynamically evolving learning cognition modeling system.** This system constructs a temporal knowledge graph of learning progress and employs incremental learning to optimize the model (including cross-grade knowledge modeling and multiuser isolation). It adaptively adjusts strategies (e.g., modifying the environment in response to attention lapses or pushing cross-disciplinary cases to address knowledge rigidity).

FIGURE 2

BBK's S9 technology assessment results, 2025



Source: IDC, 2025

iFlytek

iFlytek was founded in 1999 and is headquartered in Hefei, Anhui. In the education sector, it positions itself as an industry benchmark. Having focused on AI and education for 21 years, it has built a smart education service network covering 31 provinces and municipalities, 380,000 schools, and 230 million teachers and students across China. It has established a full-stack solution framework driven by technology, validated through real-world use cases and supported by a closed-loop ecosystem. Guided by the core philosophy of "use case-driven, AI-empowered, accelerating digital transformation and upgrading of industries," the company adopts an integrated hardware + software + services model. Its product ecosystem spans from interactive hardware, such as student learning devices, teacher smart devices, and classroom smart screens, to software services, including personalized precision learning systems, teacher digital literacy evaluation systems, and regional education governance platforms. This constructs a full-process empowerment system covering teaching, learning, assessment, and management.

As one of the earliest companies in China to integrate AI technologies deeply into educational scenarios, iFlytek has mastered the co-normed technology for scoring high

school and college entrance exams and has built a unique educational big data and regional exam performance analysis system. In 2019, it became the pioneer by launching an AI-powered personalized precision learning system, continuously leading the intelligent transformation of education.

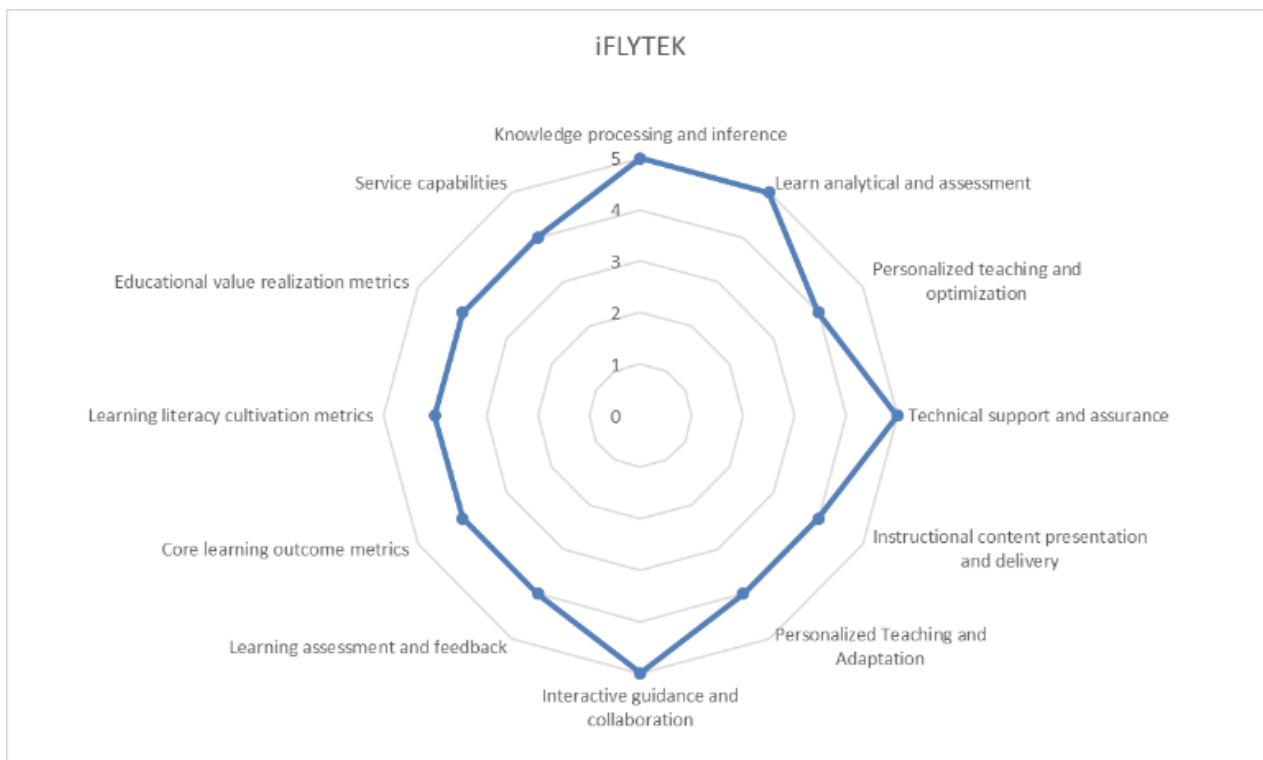
Technology advantages

iFlytek offers the following advantages:

