CoSN
Leading Education Innovation

# DRIVING K-12 INNOVATION

## 2025 HURDLES • ACCELERATORS • TECH ENABLERS

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# ABOUT CoSN - THE CONSORTIUM FOR SCHOOL NETWORKING

CoSN, the world-class professional association for K-12 EdTech leaders, stands at the forefront of education innovation. We are driven by a mission to equip current and aspiring K-12 education technology leaders, their teams, and school districts with the community, knowledge, and professional development they need to cultivate engaging learning environments. Our vision is rooted in a future where every learner reaches their unique potential, guided by our community. CoSN represents over 2050 school districts reaching over 11 million students. Our state presence is expanding with 33 CoSN Chapters in 34 states who function at the grassroots level to further effect change and continues to grow as a powerful and influential voice in K-12 education.

# FOREWORD

The Driving K-12 Innovation Report represents the culmination of months of collaboration, discussion, and critical thinking by our global Advisory Board of educators, technologists, changemakers, and industry partners. It serves as a powerful tool to guide K-12 education leaders as they navigate an ever-changing landscape, providing a framework grounded in real-world challenges, transformative trends, and innovative solutions.

What makes this report invaluable is its approach. Instead of focusing solely on technology as a starting point, it emphasizes the "why" — the Hurdles — before exploring the Accelerators that can drive progress and the Tech Enablers that help make innovation a reality. This structure encourages leaders to think holistically about the obstacles their schools face and to envision solutions that align with their unique needs and contexts.

The **Driving K-12 Innovation Report** isn't a blueprint for one-size-fits-all answers; it's a catalyst for meaningful dialogue. Whether you agree with the findings or see opportunities for further exploration, the report invites K-12 leaders to engage in conversations about their vision for the future of learning. Our hope is that this report will inspire you to reflect, collaborate, and take bold steps toward creating an environment where every student and educator can thrive.

**Keith Krueger**
Chief Executive Officer
CoSN - The Consortium for School Networking
Washington DC, United States

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# INTRODUCTION

CoSN's **Driving K-12 Innovation** initiative proudly convenes an international Advisory Board of approximately 130+ education and technology experts to select the most important Hurdles (challenges), Accelerators (mega-trends), and Tech Enablers (tools) Driving K-12 Innovation for the year ahead.

The Advisory Board engages in discussion via CoSN's online forum, synchronous virtual calls via Zoom, and also participates in two surveys to select the top themes in each category that are transforming teaching and learning. This year, the Advisory Board's work took place over approximately 10 weeks.

# METHODOLOGY

## STEP 1: INITIAL SURVEY

The Advisory Board completed an initial survey to select the most relevant topics for subsequent discussion. This survey narrowed down the original list of Hurdles from 40 to 12, Accelerators from 27 to 14, and Tech Enablers from 28 to 14.

## STEP 2: DISCUSSION

Six weeks of fruitful virtual conversation followed the initial survey. Each week, the Advisory Board responded to prompts and engaged in conversation focused on one of the lenses of the initiative (Hurdles, Accelerators, and Tech Enablers). Discussion opportunities were offered via an online forum and a synchronous Zoom call for each lens.

## STEP 3: FINAL SURVEY

Finally, the Advisory Board completed a final survey to vote on the top Hurdles, Accelerators, and Tech Enablers that are impacting their work right now. Of the many important topics considered, nine rose to the top as key considerations for driving innovation in K-12 education in 2025. The final survey also helped describe the nature of each topic — the surmountability of Hurdles, the intensity of Accelerators, and the timeliness of Tech Enablers.

**STATE OF THE WORLD** (Context)

| **HURDLES** (Barriers) | **ACCELERATORS** (Mega-trends) | **TECH ENABLERS** (Tools) |
|---|---|---|
| 1 Attracting & Retaining Educators and IT Professionals | 1 Learner Agency | 1 Generative Artificial Intelligence (Gen AI) |
| 2 Evolution of Teaching & Learning | 2 Building the Human Capacity of Leaders | 2 Analytics & Adaptive Technologies |
| 3 Digital Equity | 3 Changing Attitudes Toward Demonstrating Learning | 3 Untethered Broadband & Connectivity |

**BRIDGES** (Themes)

Ethical Innovation; Personalization; The Future of Work; Critical Media Literacy


# 2025 TOP 3 HURDLES

Roadblocks that force schools to slow down, prepare themselves, and make a leap.

1

## ATTRACTING & RETAINING EDUCATORS AND IT PROFESSIONALS

Hiring and keeping school staff is a significant problem for school systems; many educators are experiencing low financial compensation and social and emotional burnout, causing them to set aside their passion for teaching and leave the field. Educators also face a lack of trust and respect by society and systems — trust that teachers are capable and care about students' social, emotional, and academic outcomes.

For IT Professionals, there are the added stressors of low financial compensation compared with private companies that are able to offer higher salaries, flexible work schedules, remote work options, and more time off.

2

## EVOLUTION OF TEACHING & LEARNING

The Evolution of Teaching and Learning is driven by the need to prepare students for a dynamic and interconnected world. As society and technology continue to evolve, education must also adapt to ensure relevance and effectiveness. This shift is not just about integrating new tools but about fundamentally rethinking how education serves today's learners. Schools must embrace flexibility, nurture collaboration, and integrate meaningful innovations rooted in the learning sciences to create environments where students are active participants and teachers are facilitators.

Professional development is essential to this transformation, equipping educators with the skills to adopt new pedagogies and leverage advances in technology effectively. The moment to embrace these changes is now, as they present an unparalleled opportunity to revolutionize education and prepare students for the future.

3

## DIGITAL EQUITY

Digital Equity includes three, interrelated components: digital foundations (including digital literacy), conditions for learning, and meaningful learning opportunities. This nuanced Hurdle encompasses more than just equitable access to quality digital technologies, such as high-speed internet and powerful computing devices, both inside and outside of school. It also includes ensuring that:

- students have the knowledge and skills to use technology in the service of learning,
- they interact with robust and accessible content and programs,
- students and their identities are represented with and by the technologies themselves, and
- they experience meaningful opportunities that empower them as learners.


