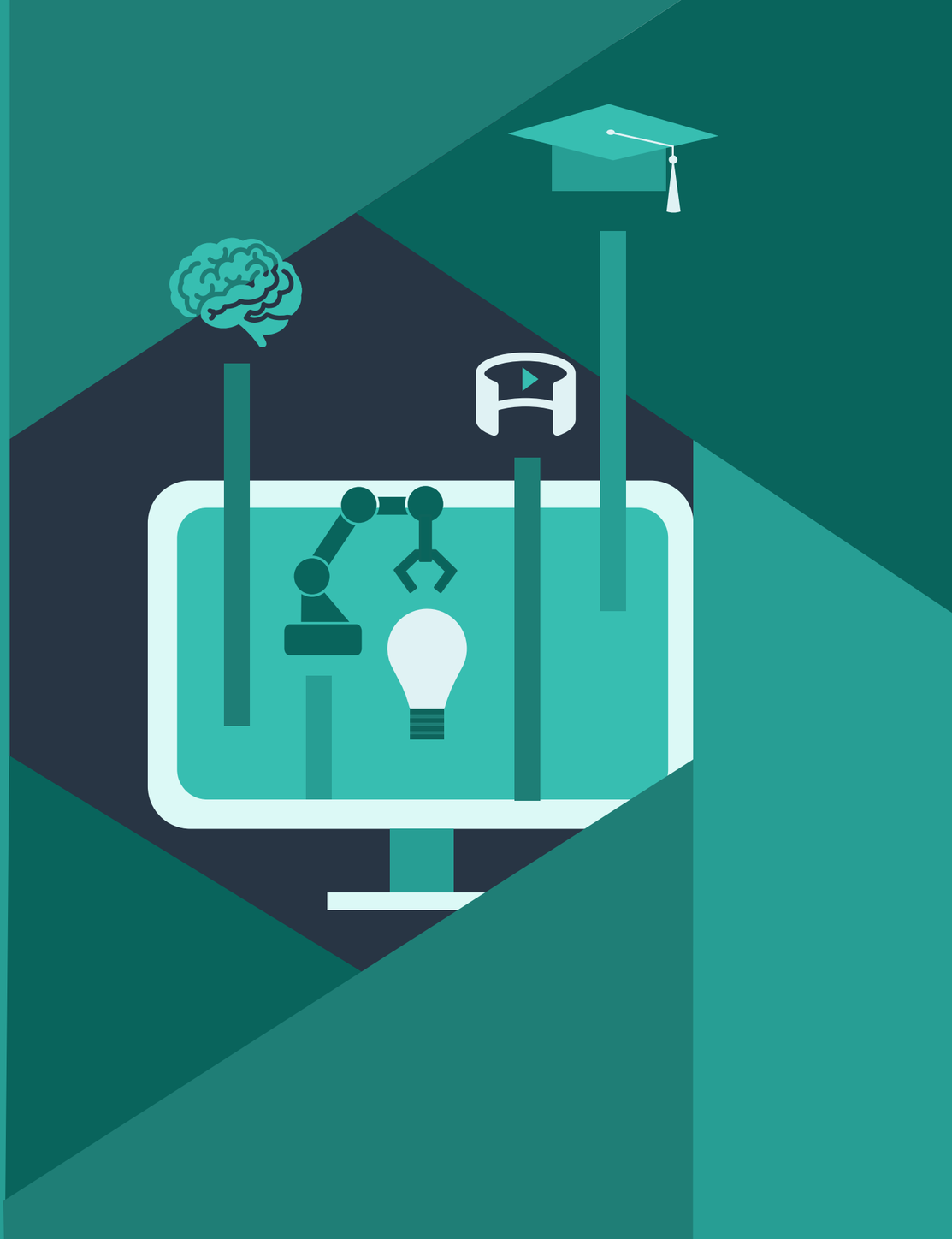
PitchBook

EMERGING TECH RESEARCH

VERTICAL
SNAPSHOT

Edtech

2020



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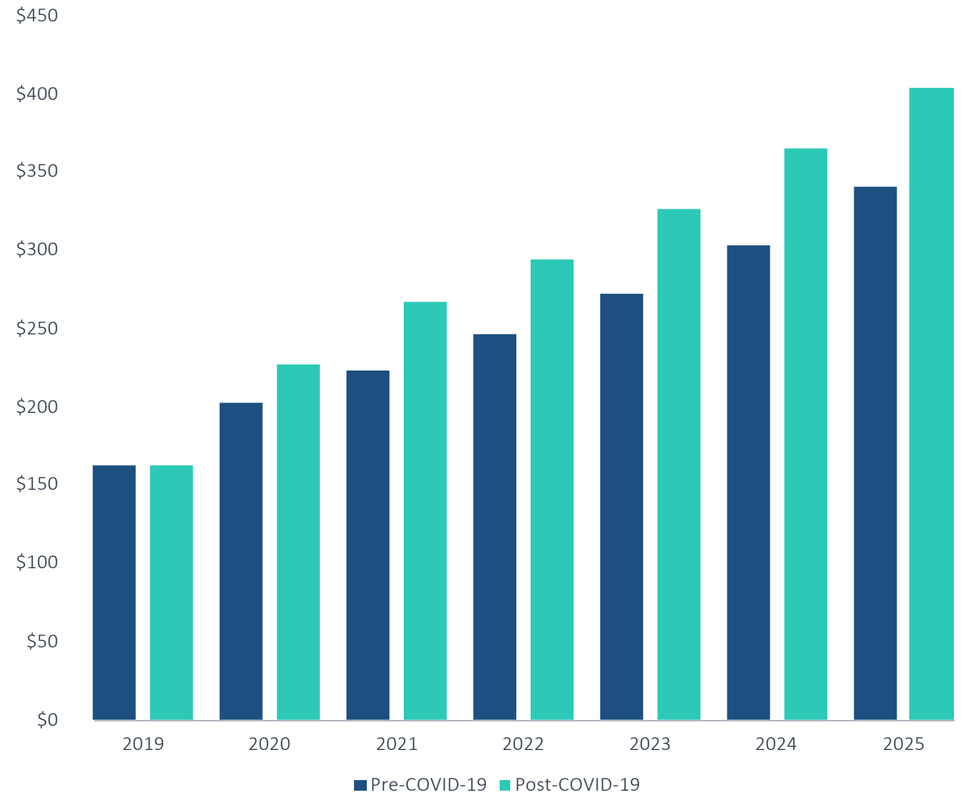
Executive summary

The education sector promises to incorporate an expansive embrace of new digital technologies and strategies in the years to come. Edtech solutions have become increasingly instrumental in delivering education outcomes given a growing population of learners, changing preferences among students and educators for more diverse learning styles, and the impacts of COVID-19 in normalizing technology as a tool in parent-student-teacher relationships. These trends are helping create significant new opportunities for venture-backed startups. This report explores innovation and disruption across educational levels, from early education to professional development. The market, as a whole, amounts to a $227 billion opportunity in 2020. The education sector is experiencing a moment unique in its reliance on technology to facilitate learning, one that will help to intensify adoption of technology as a crucial and expected supplement to learning far into the future.

Market size

Market experts estimate the global edtech market spend represented $163 billion in 2019 and expect it to reach $404 billion by 2025, growing at a 16.3% CAGR.[1] Though the pandemic may reduce total education expenditure in the near term, the crisis is likely to expedite the transition to digital learning infrastructure. Moreover, direct-to-consumer offerings are expected to experience growth as customers look to solutions separate from traditional learning institutions.

Figure 1. EDTECH MARKET SIZE ($B)



Source: HolonIQ

1: "Global Edtech Market to Reach $404B by 2025 – 16.3% CAGR," HolonIQ, August 6, 2020

Industry growth drivers

Reorienting edtech as a supplement, not a replacement, for traditional teaching methods: Many edtech developments over the past decade have made teachers cynical about the role of technology in improving either their pedagogy or student outcomes, from the suggestion that massive open online courses can substitute for higher education to the overreliance on new devices such as iPads. Edtech companies can drive greater adoption and growth by including the key stakeholders that they serve earlier in their development lifecycle. Moreover, companies must provide continuous robust support to schools attempting to integrate new technology into traditionally delicate educational structures.