- **Dual-engine deep collaborative inference.** The integrated Spark and DeepSeek large models (Spark for cross-discipline knowledge integration and multimodal interaction, and DeepSeek for complex logical inference) supported by a dedicated AI triple-engine eight-core chip achieves low-resource consumption and millisecond-level response for multitask switching.
- **Multimodal cognitive perception system.** This system integrates high-definition imaging, high-precision touch control, and far-field speech modules to create a hardware–software–cognition perception hub. By fusing multisource data, it generates cognitive graphs that can pinpoint weaknesses with as few as 10 questions and enables precise remediation by utilizing subject-specific knowledge graphs (e.g., covering all 13 editions of junior high school mathematics textbooks).
- **Educational data modeling and inference engine.** Based on cognitive diagnostic theory and reinforcement learning, the engine generates dynamic knowledge mastery probability distributions for students and builds a multidimensional digital literacy evaluation database for teachers. Causal reasoning analyzes correlations in learning behaviors, creating a closed loop to assess learning through evaluation and improve teaching based on evaluation.
- **Conormed evaluation system for high school and college entrance exams.** Relying on its inference-based scoring model, its English pronunciation evaluation uses audio text alignment and its essay grading covers over 200 grammar error types. Its technical standards share the same origin as national exam papers. The system supports the full intelligent process of mock exam, score analysis, and trend prediction.

FIGURE 3

iFlytek's T30 technology assessment results, 2025



Source: IDC, 2025

Squirrel AI Learning

Founded in 2014 with headquarters in Shanghai, Squirrel AI Learning is one of the first edtech companies specializing in AI-adaptive education worldwide. With a core mission of providing every child with a dedicated AI tutor, it is deeply committed to the R&D of multimodal adaptive large models and implementation of personalized learning. By integrating cutting-edge AI technologies with human teaching expertise, the company has built a technology-driven educational innovation ecosystem. Its technology architecture is dual-cored, centered on its multimodal large adaptive model (LAM) and intelligent adaptive learning system (IALS). It combines cognitive science and AI technology to construct a comprehensive technical system spanning data processing, cognitive diagnosis, and personalized instruction.

Squirrel AI Learning has built a comprehensive competitive advantage in AI education through a logical closed loop of technology accumulation–industry recognition–market implementation. Centered on its proprietary AI engine, the company has established a technological moat supported by a global R&D network and patent barriers. Its related research and development results have been accepted at top international conferences, such as Conference on Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), American Academy of Allergy, Asthma, and

Immunology (AAAAI), and Association for Computational Linguistics (ACL). As a unicorn company, it has solidified its industry benchmark status with authoritative awards, including TIME Magazine's Best Inventions of 2025 and United Nations Educational, Scientific and Cultural Organization's (UNESCO) AI innovation award. With a nationwide network of over 3,000 AI learning centers, it serves 60,000 schools and 43 million students, supported by more than 20 billion learning interactions, validating its commercial value through large-scale deployment. As a technology-driven education innovator, the company is advancing continuous algorithm iteration and use case expansion, turning its vision of "teaching students according to their aptitude" from a concept into a widely accessible practice.

Technology advantages

Squirrel AI Learning offers the following advantages:

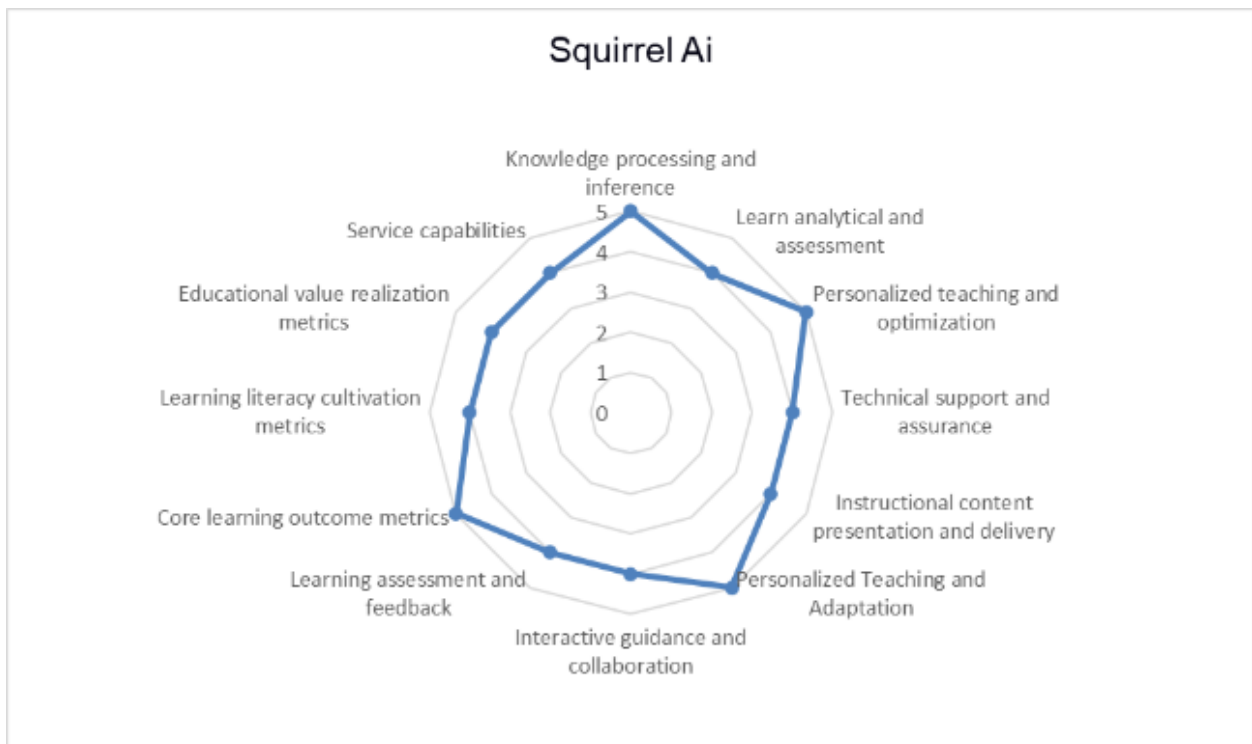
- **Multimodal integration technology.** Its multimodal LAM integrates data from text answers, handwriting strokes, and voice interaction, moving beyond traditional answer judgment to deep analyses of students' cognitive processes. For problem-solving in math, it identifies breaks in logical reasoning by tracking the frequency of stroke edits in handwriting, locates concept confusion based on terminology deviations in voice interaction, and reconstructs complete thinking chains with intelligent analysis on scratchpad content. This enables cognitive diagnosis from the process level, not only the outcome, and provides the core basis for precise intervention.
- **Dynamic adaptation mechanism.** Using a dynamic path planning algorithm, it collects real-time micro-behavioral data, such as answer results, hesitation time, and cursor movement, to build precise student models. It then dynamically adjusts learning paths and the difficulty of content. This mechanism is central to powering Squirrel AI Learning's mindset, competency, and methodology (MCM) learning system. Tailored to different cognitive profiles, the system intelligently optimizes learning strategies: increasing the proportion of graphical explanations for visual learners, extending concept digestion cycles for quick-absorption, slow-internalization students, recommending olympiad-level problems and cross-disciplinary knowledge for advanced learners, and reinforcing step-by-step breakdowns of core concepts with foundational practice for struggling students. This achieves a truly one-size-fits-one personalized experience.
- **Intelligent adaptive learning system.** The IALS centers on a hundred-billion scale knowledge graph, enabling cross-grade associations and root cause tracing of knowledge points. For example, if a student makes an error in a middle school extraneous root in rational equations problem, the system automatically traces back to the foundational concept of "denominator cannot be zero" from elementary school fraction operations. It can even link to procedural gaps in solving integral equations, generating a progressive remedial sequence spanning up to three grade levels. This AI foundation building mechanism leverages both explicit and implicit connections within the knowledge graph to break down

traditional grade-based knowledge barriers, addressing knowledge gaps at their root.