# 2025 TOP 3 ACCELERATORS

Real-world megatrends or catalysts that help motivate and increase the speed of innovation.

1

## LEARNER AGENCY

Learner Agency is all about students as active choice-makers in their education; it's about reconceptualizing their role from that of "student" to that of "learner." Combined with a strong learning environment, students with agency could transform from order-takers to innovators, experience a state of "flow," in their learning experiences, and learn far more authentically.

In order for schools to facilitate Learner Agency, they must also encourage educator agency. Learner Agency is essential for lifelong learning and requires a different approach to school structure and practices. Truly embracing Learner Agency requires transforming education systems. This Accelerator is deeply intertwined with Personalization.

2

## BUILDING THE HUMAN CAPACITY OF LEADERS

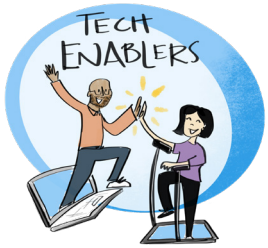
Strengthening the professional community of schools and providing opportunities for educators and all K-12 professionals to learn and master new skills can open the door to innovative practices that can enhance student experiences. When schools invest in their staff by providing opportunities to gain and improve upon skills, by facilitating agency in their work, and by supporting freedom to make mistakes without fear, they create an environment that innovative people will want to be a part of.

3

## CHANGING ATTITUDES TOWARD DEMONSTRATING LEARNING

There is a rising groundswell of discussion around assessing, documenting, communicating, and assigning value to student learning. Memorization, cultural biases, limited real-world applications – these are just some of the reasons why traditional testing may not be an effective means of assessment and may not accurately reflect a student's true understanding of a subject.

This complex issue also involves discussion about relating student learning to higher education, vocational training, and career pathways. On one hand, there's movement toward greater emphasis on learner agency, personalization, and lifelong learning; on the other hand, there are ongoing debates about the role of traditional educational institutions, the value of their experiences, and the challenges of aligning education with evolving career pathways. As a result, student trajectories through and beyond K-12 systems are shaped by both innovation and the pull of long standing educational norms.




# 2025 TOP 3
# TECH ENABLERS

The tools that grease the wheels for schools to surmount Hurdles and leverage Accelerators.

1

## GENERATIVE ARTIFICIAL INTELLIGENCE (GEN AI)

In an era defined by rapid technological advancements, generative artificial intelligence (Gen AI) has emerged as a transformative force in education. As school systems worldwide explore the benefits and challenges of this technology, they are working hard to meet the urgent need for safe, effective, and responsible use of Gen AI. As with seismic technological shifts before it, like the Internet, educators have a responsibility to model and communicate how Gen AI is an enormous opportunity that comes with potential risks.

2

## ANALYTICS & ADAPTIVE TECHNOLOGIES

These are digital technologies – often powered by AI – that collect and use data related to teaching and learning. Analytics refers to the process of analyzing data collected about student learning and the opportunity to leverage data to inform instructional decision making. Adaptive technologies are tools that adapt to the student based on their interactions with the technology. These adaptations could be in the form of suggesting next steps, providing remediation, controlling pacing, or providing feedback based on analysis of the student's performance.

3

## UNTETHERED BROADBAND & CONNECTIVITY

Ubiquitous broadband Internet and the underlying technologies that enable robust connected learning — without requiring devices to be physically connected (via cables, for example). These technologies enable mobility and learning anytime, anywhere..

# BRIDGES (THEMES)

The 2025 key bridges — themes connecting today's education challenges with tomorrow's opportunity – include Ethical Innovation,  Personalization, the Future of Work, and Critical Media Literacy.

- **Ethical Innovation** centers on the "why" of change, aligning efforts with educational goals like fostering growth, equity, and responsible digital citizenship. It emphasizes the importance of responsible design and implementation of new technologies, safeguarding student privacy and promoting equitable access and benefit. When it comes to emerging technologies, ethical innovation ensures that advancements prioritize equity and the well-being and success of students, educators, and communities. Innovation and change are neither inherently "good" nor "bad"; the value lies in the purpose and impact. Ethical innovation requires an inclusive design approach including educators, students, and parents in key decision-making processes. This ensures transparency and responsiveness to real needs. Furthermore, it reinforces the importance of teacher training to navigate the ethical implications of technology and integrate it responsibly into the classroom. This approach not only prepares students for academic success but also equips them to navigate and contribute ethically to a rapidly evolving world.

- **Personalization** emphasizes the need to tailor learning experiences to meet the diverse needs, strengths, and aspirations of every student, fostering engagement, learner agency, and equity.

- The **Future of Work** highlights the rapid and accelerating pace of change (in technology, society, communications, environment, and other aspects of life) is transforming the future of work and placing students in an emerging world with social-technical dynamics both congruent and dis-contiguous from ours. Schools and educators have a responsibility to understand and prepare students with the foundational skills and mindsets they need to succeed in life, learning, and work — and the complex ideation and problem solving capabilities to envision, adapt, and create the future.

- Meanwhile, **Critical Media Literacy** stresses that students must develop the ability to critically analyze, evaluate, and discern the authenticity and credibility of information across various media platforms, giving them the skills needed to distinguish between primary sources, manipulated media, and fabricated information. By honing these abilities, individuals become more adept at evaluating information  and understanding their responsibilities as informed consumers and creators of media. This literacy is essential for navigating the complexities of the digital world, promoting responsible use of information, and fostering ethical engagement with technology in the age of AI.

Together, these interconnected themes illuminate a pathway for K-12 education leaders to reimagine and innovate for the future. Keep an eye on these bridges while reading the 2025 report.

# IN CONTEXT

While the initiative's Top Topics last year (2024) shifted more in a single year than any of the previous five cycles, the 2025 Top Topics share many similarities with recent years. This powerful message means that there is still work to be done in these areas.

This report will serve as your guide to drive K–12 innovation in 2025 and beyond.