Swelling demand for tools that can personalize instruction: Large class sizes have stretched teachers' ability to provide meaningful one-on-one instruction to their students, creating an opportunity for technology to supplement the role of teachers through tech programs that alter content in response to students' learning style. Educators in both primary, secondary, and higher education arenas are piloting such solutions. In the professional world, digital coaching services can provide a mix of one-on-one business coaching and related activities as enterprises invest in employee growth initiatives.

An opportunity for more "direct-to-parent" business models: Given the public health challenges of containing COVID-19, remote schooling will likely continue for some parts of the world through the fall and into 2021. In the US in particular, public education funding, 90% of which typically comes from state and local governments, is dwindling as sales and income tax revenues plummet given the ebb in economic activity. This perfect storm will make it difficult for schools to invest in new edtech solutions but will incentivize parents to seek out supplemental edtech offerings for their children.

Novel educational engagement strategies that appeal to a younger, tech-savvy generation: Educators are increasingly adopting technologies such as 3D printing, augmented and virtual reality, artificial intelligence, and robotics as they look for ways to enhance student engagement and connect skills to a progressively digital world. Many educators are also embracing gamification as students' demand more "stimulating" content in an entertainment-saturated world.

A greater premium on reskilling and upskilling opportunities: Even before the pandemic, companies and workers alike were realizing the value of continued learning in a fast-changing economy. Surveys have shown that employees are far more likely to recommend their place of work and stick around if their company provides educational opportunities, and companies are in turn investing more into educational benefits such as stipends and online courses.

Traditional academic curriculum expanding to include a greater focus on "soft skills": Schools are investing more into social and emotional learning tools and curriculum, which aim to teach children how to manage their emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions. Employers are also investing in such skills with a focus on leadership and management, creative problem solving, and interpersonal communication.

Ballooning college costs: Tuition costs at public colleges in the US have risen in every state over the past decade, increasing on average by 37%.[2] This has put greater pressure on prospective students to reconsider their options, current students to consider dropping out or vying for more scholarships, and past students to lean on their current employer to help

2: Trends in College Pricing 2018: Average Tuition and Fee and Room and Board Charges, 1971-72 to 2018-18 (Enrollment-Weighted)," College Board, 2018

INDUSTRY GROWTH DRIVERS

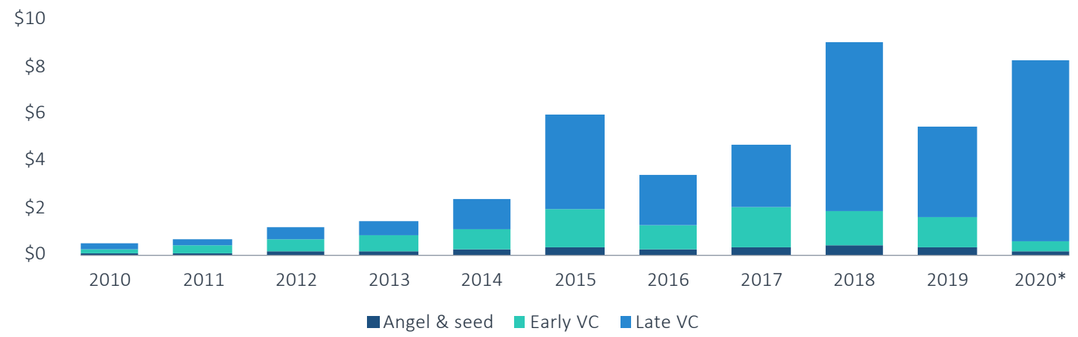
them pay down debt. A variety of startups have emerged to help each of these stakeholders and tackle the overall problem of educational financial hardship.

Asia continues to represent the largest opportunity for edtech growth: In 2014, China alone had almost 260 million students from pre-K to higher education, making it the largest education system in the world.[3] Across Asia, families have shown a lower income elasticity for education relative to other sectors, with families in China, Indonesia, India, Singapore, Malaysia, and Taiwan all prioritizing private education spending at greater rates.[4] Moreover, increasing internet penetration rates, particularly in India and southeast Asia, are quickly expanding access to digital education tools, especially during COVID-19. Additionally, government policy throughout the continent has further emphasized the importance of education, with China increasing funding toward edtech in every year since 2011, and India recently updating their National Education Policy to include digital learning and coding initiatives.