- **Multimodal error root cause diagnosis technology.** Developed on Squirrel Ai's multimodal LAM, this technology uses a built-in error root cause localization model to shift from error correction to root cause remediation. The system assesses knowledge mastery through text answer data, analyzes the coherence of thought via stroke edits and handwriting speed, and probes conceptual depth from pauses in speech and misuse of terminology. In scenarios, such as solving quadratic equations, it can accurately distinguish between calculation errors, logical errors, and conceptual errors, subsequently providing targeted explanations of concepts and guided step-by-step training with an algorithmic accuracy exceeding 90%.
- **High-quality content generation technology.** Its multimodal content generation technology can customize and produce required teaching resources for different subjects and grade levels based on instructional needs. This includes knowledge-point explanation videos (with graphics and animation), practice questions, personalized answer explanations, and illustrated guides. The generated content strictly adheres to teaching research standards and curriculum guidelines, constituting novel, high-quality teaching resources that are distinct from existing market offerings.

FIGURE 4

Squirrel AI Learning's S169 technology assessment results, 2025



Source: IDC, 2025

Seewo

Seewo, a core edtech brand under Guangzhou Shiyuan Electronics, has emerged as a global leader in the interactive smart panel sector since its establishment in 2007. It provides educational services to over 21,000 kindergarten and primary schools across China. The brand holds more than 150 interactive education patents, with R&D personnel making up over 70% of its workforce. It has invested over CNY100 million in building key laboratories for electromagnetic radiation and environmental testing, establishing a comprehensive, in-house R&D system that spans touch technology and system design. As of 2025, Seewo products are used in more than 2.8 million classrooms globally, serving over 10 million teachers and enabling the creation of more than 1.05 billion courseware files, solidifying its role as a core participant in the digital transformation of education.

Amid the deep integration of AI into education, Seewo focuses on the full-process fusion of AI + education. By developing the Seewo Teaching Large Model 2.0 and launching AI-powered teaching devices and smart hardware, it has created a comprehensive ecosystem that spans both school education (lesson preparation, teaching, research, and evaluation) and home education (learning tablets, family smart screens). Key outcomes include its Classroom Intelligent Feedback System (generating over 360,000 teaching reports), AI Lesson Preparation Tools (with over 600,000 active users), and scenario-specific solutions powered by the Teaching Large Model 2.0.

Technology advantages

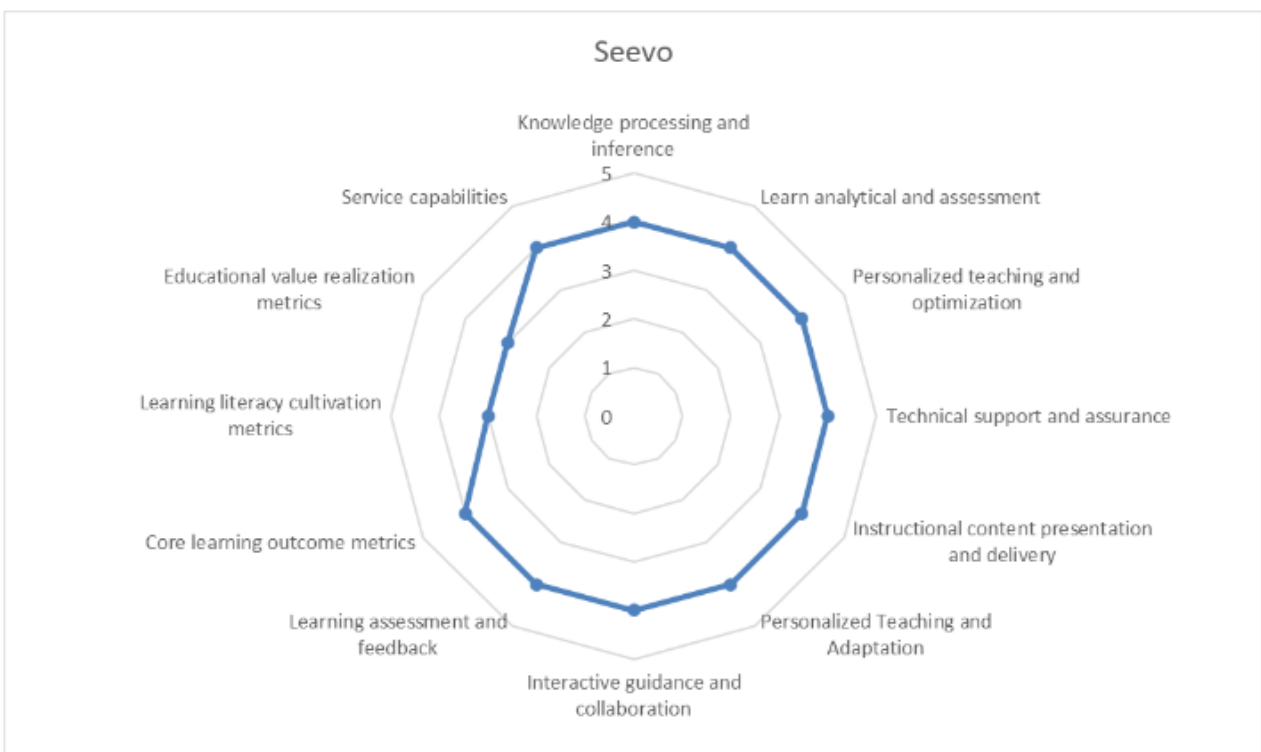
Seewo offers the following advantages:

- **On-device intelligence and data security.** The lightweight model compression technology ensures large models are deployed on devices, such as interactive smart tablets, to support offline running. Educational data is kept within the classroom through hardware-level encryption and physical isolation. This reduces computing power consumption on edge nodes by 30%, with core feature response times less than two seconds, meeting real-time requirements in educational settings.
- **Multimodal fusion and use case adaptation.** A dedicated model for education is trained and created by integrating multimodal capabilities across vision (classroom behavior recognition), audio (voice interaction), and text (lesson plan/exam processing) and using data from 2.8 million classrooms and 8 million teacher behavior records. Key innovations include the Intelligent Lesson Preparation System (automatically generating curriculum-compliant lesson plans, mind maps, and interactive courseware based on input lesson titles) and the Classroom Feedback System (nonintrusive sensing and producing teacher–student interaction heat maps and question-type distribution charts to help adjust instructional strategies).

- **Interaction design and full-process teaching enablement.** Guided by the philosophy of seamless empowerment, its design is to avoid interruption, including focus monitoring (using facial expression and body movement recognition to guide attention through visual cues in courseware instead of voice prompts) and an AI teaching research module (capturing key classroom moments to generate five types of metrics, such as teacher–question ratio and student engagement ratio, supporting evidence-based teaching research).

FIGURE 5

Seevo's V20 technology assessment results, 2025



Source: IDC, 2025

TAL Education Group

The TAL Learning Tablet, the smart learning-focused education hardware of TAL Education Group, is dedicated to enhance learning efficiency through AI. Building on 22 years of extensive teaching and research expertise and leveraging the core capabilities of the national new GenAI open innovation platform, TAL Education Group addresses various learning scenarios, including self-study at home and homework tutoring, continuously advancing the intelligence and experience of educational hardware.

The TAL Learning Tablet is guided by three core concepts:

- **Loved by kids.** Engagement and motivation are deeply integrated into course design using storytelling and games to spark children's interest in learning, allowing knowledge to be absorbed naturally. The tablet is more than a tool; it is a learning partner that knows how to encourage and provide timely feedback, guiding children to explore actively and move beyond passive instruction.
- **Helping parenting.** Powered by AI-driven tutoring features, the tablet lightens the burden on parents by building kids' learning with an efficient and worry-free tool. The product is designed for practical and frequent use and to be trusted educational helper for parents.
- **Driven by technology.** In 2019, TAL Education Group was approved by the Ministry of Science and Technology to undertake the Smart Education AI Open Innovation Platform project to formally join national AI team. In August 2023, the company launched its self-developed trillion-parameter education large model called MathGPT, which obtained large-model filing approval from the Cyberspace Administration of China in November of the same year, making it one of the first education-specific large models to receive such approval in China.