## HURDLES: TOP TOPICS EACH YEAR (2019-2025)

| 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| | Attracting & Retaining Educators and IT Professionals | Attracting & Retaining Educators and IT Professionals | Attracting & Retaining Educators and IT Professionals | Attracting & Retaining Educators and IT Professionals |
| | | | Ensuring Cybersecurity & Safety Online | |
| | | Designing Effective Digital Ecosystems | | |
| Digital Equity | Digital Equity | Digital Equity | | Digital Equity |
| Evolution of Teaching & Learning | | | | Evolution of Teaching & Learning |
| Scaling & Sustaining Innovation | Scaling Innovation & Inertia of Education Systems | | Scaling Innovation & Inertia of Education Systems | |

## ACCELERATORS: TOP TOPICS EACH YEAR (2019-2025)

| 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| | Building the Human Capacity of Leaders | Building the Human Capacity of Leaders | Building the Human Capacity of Leaders | Building the Human Capacity of Leaders |
| | | | Changing Attitudes Toward Demonstrating Learning | Changing Attitudes Toward Demonstrating Learning |
| Learner Autonomy | | Learner Agency | Learner Agency | Learner Agency |
| Personalization | Personalization | | | |
| Social & Emotional Learning | Social & Emotional Learning | Social & Emotional Learning | | |

## TECH ENABLERS: TOP TOPICS EACH YEAR (2019-2025)

| 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| | Analytics & Adaptive Technologies | | Analytics & Adaptive Technologies | Analytics & Adaptive Technologies |
| | | Artificial Intelligence (AI) | Generative Artificial Intelligence | Generative Artificial Intelligence |
| Blended Learning Tools | | | | |
| Digital Collaboration Environments | Digital Collaboration Environments | Rich Digital Ecosystem | Rich Digital Ecosystem | |
| Untethered Broadband & Connectivity | Untethered Broadband & Connectivity | Untethered Broadband & Connectivity | | Untethered Broadband & Connectivity |

# EXPLORING THE **2025 HURDLES**

## … BY IMPORTANCE

Top 3 most important Hurdles for education systems to address in 2025*:

**51%**

1. Attracting & Retaining Educators and IT Professionals

**38%**

2. Evolution of Teaching & Learning

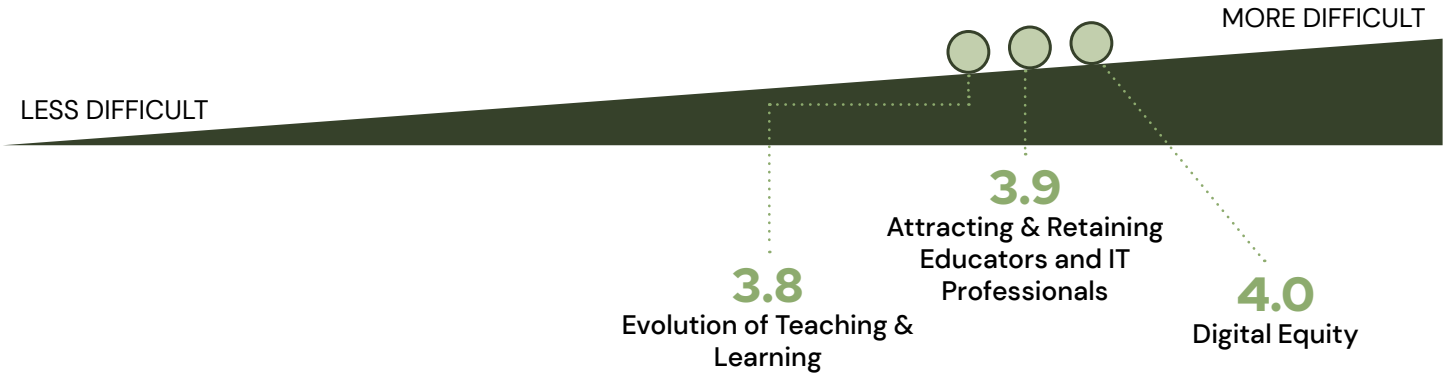
**31%**

3. Digital Equity

## … BY DIFFICULTY

Top 3 Hurdles in order of degree of difficulty to surmount, as ranked by the Advisory Board (Scores reflect the average score out of 5, with 1 being the easiest to surmount and 5 being the most difficult)

**From easiest to most difficult to surmount:**




*85 Advisory Board respondents

# EXPLORING THE **2025 ACCELERATORS**

## … BY IMPORTANCE

Top 3 most important Accelerators for education systems to address in 2025*:

**35%**

1. Learner Agency

**33%**

2. Building the Human Capacity of Leaders

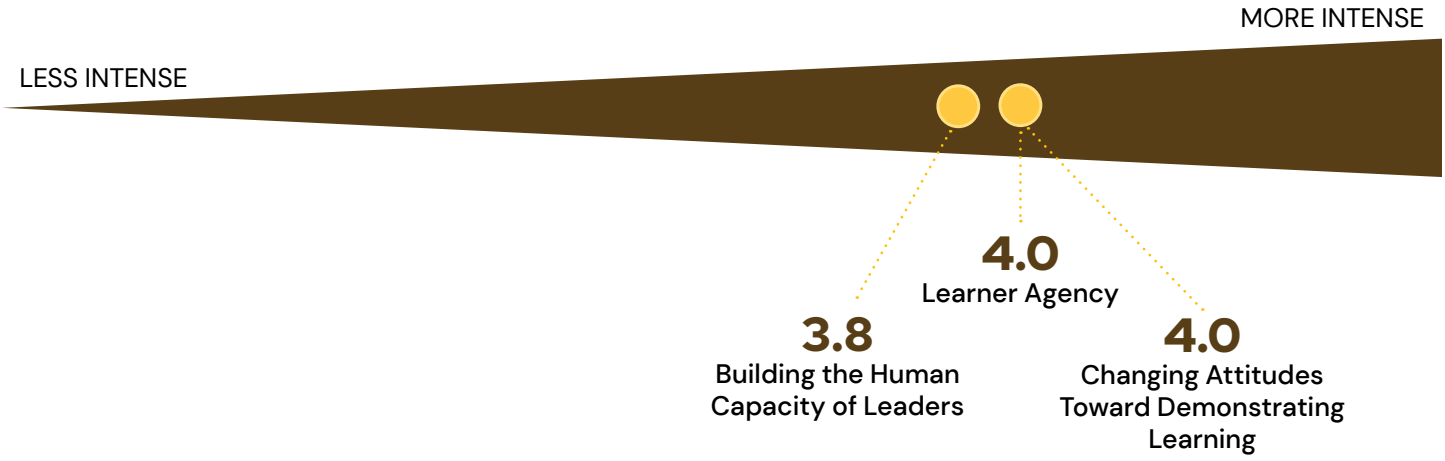
**32%**

3. Changing Attitudes Toward Demonstrating Learning

## … BY INTENSITY

Top 3 Accelerators in order of degree of intensity of K-12 impact, as ranked by the Advisory Board (Scores reflect the average score out of 5, with 1 being the least intense and 5 being the most intense*)