3: China Statistical YearBook, National Bureau of Statistics of China, 2014
4: The Value of Education: Higher and Higher, HSBC, 2017

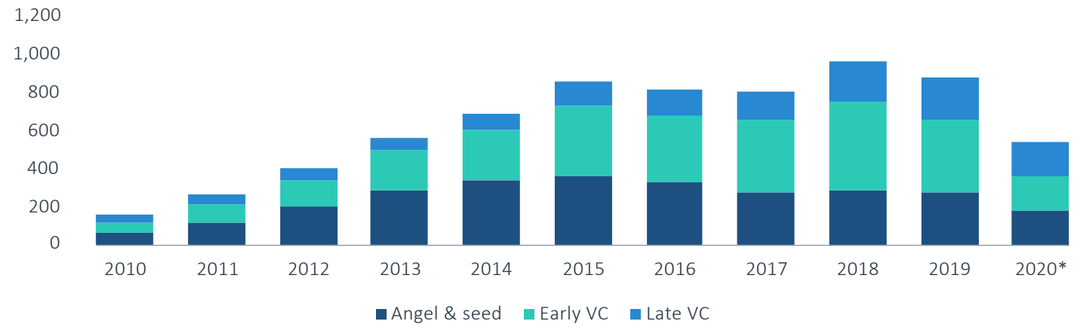
VC activity

Figure 2. EDTECH VC DEALS ($B) BY STAGE



Source: PitchBook | Geography: Global | *As of September 30, 2020

Figure 3. EDTECH VC DEALS (#) BY STAGE



Source: PitchBook | Geography: Global | *As of September 30, 2020

Figure 4.

Notable recent edtech deals to close in North America

COMPANY	DEAL STAGE	DEAL SIZE ($M)	CLOSE DATE
coursera	Series F	$130.0	July 17, 2020
MASTERCLASS	Series E	$100.0	May 20, 2020
Udemy	Series E	$50.0	February 19, 2020
campuslogic	Late-stage VC	$120.0	July 15, 2020
degreed.	Late-stage VC	$42.6	September 18, 2020

Source: PitchBook | Geography: North America | *As of September 30, 2020

Note: Udemy recently stated its desire for additional funding at a $3.0 billion valuation.

Figure 5.

Notable recent edtech deals to close in Asia

COMPANY	DEAL STAGE	DEAL SIZE ($M)	CLOSE DATE
猿辅导 Yuanfadao	Series G	$1,000.0	March 31, 2020
Zuoyebang	Series E	$750.0	June 29, 2020
BYJU'S Byju's*	Late-stage VC	$500.0	September 23, 2020
火花思维 Spark Education	Late-stage VC	$150.0	August 4, 2020
Vedantu Learn LIVE Online	Series D	$100.0	July 16, 2020

Source: PitchBook | Geography: Asia | *As of September 30, 2020

Note: Byju's is reportedly seeking $400.0 million of venture funding from DST Global as of August 4, 2020.
Byju's also acquired coding edtech WhiteHat Jr for $300.0 million in early August.

Edtech VC ecosystem market map

Market map is a representative overview of venture-backed or growth-stage providers in each segment.
Companies listed have received venture capital or other notable private investments.

Early education

Discovery

tinkergarten · Sawyer · 贝聊 (iBeiliao) · kidpass · Outschool

Foundational skills building

火花思维 (Spark Education) · 美术宝艺考 (Meishubao) · Makeblock · Nicebaby (YOUNGZONE) · 哈啦哈啦 (Hualala) · (E-blocks Education) · 麦淘京子 maitao.com · MARCOPOLO · (Baby English) · ling · LINGOKIDS · Flintobox

Teaching tools & resources

作业盒子 (KnowBox) · 掌通家园 · 智慧树 · Age of Learning · TeachingStrategies for Early Childhood · epic! · brightwheel · BetterLesson

Primary and secondary

Literacy

ACHIEVE3000 · epic! · SPEAKABOOS · 河小象 (Hexiaoxiang) · 考拉阅读 (Koala Reading) · LINGOKIDS