Technology advantages

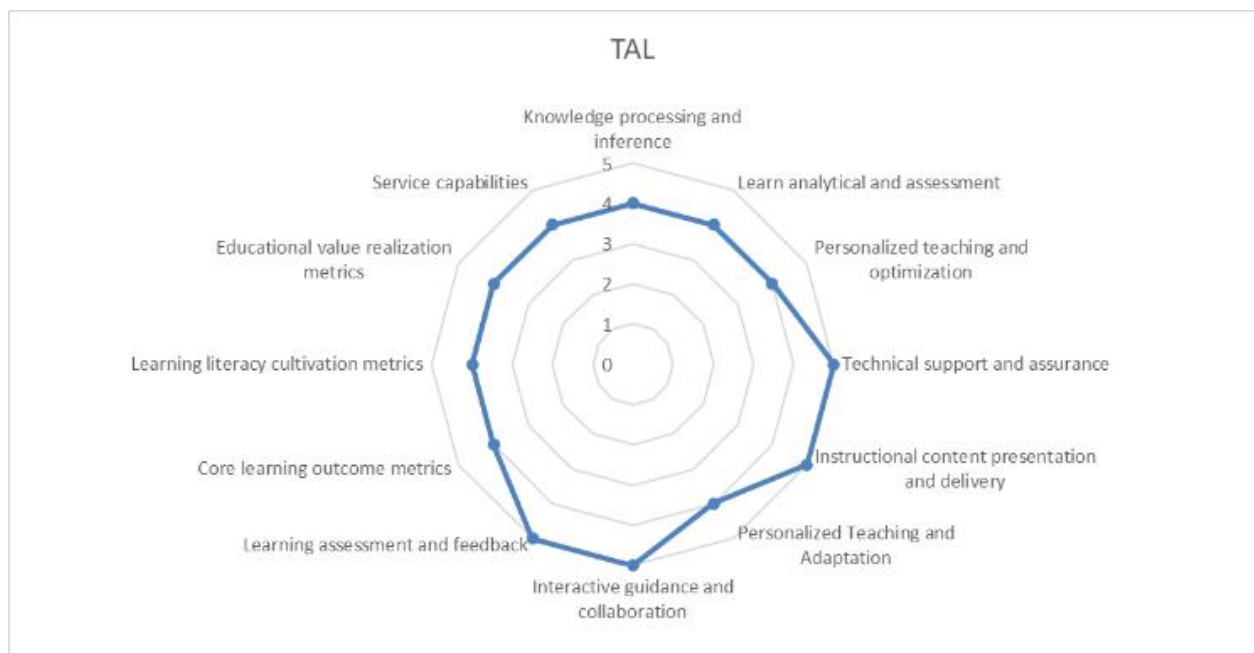
The TAL Learning Tablet offers the following advantages:

- **Broad learning resources with full curriculum coverage.** The device includes over 20,000 class hours of the company's self-developed courses, meticulously crafted by a 3,000 member teaching and research team led by top graduates from Tsinghua, Peking, and Harvard Universities. These courses span the entire learning journey from early childhood through K-12. Valued at hundreds of thousands of yuan if taken offline, all are available for free on the device. In response to the 2025 new curriculum standard reforms, the tablet has specially launched over 650 class hours of core new-exam methodology courses. These courses focus on comprehensive, inquiry-based, applied, and open-ended questions and are supported by a carefully designed bank of over 260,000 related exercises. The tablet also provides a curated question bank of 1.5 billion items, 70% of which are real exam questions from the past three years. It comes preloaded with authoritative teaching aids and 2 million up-to-date regional exam papers, offering students a wealth of practice material.
- **Three modes in one device, meeting different learning needs.** The tablet is the first in the industry to integrate three intelligent learning modes: classic, homework, and exploration. Classic mode builds a complete learn–practice–test closed loop, enabling systematic course study and practice. Homework mode provides comprehensive, end-to-end homework assistance, covering everything from assignment and supervision to correction and helping children complete their homework efficiently. Exploration mode sparks interest and fosters self-directed learning through engaging sections, such as the 3D Exploration Plaza, in which activities, such as treasure hunts and poetry competitions, encourage active discovery.

- Personalized learning and tutoring services.** The TAL XiaoSi AI 1-on-1 Super AI Education Agent, an AI assistant equipped with natural language processing and a knowledge graph, can analyze challenging math and science problems, text, and grammar, fostering thinking skills through step-by-step explanations and logical guidance. It delivers an ultrahuman-like multimodal interaction experience, acting as a real learning companion that can listen, speak, and see. Driven by the dual-engine architecture of the MathGPT large model and DeepSeek, it provides detailed, step-by-step breakdowns of complex problems, such as mathematical solution steps or physics formula derivations. The DeepSeek R1 affective computing engine analyzes the student's response state through vocal tone during problem-solving, triggering key probing questions to guide thinking when answers are repeatedly incorrect and offering encouragement when correct, making learning more engaging and enjoyable.

FIGURE 6

TAL learning Tablet's T4 technology assessment results, 2025



Source: IDC, 2025

FUTURE OUTLOOK

Current AI agents for education are shifting from single-tool assistance to integrated capability complex, building a technology chain around a closed-loop chain of perception-decision-collaboration-ethics. This is grounded in agents' cognitive collaboration, centers on personalized decision-making, extends toward equitable

orchestration, and is safeguarded by ethical design, ultimately driving education toward a precise, high-quality transformation.