**From least to most intense:**




*85 Advisory Board respondents

# EXPLORING THE **2025 TECH ENABLERS**

## … BY IMPORTANCE

Top 3 most important Tech Enablers for education systems to leverage in 2025*:

**86%**

1. Generative Artificial Intelligence (Gen AI)

**38%**

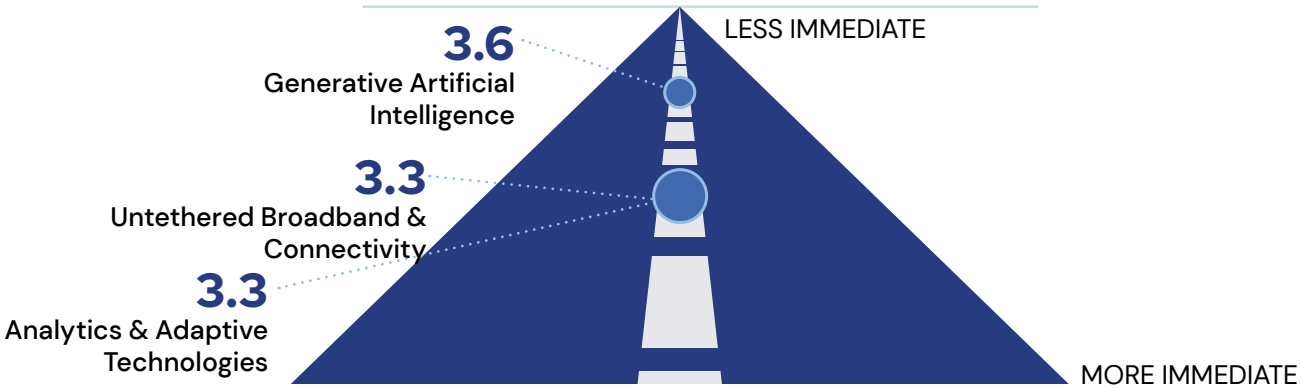
2. Analytics & Adaptive Technologies

**29%**

3. Untethered Broadband & Connectivity

## … BY IMMEDIACY

Top 3 Tech Enablers in order of the immediacy of its adoption at scale by schools worldwide, as ranked by the Advisory Board (Scores reflect the average score out of 5, with 1 being the most immediate adoption; 5 being the furthest away from adoption*)




*85 Advisory Board respondents

# ATTRACTING & RETAINING EDUCATORS AND IT PROFESSIONALS


## SUMMARY

When it comes to Attracting and Retaining Educators and IT professionals, competitive pay, career growth opportunities, and professional development are essential to address barriers like private-sector competition and increasing workloads. Schools must encourage inclusive, supportive environments that value expertise, promote continuous learning, and encourage innovation. By investing in a stable workforce and addressing systemic challenges, schools can build resilient teams that enable transformative education.


For The challenge of Attracting & Retaining Educators and IT Professionals is pivotal to advancing innovation in K-12 education — it's also why this Topic has remained on our list for the past four years. According to a 2024 Pew Research Center study, only 33% of teachers in the United States said they were extremely or very satisfied with their job overall and 48% felt they were somewhat satisfied; compared with U.S. workers across industries and occupations who said they were 51% extremely/very satisfied and 37% somewhat satisfied.

It's also becoming increasingly more difficult to hire and sustain highly qualified staff due to rapid technological advancements and evolving educational needs. "While all the Hurdles impact the work of our educators and school leaders on a daily basis, having the right people doing the right work in the right way is critical," (Debbie Durrence, Gwinnett County Public Schools, Georgia, United States)." The job of educating students in 2024 is incredibly complex, intense, and ever evolving. Our teachers are challenged to learn at a pace faster than their students in an environment in which they may not have natively grown up (technology-rich). However, the reward of experiencing student success in their classrooms is significant."

Durrence added that hiring and retaining IT staff can be even more complicated for K-12 school districts. "In the IT space, in many districts, the ability to hire and retain staff that can support the complex environments of today is ever more difficult. We are competing with for profit entities (Microsoft, Home Depot, UPS, etc.) that have work environments that allow for greater flexibility and often much higher compensation. We've lost a number of qualified candidates due to these differences."

"The job of educating students...is incredibly complex, intense, and ever evolving."

Advisory Board Member Maria (Sharo) Dickerson (El Paso Independent School District, Texas, United States) can relate: she had four Instructional Technology Specialist vacancies: two candidates accepted the job offer despite the non-competitive salary scale, and the other two declined due to a significant compensation difference compared to what they currently receive. "The reasons why I find this to be a stressor or challenge are the inability and failure to hire the best candidates to fill the ITS [information technology specialists] positions; impact of being understaffed, resulting in

delayed support to campuses and district initiatives; and having to reopen the vacancy posting and undergo the same lengthy process of hiring," said Dickerson. "Despite this, I am actively seeking ways to advocate for the crucial role of Instructional Technology Specialists in developing innovative learning experiences for students and adult learners, including providing next-level technology support."