STEM

洋葱学院 (Onion Academy) · sparx · dreambox learning · cuemath · bettermarks · wonder workshop · (Hetao101) · 小码王 (XiaoMaWang) · KANO · (Xigua City) · pi-top

Social & emotional learning

hero by SCHOOLMINT · ClassDojo · KIDDOM · GoNoodle · Classcraft

Foreign language learning

VIPKID · abc360 (Landi English) · DaDa ABC 哒哒英语 · duolingo

Primary and secondary (continued)

Tutoring

猿辅导 (Yuanfudao) · (Zuoyebang) · VIPKID · 掌门1对1 (Zhangmen.com) · DaDa ABC 哒哒英语

Online learning

coursera · Udemy · UDACITY · 学堂在线 xuetangx.com · The Great Courses · BYJU'S · 沪江 HUJIANG.COM · unacademy · toppr · Course Hero

Professional development

TeachingStrategies for Early Childhood · BetterLesson · BloomBoard

Curriculum management

McGraw Hill Education · EVERFI · xueleyun.com 提升教与学的生产力 · Age of Learning · edmentum · TeachingStrategies for Early Childhood

Teaching tools & devices

17zuoye · 作业盒子 (KnowBox) · ACHIEVE3000 · Vedantu · Promethean · 编程猫 (Codemao)

Learner management

PowerSchool · INSTRUCTURE · Altitude LEARNING · D2L DESIRE2LEARN · Clever · Blackboard

Tracking student data

PowerSchool · Illuminate education · Frontline education · BrightBytes · PANORAMA

Higher education

College & career prep

(Handshake) · ApplyBoard · NICHE · FULLBRIDGE · collegevine · 万学教育 www.wanxue.cn · 小站教育 zhan.com · Springboard · 智课网 SmartStudy.com

Financial assistance

Prodigy Finance · commonbond · campuslogic · RaiseMe · tuition.io · FRANK

Online learning

coursera · Udemy · UDACITY · upGrad · OPENCLASSROOMS · 学堂在线 xuetangx.com · The Great Courses

Teaching tools & devices

echo360 · remind · Labster · piazza

Curriculum management

McGraw Hill Education · EVERFI · Teachers Pay Teachers

Admissions & retention

PowerSchool · ApplyBoard · Graduation Alliance · SCOIR · Imbellus

Learner management

HotChalk · TOP HAT · D2L DESIRE2LEARN

Tracking student data

ellucian · CIVITAS LEARNING · anthology

Professional development

Foreign language learning

duolingo · open english · +Babbel

Learning to code

KENZIE ACADEMY · codecademy · DataCamp · BINARY INDUSTRIES · treehouse

MOOCs

coursera · Udemy · UDACITY · upGrad · OPENCLASSROOMS · 学堂在线 xuetangx.com · The Great Courses

Professional development & continuing education

skillsoft · MASTERCLASS · degreed. · SKILLSHARE

Workforce training

skillsoft · GUILD · degreed. · edcast · go · OpenSesame · STRIVR · CoachHub

Credentialing & badging

degreed. · parchment

Content creation & learning tools

skillsoft · INSTRUCTURE · D2L DESIRE2LEARN · docebo · sumtotal · Blackboard · Lessonly · BenchPrep · 360Learning

Key players

Figure 6.
Notable VC-backed edtech companies

COMPANY	SEGMENT	GROWTH THEME	PRODUCT FOCUS	VC RAISED ($M)	LAST FINANCING DATE
sphero	Primary and secondary	Novel tech engagement	Robotics	$141.6	July 1, 2020
nearpod	Primary and secondary	Novel tech engagement	Virtual reality	$49.1	December 4, 2019
Quizlet	Primary and secondary, higher education	Novel tech engagement	AI-focused study tool	$62.0	May 13, 2020
3D BEAR | ACADEMY	Primary and secondary	Novel tech engagement	3D printing curriculum	$3.6	March 1, 2018
CENTURY	Primary and secondary	Personalization	Adaptive learning platform	$6.3	May 31, 2018
松鼠AI·智适应 Squirrel AI Learning	Primary and secondary	Personalization	Adaptive learning platform	$44.1	June 1, 2017
CoachHub	Professional development	Personalization	Coaching platform	$22.2	November 12, 2019
OpenSesame	Professional development	Upskilling & reskilling	Online courses	$53.0	May 28, 2020
degreed.	Professional development	Upskilling & reskilling	Online courses	$194.2	September 18, 2020
GUILD	Professional development	Upskilling & reskilling	Education benefits	$228.5	November 1, 2019

Source: PitchBook | Geography: Global | *As of September 30, 2020

KEY PLAYERS

Figure 7.