Technology deepening from functional adaptation to cognitive collaboration

Although most current agents are limited to single-mode data processing (e.g., only analyzing answer correctness), future systems will achieve breakthroughs. By deeply integrating multimodal perception modules (accurately capturing physiological signals, micro-expressions, etc.) with cognitive engines, they will build a diagnostic capability of physiology–behavior–cognition, enabling the proactive prediction of learning bottlenecks. Meanwhile, agents' dynamic memory will evolve from today's single-subject knowledge base to a future cross-grade, cross-discipline-integrated knowledge graph, optimizing learning path scheduling. Task-planning modules will also shift from today's passive plan execution to future predictive pathway design (e.g., using elementary school data to foresee middle school algebra weaknesses), solidifying the future technical foundation.

Personalized learning from responsive matching to cognitive adaptation

Currently, agent personalization is often achieved by passive resource matching (e.g., recommending similar questions based on errors). Future agents will support proactive adaptation by leveraging multidimensional diagnostic capabilities. Agents will use incremental learning algorithms to construct dynamic learner models in real time, enabling on-demand strategy adjustments (e.g., automatically increasing the proportion of visual explanations for visual learners). They will also integrate neuroscience-informed perception modules, evolving from today's fixed-duration instruction to future mode-switching aligned with attention cycles (e.g., automatically transitioning from gamified challenges to immersive demonstrations), with the core aim of enhancing cognitive-fit precision.

Educational equity from resource coverage to outcome balance

Using technology as core infrastructure, educational equity will be implemented more deeply. Through a cloud-edge deployment model, high-quality teaching capabilities will be extended to rural and remote areas, with lightweight devices enabling "offline + cached" intelligent tutoring services to alleviate teacher shortages. For special groups (e.g., left-behind children, students in multiethnic regions), continuous companion-style learning paths will be designed, incorporating cross-language interaction (e.g., real-time translation of ethnic languages) and culturally adapted design to compensate for gaps in family education. Concurrently, by establishing standardized benchmarks for teaching effectiveness, the risk of superficial coverage in resource-distribution efforts will be mitigated, ensuring that students in different regions receive education services of balanced quality.

Ecosystem restructuring from single service to collaborative symbiosis

Ecosystem restructuring focuses on the coevolution of educational system elements, creating a development landscape that features human–machine collaboration, use case innovation, and co-created standards. The human–machine collaboration model clarifies the division of labor. AI agents handle repetitive tasks, such as explaining knowledge points, grading assignments, and distributing personalized exercises, whereas teachers focus on value-shaping, emotional support, cultivating critical thinking, and other essential educational roles, thereby unlocking teachers' professional value. Accelerated technology integration will combine AR/VR with AI agents in a deeply integrated manner, creating immersive visual learning scenarios, such as dynamically deconstructing molecular structures or recreating historical settings, to transform abstract concepts (e.g., quantum mechanics, classical text imagery) into interactive, tangible experiences that enhance students' engagement and comprehension. Industrywide standards will be co-established by technology providers, teaching research institutions, and regulatory bodies, setting evaluation benchmarks across dimensions, such as technical security, teaching effectiveness, and ethical compliance, thus steering AI-in-education applications from scale expansion to a quality-controlled and refined development stage.

ESSENTIAL GUIDANCE

Technology R&D focus: strengthening the core capabilities of the closed-loop mechanism

Enhance knowledge processing and reasoning capabilities by constructing an educational knowledge graph that covers hierarchical relationships between knowledge points and interdisciplinary connections, enabling root cause tracing of weak knowledge points and the generation of progressive remediation content.

Optimize learning analysis and evaluation capabilities by establishing a multi-dimensional quantitative model of learning situation based on the principles of educational measurement to avoid single-score-oriented assessment bias, and provide scientific support for personalized teaching through long-term data tracking and mining learning models.

Improve dynamic learner modeling capabilities by leveraging incremental learning technology to achieve cross-grade knowledge association and multi-user cognitive feature isolation, ensuring precise adaptation of teaching strategies.

Product-scenario adaptation: focusing on deep alignment with educational needs

Lower the barrier for student use by improving the adaptability of multimodal interaction, integrating handwriting, voice, image, and other interactive modalities, to strictly control

interaction latency within pedagogically acceptable limits, and ensure compatibility across different hardware devices (e.g., lightweight devices, immersive devices).