Addressing this Top Topic requires strategies that not only overcome practical barriers, such as low pay and high workloads, but also cultivate environments that support continuous growth, collaboration, and professional satisfaction. "The biggest hurdle is definitely attracting and retaining talent due to low salary, certification and licensing limitations and conservative remote work policies. Identifying the needs of our employees is something we need to do better," (Laura Pollak, Nassau BOCES, New York, United States). "We also need to focus more on innovation and phase out the 'we've always done it this way' mentality. Establishing an innovation leadership group could help us move forward and retire antiquated methods and processes." (Note: Students should be given similar opportunities to earn certifications and internships, which can reduce stress on schools' IT and also prepare students for the workforce.)

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### ADVOCATE FOR FAIR COMPENSATION & SUSTAINABLE CAREERS

"The educator shortage crisis is real and the result of many factors not controlled by educators. Educators have been grossly undercompensated, elected officials often negate their responsibility to ensure adequate access to public education resources, and a failure to fund schools has caused an unprecedented school staffing crisis across nearly every job category. We [at the National Education Association] believe educators should have a seat at the table to advocate for their students' futures, get the respect they are due, and earn the pay and benefits that enable them to sustain long-lasting careers," Justin Thompson (National Education Association, New York, United States).

### DEVELOP COMPREHENSIVE CAREER PATHWAYS FOR IT EDUCATORS AND TECHNICIANS

Empower educators and IT professionals to excel by offering sponsorship opportunities for advanced certifications. For example, educators can pursue professional credentials like the Microsoft Certified Professional certification, enhancing their instructional capabilities and expertise. Similarly, IT professionals can be supported in achieving industry-recognized qualifications, such as CoSN's CETL certification, fostering innovation and technical excellence within educational environments.

### CULTURE IS KEY

"Create environments for educators to be curious and take risks. This requires a shift in culture, a foundation of trust, and supporting educators to feel safe to experiment, embrace failure as growth, and reflect on their learning. Schools can nurture intellectual curiosity by modeling risk-taking leadership, providing passion-driven professional development, and dedicating time and resources to collaborative innovation. Celebrating these efforts will spark continuous improvement and innovation in teaching and learning," Jody Kokladas (Shady Side Academy, Pennsylvania, United States).

# EVOLUTION OF TEACHING & LEARNING


## SUMMARY

The evolution of teaching and learning is not just about integrating technology but about reimagining how education functions to meet the needs of today's learners. By embracing flexibility, nurturing collaboration, and integrating meaningful innovations, schools can create learning environments that empower students and educators alike, preparing them for an ever-changing world. The time to act is now, as the transformative potential of these changes offers an unprecedented opportunity to reshape the future of education.


"Traditional models are no longer sufficient to meet the needs of today's students or prepare them for the future. While schools have integrated some new approaches, tools, and technologies, many continue to rely on outdated pedagogies, resisting the shifts necessary to create dynamic, student-centered learning environments. "I'm a passionate advocate of introducing technology into the classroom. But we still haven't fully implemented it because we're sticking to the old pedagogies. You can't just toss a bunch of computers into a classroom...it's not enough," (David Deeds, International EdTech Consultant, Heredia, Costa Rica).

To advance meaningful change, schools must adopt flexible, evidence-based approaches that reflect the realities of modern learners, who are more connected, curious, and accustomed to dynamic digital experiences. "We should foster a culture of experimentation and collaboration, encouraging teachers to explore new teaching methods. Additionally, staying updated on the latest trends in education and technology is crucial for identifying opportunities to improve teaching and learning," Zainab Adeel (Bayaan Academy, Maryland, United States).

One significant driver of this evolution is technology, particularly the transformative potential of generative artificial intelligence (Gen AI). AI has the capacity to revolutionize teaching and learning by personalizing instruction to meet students at their level, providing actionable data on performance, and streamlining assessments to go beyond standardized testing.

Embracing technology alone is insufficient.... Prioritize pedagogical shifts that encourage deeper learning and engagement.

"With AI engines, more data can be shared with teachers on individual performance on state assessments by giving teachers and parents information on which topic(s) need improvement and which are mastered, even above grade level, versus a single score. Parents and staff get almost no information from seeing that their child is 'proficient' in fifth-grade mathematics. These expensive and time-consuming assessments should be able to inform parents and teachers that a student has mastered several mathematics or reading comprehension benchmarks above 'grade-level.' AI could assist the process of providing instruction at the learner's level, not the whole class time schedule," (Gordon Dalhby, Education Technology Policy and Practice Consulting, Iowa, United States). "Perhaps soon AI engines will be able to assess teacher-created assessments to provide more detailed and immediate

feedback to the teacher on student proficiency and above-level or below-level performance. We can hope that AI can assist in evolving learning for students at their levels, at any pace and any place. Also as learning evolves, so will teaching techniques and flexibility will also evolve."

**However, embracing technology alone is insufficient.** Schools must move beyond a "tools-first" mentality and instead prioritize pedagogical shifts that encourage deeper learning and engagement. "Now is the time to make pedagogical progress. Many things about artificial intelligence will change in the near-term, but one thing will not change: AI is fundamentally changing the epistemological landscape. This requires a shift to 'Critical Thinking 2.0,' which means, along with critical, analytical, rational, computational, and creative thinking, we must integrate a stronger role for ethics. Critical ethical thinking will be a transferable skill that will outlive our current AI moment. A focus on applied ethics can equip and empower students to interrogate the technology and the data that fuels it, paving the way for an intentional pedagogy of emergence with informed challenge as a way of knowing at its core," (Mary Lang, Center of Leadership, Equity, and Research (CLEAR), California, United States).

Project-based learning, design thinking, and experiential education are examples of flexible approaches that align with the evolving needs of students. These methods allow learners to explore real-world problems, practice critical thinking, and iterate their skills in safe and supportive environments.

Teachers and education leaders play an essential role in this transformation. To truly prepare students for the future, educators must be empowered to experiment with innovative teaching methods, collaborate with peers, and continuously hone their skills to align with emerging trends and technologies.