Notable VC investors in edtech from 2008 to 2020

INVESTOR NAME	DEAL COUNT*
Learn Capital	93
Rethink Capital Partners	74
Kapor Capital	60
NewSchools Venture Fund	57
Reach Capital	60
New Enterprise Associates	42
Social Capital	40
Owl Ventures	36
Blue Elephant Capital	31
Arc Capital Development	29

Source: PitchBook | Geography: Global | *As of September 30, 2020

Figure 8.

Key edtech incumbents

COMPANY	THEMATIC EXPOSURE	COMMENTARY	MARKET CAP ($M)*	NOTABLE ACQUISITIONS
Chegg	Online learning resources	Chegg provides a variety of online resources, such as digital textbooks, online tutoring, and study resources such as online flashcards and math apps.	$9,181.1	Mathway, Thinkful, StudyBlue, Writelab, Cogeon, RefME
docebo	Employee development & retention	Docebo provides AI-enhanced Learning Management Software for companies looking for solutions such as employee onboarding, training, and retention.	$1,447.3	N/A
Rosetta Stone	Foreign language learning	Rosetta Stone has been a premier provider of language learning software for almost three decades, offering a subscription-based business model with 28 languages to choose from.	$737.8	Auralog, Vivity Labs, Lexia Learning Systems, Livemocha, GoGo Lingo
Kahoot!	Gamification	Kahoot helps schools create, share, and play learning game and trivia quizzes. Their premise is that game-style learning is more fun and engaging for students.	$17,158.1	Poio, DragonBox
K12	Online learning resources	K12 is a for-profit education management organization. The company offers online curriculum to school districts and parents as a supplement and homeschooling alternative.	$1,088.1	Nepris, Galvanize, Talio, Modern Teacher, LTS Education Systems
PLURALSIGHT	Upskilling / reskilling	Pluralsight's online platform provides assessments, learning paths, and courses authored by industry experts to help businesses and their employees learn new technical skills.	$2,474.7	GitPrime, Train Simple, HackHands, CodeSchool, Grow
Bright Horizons	Early education	Bright Horizons operates over 1,000 childcare centers worldwide and has a dedicated early education curriculum to help children build foundational skills.	$9,184.6	GP Strategies, Active Learning Childcare, EdAssist
GCE GRAND CANYON EDUCATION	Higher education	Grand Canyon Education is a for-profit educational company that operates a private university in Phoenix, AZ.	$3,779.7	Orbis Education Services

Source: PitchBook | Geography: Global | *As of September 30, 2020

Emerging technologies

Artificial intelligence

Global AI expenditure in education is expected to reach $6 billion by 2025, with China and the US contributing over half of that total.[5] As companies narrow their focus to the most compelling use cases for AI, automation of simple tasks and adaptive (or personalized) education have emerged as the top targets.

Automation of more rote tasks such as grading, scheduling, and administrative paperwork offer promising applications for AI. Consulting group McKinsey estimates that existing AI solutions can save teachers up to 13 hours a week.[6]

Adaptive learning is accelerating with AI. There is nothing inherently new about personalizing curriculum to an individual student. Rather, ballooning class sizes, decreased teacher bandwidth, and students learning at different speeds have stretched school resources such that is near impossible for educators to provide meaningful one-on-one instruction consistently. Enter AI. Many of the adaptive learning platforms featured here can alter the speed and style in which information is presented to students, allowing them to place greater focus on areas of struggle.

HIGHLIGHTED COMPANIES	
Thinkster Math	Thinkster utilizes AI in combination with tutors to help improve students' math skills.
Century	Century Tech identifies knowledge gaps, addresses misconceptions, and supports teacher interventions using AI.
Knewton Alta	Knewton's Alta platform continually adapts assignments while they're being completed to help students focus on areas where they may need the most help.
松鼠AI·智适应 Squirrel AI Learning	Squirrel AI is one of China's biggest companies working on adaptive learning.
Cognii — Artificial Intelligence for Education & Training	Cognii offers a Virtual Learning Assistant similar to chatbots, which prompts a student to provide an answer to a learning question and then offers immediate feedback.