Strengthen multiscenario adaptation by extending AI capabilities to multiple domains such as basic education, vocational education, and quality-oriented education (e.g., motion-trajectory analysis in vocational training scenarios, competency assessment in quality education) to avoid narrow scenario coverage.

Drive a deep integration of technology and teaching practice by collaborating with teaching research institutions to align AI capabilities with national curriculum standards and local teaching characteristics, and developing AI + teaching research collaboration modules to ensure technological applications conform to pedagogical principles and prevent a disconnect between technology and pedagogy.

Compliance and ethical safeguards: upholding the fundamental boundaries of educational applications

Build a full-cycle data security system that leverages technologies, such as data encryption, anonymization, and on-device storage, to protect the privacy and security of learning data based on educational AI security specifications.

Establish algorithmic compliance mechanisms to design explainable logic for AI-based teaching recommendations and evaluation results, and conduct regular algorithmic fairness audits (e.g., to avoid regional or group bias).

Encourage industry-wide standard co-creation by participating in the formulation of standards, such as AI-in-education effectiveness benchmarks and ethical evaluation frameworks, to ensure that technological development aligns with the essence of education and social good and avoid letting commercial imperatives overshadow the core purpose of education.

LEARN MORE

Related Research

- *IDC FutureScape: 全球智慧城市 2026 年预测——中国启示: 成功定位——技术销售和营销领导者的机遇* (IDC Government Insights #CHC52877625, December 2025)
- *IDC PeerScape: 中国全域智慧城市领导者实践, 2025* (IDC Government Insights #CHC52877825, December 2025)
- *中国教育云市场份额, 2024: 政策技术双驱增长, 需求分层与竞争格局成型* (IDC Government Insights #CHC53785125, October 2025)
- *中国教育云市场份额, 2024: 政策技术双驱增长, 需求分层与竞争格局成型* (IDC Government Insights #CHC53785125, October 2025)

Synopsis

This study provides a systematic technology assessment of China's AI education agents and teaching solution providers. It focuses on vendors' comprehensive performance across four key domains: business adaptation capability, technology research and development (R&D) strength, functional implementation effectiveness, and service support level. The study employs multiple approaches, including vendor interviews, product testing, and user research (covering schools, teachers, students, and educational institutions), combined with principles of educational measurement and AI technology assessment standards to present a holistic view of the current technological maturity, scenario penetration characteristics, and competitive landscape of AI education agents. It also explores industry pain points and future evolution trends and provides strategic recommendations for technology providers. The aim is to help market participants clearly understand industry opportunities and challenges, driving deeper integration of AI technologies with educational scenarios.

"Since the breakthrough in GenAI technology in 2023, AI education agents have rapidly evolved from a concept into a core enabling tool for educational scenarios. Through a closed-loop mechanism of perception–decision–execution–iteration built on multimodal sensing, task planning, tool invocation, and dynamic memory, they are driving the transformation of education from large-scale coverage to precise supply. Some practices have already demonstrated their significant value in improving learning efficiency and alleviating teacher resource imbalances. Currently, policies and evolving demand fuel strong growth for the industry, but challenges on data security, algorithmic fairness, and the disconnection between technology and pedagogy still need to be addressed. In the future, AI education agents can become a key force in promoting educational equity and quality when vendors adhere to the principle that technology should serve the essence of education and balance differentiated technology R&D, ecosystem collaboration, and compliance and ethics, turning the ideal of teaching students according to their aptitude into widely accessible practice," says Hongyu Cheng, senior research analyst, IDC China.

ABOUT IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. With more than 1,300 analysts worldwide, IDC offers global, regional, and local expertise on technology, IT benchmarking and sourcing, and industry opportunities and trends in over 110 countries. IDC's analysis and insight helps IT professionals, business executives, and the investment community to make fact-based technology decisions and to achieve their key business objectives. Founded in 1964, IDC is a wholly owned subsidiary of International Data Group (IDG, Inc.).

IDC China

Room 02/03/05/06 F12 Tower D, Global Trade Center
No.36 North Third Ring Road, Dongcheng District
Beijing 100013, People's Republic of China
+86 10 5889 1666
Twitter: @IDC
blogs.idc.com
www.idc.com

Copyright Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, and web conference and conference event proceedings. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/about/worldwideoffices. Please contact IDC at customerservice@idc.com for information on additional copies, web rights, or applying the price of this document toward the purchase of an IDC service.

Copyright 2026 IDC. Reproduction is forbidden unless authorized. All rights reserved.