This evolving role of educators also extends beyond the classroom, as highlighted by Advisory Board member Edward McKaveney (Hampton Township School District, Pennsylvania, United States). McKaveney emphasized the importance of integrating professional experiences into K-12 education: "To some extent, I look at the way

universities often utilize adjunct faculty who work in the field as part of academic programs to be a way that K-12 can approach aspects of this challenge. To this end, K-12 teachers often invite professionals into their classrooms, but this is not a formalized requirement. For my district, building relationships with companies to offer students structured internships across the range of learning disciplines tied to their graduation requirements has many challenges. Often companies have formal programs for college and university students, but not high school age students. Building and scaling this type of professional ecosystem as part of our education system is critical as we think not only about the future of work, but the future of society. This is a significant hurdle that we must find ways to overcome in order to accelerate future learning while filling global workforce needs."

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### ADAPT EDUCATION FOR RELEVANCE IN TODAY'S WORLD

"Formal education has a relevance problem. The traditional emphasis on siloed content memorization was already outdated in a world of instant information access. Now, generative AI is making this approach obsolete. To once again become relevant, schools must reimagine their purpose. However, this transformation cannot rest solely on schools and educators. For formal education to truly change, standardized tests and standards must fundamentally shift. After all, at the root, learning is change. Formal education must change to remain relevant." (Lindy Hockenbary, InTECHgrated PD, Montana, United States).

### SO LONG TO SILO-EDUCATION

Replacing "silo subjects" with cross-disciplinary projects is beneficial for students because it mirrors real-world situations where problems and solutions are not confined to a single field. This approach fosters critical thinking, creativity, and collaboration by encouraging students to draw connections between different areas of knowledge. It helps them develop a more holistic understanding of concepts, promotes the application of learning in diverse contexts, and improves problem-solving skills. Moreover, cross-disciplinary projects reflect how professionals work together in teams, preparing students for future careers by enhancing their ability to work collaboratively and think across boundaries.

### SEIZE THE MOMENT

"Change in education is slow (generally). We are right now in a major transformative period in education. Now is the time to begin to make both small and large changes," (Rick Gaisford, Utah State Board of Education, Utah, United States).

### THE POWER OF EVIDENCE-BASED PRACTICES IN EDUCATION

"To drive impact, it's important for educators and leaders to implement evidence-based practices. While emerging technologies can create a sense of urgency, thoughtful implementation of evidence-based practices will maximize the impact on teaching and learning," (Caitlin McLemore, ISTE+ASCD, Florida, United States).

# DIGITAL EQUITY


## SUMMARY

Ensuring all students have access to technology, resources, and opportunities is essential for participation in our increasingly digital world. Beyond the internet and devices, equity includes accessibility, culturally representative content, and equitable learning experiences. Schools must address systemic barriers, strengthen community partnerships, and integrate inclusive practices to close gaps, especially in underserved areas.


Digital Equity ensures all students have access to the technology, resources, and opportunities necessary to thrive in a connected world. The Driving K-12 Innovation Advisory Board feels strongly about this topic — while it took a brief hiatus from our list last year, Digital Equity has been present as a Hurdle since 2019.

Despite progress since the COVID-19 pandemic, millions of students — particularly in rural, tribal, and low-income communities — still face barriers like inadequate broadband access and limited access to devices.

"While many efforts have been made since the COVID-19 pandemic to address the 25% of school-aged children living in households without broadband access or a web-enable device, it is crucial that we continue until that number is a resounding zero," (Justin Thompson, National Education Association, New York, United States). "In 2024, it is a necessity to have unimpeded access to the Internet. Without it, students can struggle to complete (or even access!) their assignments. It also should be mentioned that not all educators have sufficient access either! The problem is exacerbated on tribal lands, and we owe it to our Native students to continue the monumental efforts toward digital equity that have been taken over the last four years."

Addressing these disparities is crucial for creating equitable learning opportunities and preparing students for future success.

But what Advisory Board member Raymond Rose (Texas Digital Learning Association (TxDLA), Texas, United States) wants to know is, when it comes to Digital Equity, what and who are included? "It's clear that not all communities (that includes the schools in those communities) have the same level of access to the Internet. And that can limit what the individuals in those communities can do. But, there's another population in many communities that is often missed in the digital equity description. People with disabilities can be denied access to digital resources by simple lack of consideration in the design of digital resources. Does your basic definition of Digital Equity include someone with a vision disability, with a mobility problem, or lacking the tools that would enable them to take full advantage of the digital resources available to those without disabilities?"

In addition to students with disabilities, under-resourced areas (often in rural communities) face some of the largest gaps in connectivity, requiring creative solutions. Community-wide collaborations involving school districts, elected officials, and local businesses can expand access to WiFi networks and broadband infrastructure. Public libraries, non-profits, and other community resources can also play a significant role in bridging the digital divide, providing students with spaces to connect and learn outside of school hours.

"When the FCC [U.S. Federal Communications Commission] was able to help the underserved get connected through the Affordable Connectivity Program, I did a lot of work as an FCC Outreach partner," (Lisa Gustinelli, St. Vincent Ferrer School, Florida, United States). "When working with families I found that digital equity not only encompasses screen time, but the type of device one is working on. For many

impoverished individuals a phone is the only device for communicating and connecting to their child's school. Children in these families, if they are lucky and the family has an actual laptop, are not given unlimited time to work on the device shared by many family members. They don't have the same amount of time to work on an assignment as a child who has their own device at home. These are two examples that show the digital divide is real. The solution seems simple. Give every child a device to work on at home and reliable Wifi including broadband access in rural areas. Easier said than done. Our public library system is helping students connect outside of school. Where else can we utilize public spaces and resources to help support families and close this digital divide?"

Ultimately, Digital Equity is about empowering all students to participate fully in society and learning. By addressing systemic barriers, embracing inclusive practices, and prioritizing equitable access to technology, schools can transform learning environments and drive meaningful innovation. As digital demands grow, ensuring that every student can access and benefit from technology is not just a priority — it's a necessity. "Without the foundational layer of true digital equity, many other conversations about Hurdles, Accelerators, and Tech Enablers become irrelevant," (Mary Lang, Center of Leadership, Equity, and Research (CLEAR), California, United States).