5: 2019 Artificial Intelligence in Global Education, HolonIQ, May 24, 2019
6: How Artificial Intelligence Will Impact K-12 Teachers, McKinsey & Co, January 14, 2020

Robotics

Robotics, which have always been closely associated with the STEM field, are increasingly being used as an introductory tool to help students learn to code. According to HolonIQ, the robotics in education market, estimated at $1.3 billion in 2019, is expected to grow to $3.1 by 2025.[7]

Developments in robotics have allowed for more advanced educational "instructors" that can help children build foundational skills in literacy, foreign language learning, and social and emotional behavior. Physical robots have been shown to enhance learning and affect behavior more than virtual methods. Robots are more likely to elicit interaction and emotion from children when compared to screens and can be more engaging and enjoyable.[8]

HIGHLIGHTED COMPANIES

embodied	Moxie, a robot from edtech startup Embodied, aims to teach children social and emotional learning through weekly lessons. Kids will have to help Moxie explore and learn life skills such as learning new words or talking about experiences. Parents have control of the robot through an app on their phone, a feature the company offers to help head off privacy concerns.
Miko 2 MY COMPANION	Miko AI has built a robot that teaches the fundamentals of conversation, math, music, and more to young children. Educators can add new content to keep the child engaged.
Modular Robotics	Modular Robotics has developed robot blocks designed to help children learn how to code. As they build the cube, children learn how to build a program.

7: 2019 Robotics & Global Education Report, HolonIQ, August 29, 2019
8: Social Robots for Education: A Review, Science Robotics, Vol. 3, Issue 21, Tony Belpaeme, et al., August 15, 2018

Augmented and virtual reality

Augmented and virtual reality technologies (AR and VR, respectively) enable students to experience lessons and explore new content in a more immersive setting. According to research firm IDC, education is specifically helping a surge in AR/VR spending, with adoption in primary, secondary, and university settings.[9]

A growing body of evidence suggests that use of mixed reality can improve student outcomes. One study showed that students in a mixed-reality biology classroom received higher scores than other students.[10] Another study showed an increase in memory retention of almost 9% for students who learned in an immersive environment such as VR. Other proposed benefits include increased motivation, better grasp of spatial structures, greater learning of language associations.[11]

HIGHLIGHTED COMPANIES

nearpod	Nearpod focuses exclusively on virtual field trips for children.
zSpace	zSpace offers experiential learning through AR/VR.
MERGE VIRTUAL REALITY	Merge bundles its VR headsets with a physical cube, allowing students to be “hands on” with the learning material.

9: Worldwide Augmented and Virtual Reality Spending Guide, IDC, August 26, 2020
10: Virtual Reality in Education: Benefits, Tools, and Resources, American University School of Education, December 16, 2019
11: Survey: Education Among Top Industries for AR/VR Investments, edtech Magazine, Melissa Delaney, August 8, 2019

3D printing

Integrating 3D printing into school curriculum can help boost creativity, critical thinking, and design skills among primary school students.[12] Utilizing 3D printing as a tool has been analogized to the explorative capacity that Legos or Minecraft provide, a creative template that allows students to experiment with novel ideas.

More enterprises are using 3D printers to build products, making familiarity and expertise with these devices a more in-demand skill set. As enterprises increasingly rely on 3D printing technology as part of their product design process, educational institutions will need to invest more heavily in these same technologies to properly prepare students for real-world applications.

HIGHLIGHTED COMPANIES

CraftUnique
formlabs
MakerBot
Ultimaker

Many companies active in this space produce 3D printers for a variety of applications but have a special callout for education. Companies following that model include CraftBot, Formlabs, MakerBot, and Ultimaker to name a few.

3D BEAR | ACADEMY
MAKERS EMPIRE

3D Bear and Makers Empire are the exception, providing products exclusively for the educational sector.

12: "Makerspaces in Primary School Settings – Advancing 21st Century STEM Capabilities Using 3D Design and 3D Printing," Macquarie University, September 2018