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### DIGITAL EQUITY INCLUDES DIGITAL LITERACY FOR ALL

In addition to access to devices and broadband, a subtopic within Digital Equity that has arisen is the importance of digital literacy for every student. "With the proliferation of AI, with all its benefits and shortcomings, digital literacy should be taught AT ALL LEVELS, for students, staff, leaders, and parents. This will prevent all the negative consequences of bad data, ideological polarization, malicious information, bias, and other data concerns — while taking advantage of all the AI potential for improvement and efficiency," (Beatriz Arnillas, 1EdTech Consortium, Florida, United States).

### BE MINDFUL OF EQUITY OF THE STUDENT EXPERIENCE

"Nearly all teachers have different styles of teaching and different levels of technological integration in their courses. The equity issues come into play when one student's experience is rich with technological integrations and the opportunities they afford and another's is void of those enhancements. This is not to say that technology must be integrated everywhere or that offline work shouldn't still be a tenant of education, instead, it is important that all students receive a similar experience and level of opportunities to access and create with technology," (Patrick Hausammann, Clarke County Public Schools, Virginia, United States).

### PRIORITIZE DIGITAL EQUITY AND ACCESSIBILITY

"Ensure that technology initiatives support equity, so that every student, regardless of background, can benefit. Collaborate on projects like improving internet connectivity, offering loaner devices, or creating inclusive digital resources accessible to students with disabilities. For IT professionals, consider ways to design systems that accommodate all learners, such as universal design principles, accessible platforms, and multilingual options that support the unique needs of every student. Integrate Diversity, Equity, and Inclusion (DEI) principles at every stage of innovation. Develop resources that reflect a range of cultures, identities, and perspectives to make learning relevant and engaging for all students. Create platforms that amplify student voices — especially those from underrepresented backgrounds — by including them in focus groups, feedback sessions, and pilot programs to ensure the solutions resonate with the entire student population," (Beverly Knox-Pipes, Nova Southeastern University/ Consultant (Retired CTO), Michigan, United States).

# LEARNER AGENCY


## SUMMARY

Learner Agency is key to transforming K-12 education, prioritizing personalized, competency-based approaches that center on student needs and real-world connections. Moving beyond traditional methods, schools can empower students through project-based learning, STEAM initiatives, and critical thinking. By fostering collaboration, embedding Universal Design for Learning, and using technology purposefully, educators have the ability to create engaging, learner-centered environments. These changes prepare students as critical thinkers and leaders, making education relevant, motivating, and equipped for the future workforce.


To meet the changing demands of society and the workforce of tomorrow, K-12 education must prioritize Learner Agency. “Kids are changing as fast as the world is and we need to keep them at the center,” (Sarah Radcliffe, School District of Altoona, Wisconsin, United States).

Keeping students at the center and setting them up for success means schools must shift away from traditional approaches and adopt a more personalized education model. Conventional methods, often rooted in seat time and standardized testing, fail to accommodate the diverse needs of students. Instead, education should focus on self-paced mastery, enabling students to engage deeply with material aligned to their individual goals, passions, and aspirations. When students understand how their learning connects to real-world challenges, they are more motivated to actively participate and excel.

Advisory Board Member David Deeds (International EdTech Consultant, Heredia, Costa Rica) explained that teachers are told they should be the "guide on the side," not "the sage on the stage." The Sage on the Stage represents a teacher-centered model where educators lead through lectures and presentations, emphasizing memorization. In contrast, the Guide on the Side approach fosters student-centered learning, encouraging critical thinking, problem-solving, and active engagement through hands-on experiences.

Empowering students to take ownership of their learning is essential, though it may sometimes be misinterpreted as diminishing the teacher’s role. However, this shift ultimately helps students recognize their potential and capabilities. Administrators play a vital role in supporting teachers and fostering understanding among students and parents.

And while technology plays a critical role in this transformation, it is essential to use it purposefully. The emphasis should not be on implementing the latest tools but on designing learning opportunities that develop critical thinking, creativity, and problem-solving skills — competencies essential for success in an ever-changing workforce.

“Rather than focusing on implementing tool after tool after tool, the focus should be more on what is at the heart of what we need students to learn and why it is there,” (Chris Smith, North Carolina Virtual Public School (NCVPS), North Carolina, United States). “Of course, the core curriculum is at the forefront of that conversation but more than just teaching the curriculum, we need to start finding ways to truly connect what is being learned to skills and strategies that are necessary to succeed in the current and future workforce.” By prioritizing these foundational needs, schools can ensure that technology drives instruction in a way that supports and amplifies student-led discovery.

Empowering students as leaders and creators is another critical element of Learner Agency. Opportunities for project-based learning, STEAM initiatives, and creative problem-solving allow learners to take an active role in their education. This transformation

from passive recipients to active creators empowers deeper engagement. During a discussion call, Advisory Board Member Michelle Watt shared with her group how students in her district's middle school program participated in self-directed coursework. This meant that the students had to learn how to implement their own pacing, identify their own achievements, and come up with their own plan to fill learning gaps.

In the project's online forum, Advisory Board member Ryan Cox (Osseo Area Schools, Minnesota, United States) posed a series of thought provoking questions to the Ad Board.

- What would schools look like if we could expand our commitment to expanding both personalization and learner agency?
- Would we see students more engaged in their learning?
- Would we see students that showed up to school on a more regular basis if they knew that learning would be more focused on their individual needs and interests?
- What if we made school more about learning and less about teaching?

He explained why he was asking with a story. "I heard about a nearby school district that saw a significant number of their teachers take a personal day on the district-scheduled professional development day. Teachers we know said they take the day off because they don't see value in the day and it's not what they need. Isn't that what our students are telling us as well when they elect to not attend school or disengage while in class?"

Cox added: "Creating a learner-centered environment that still holds students to high standards could move learning forward. The challenge still remains – overcoming the inertia of the system to make such a change."

Universal Design for Learning (UDL) offers a framework for embedding learner agency, focusing on purposeful, reflective, and action-oriented learning. When combined with strong leadership, these strategies can ensure compliance with educational standards while cultivating meaningful change.

Learner Agency has the power to address disengagement and boredom by allowing students to connect deeply with their education. By shifting from traditional methods to approaches that prioritize agency, schools can cultivate critical thinkers and resilient leaders prepared for the future. Through collaboration, personalized learning, and a focus on empowering students, K-12 education can transform classrooms into environments of exploration, creativity, and growth, driving impactful innovation for years to come.

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### ALWAYS REMEMBER STUDENT-CENTERED LEARNING

"There are 'many' essential things for school system leaders to remember for driving impactful K-12 innovation in 2025. At the top of my [list] is everything that comes back to student-centered learning. K-12 education is primarily about the student: what their needs are and whatever supports their success. We must shift from 'one-size-fits-all' structures to competency-based learning. We must move from self-paced mastery, not seat time" (Frankie Jackson, Trusted Technology Thought Partner, Cybersecurity Coalition for Education Project Lead, Texas, United States).

### PREPARE STUDENTS FOR THE FUTURE, NOT THE PAST

"We must always keep in mind that we are preparing students for their future and not our past. This means advocating for and providing mechanisms, platforms, and ecosystems that foster impactful innovation to empower students to be confident, courageous, and creative as they pursue their personal best" (Phil Hintz, Niles Township School District 219, Illinois, United States).

### REMEMBER: TODAY'S LEARNERS EXPECT AGENCY

During a discussion call, Advisory Board member Will Goodman (Boise School District, Idaho, United States) explained how involved, active, and interconnected this current generation of students is. "These students expect learner agency; they expect their learning to come to them the way they need it, what works best for them, and they want to be able to pursue their kind of goals in their learning."

# BUILDING THE HUMAN CAPACITY OF LEADERS


## SUMMARY

Encouraging adaptability, collaboration, and lifelong learning are central to Building the Human Capacity of Leaders. Strong leadership unites educators, technologists, and administrators around shared values and goals, ensuring a forward-thinking approach. Teachers and principals act as role models, guiding students with passion and perseverance while promoting professional learning communities. By empowering leaders at all levels, schools become more responsive to change and better equipped to prepare students for an evolving, interconnected world.


"It's cliche because it's true: the only constant is change. The modern education leader needs to embrace constant learning and exposure to new technological capabilities and workforce trends, and empower a nimble team to identify and implement changes to curriculum, technology infrastructure, and teacher training" (Luke Allpress, Agua Fria Union High School District, Arizona, United States).

Building the Human Capacity of Leaders, which is a Top Topic for the second year in a row, serves as a powerful catalyst for transforming schools into adaptable, forward-thinking environments. Advisory Board member Kelly May-Vollmar (Desert Sands Unified School District, California, United States) stressed the importance of leadership collaboration across the school or even district to make this transformation possible. "It is vital for educators and school system leaders to remember that in order to drive impactful K-12 innovation initiatives. Focuses should include the entire organization and therefore all leaders in the organization should be on the same page working toward the same goals."

She added that too often innovation is seen as the responsibility of the technology department when "all leaders should be focused on impactful innovation and working together to achieve maximum outcomes for the organization."

The power of collaboration also came up during a Discussion Call, when Advisory Board members Stacy Hawthorne, Laura Motta, Sheryl Abshire, and Zainab Adeel discussed the importance of adaptive leadership in today's evolving educational landscape, highlighting the need to embrace technology and foster partnership: "Build capacity of leaders to understand the power of technology rather than reverting to past practices. Recognize that times have changed, and we need to adapt our leadership and instruction to reflect that. There are a variety of leadership styles – knowing the team is essential to building leadership in others. Collaboration is key!"

In addition to working well with others, the modern education leader must embody continuous learning, navigating technological advancements and workforce trends while empowering teams to adapt curriculum, infrastructure, and training to future needs. Leadership capacity extends beyond individual roles to the collective organization, ensuring alignment around shared goals. "Our focus should be on anchoring innovation through a shared set of core values centered on teaching, learning, and improving the human condition. These values guide us toward achieving our academic goals, rather than emphasizing the technology or tools employed," (Tom Ryan, K12 Strategic Technology Advisory Group, New Mexico, United States).

In the online forum, Advisory Board member Laura Motta (Godparents' project, Montevideo, Uruguay) shared an example from her community in Uruguay, illustrating how teachers can be both leaders and learners. "In our community, we work with teachers who are learning the language together with their students. But they are experienced learners, they have succeeded in achieving their goals. As Angela Duckworth has said, 'What differentiates the person who is successful is grit, that is, passion and perseverance.' Learning that errors may drive people to improve, so that they do not give up. In our community, teachers are models for their students and they become leaders for they go through the learning process as their students do and at the same time. So, students also learn from their teachers' capacity for perseverance and passión." This approach not only equips students with essential how-to-learn skills, but also disrupts the traditional power dynamic between teacher and student, fostering a more collaborative learning environment.

Advisory Board member Claus Gregersen (Herning Gymnasium, Herning, Denmark) agrees and believes Generative AI will be a catalyst to build the human capacity of leaders. "Leaders, in a broad sense, includes the teacher as the leader of the classroom and the student as the leader of his or her and the class's learning. The need is actualized by the implementation of Generative AI, which the school management must facilitate, the teachers must develop and qualify, so that students can gain the skills to utilize the technology in a learning context."

Ultimately, Building the Human Capacity of Leaders fuels innovation by fostering a culture of adaptability, collaboration, and lifelong learning. When leaders at all levels are supported and empowered, schools become more responsive to change, better equipped to meet future challenges, and more capable of preparing students for an interconnected, rapidly evolving world. This holistic approach to leadership development redefines the role of education in society, positioning it as a driver of transformation for individuals and communities alike.

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### MAKE INCREMENTAL ADVANCEMENTS WHILE ALWAYS ENCOURAGING LEARNING

"We are thankfully starting to move toward 'Building the Capacity of Leaders' through hiring an exceptionally talented Supervisor of Professional Development and subscribing to LinkedIn Learning. The foundation has been built, now we need to encourage staff to seek new knowledge and add to their skills using the resources now available to them" (Laura Pollak, Nassau BOCES, New York, United States).

### INCLUDE PARALLEL AI ETHICS LEARNING PATHS FOR LEADERS

"The same core social and ethical dimensions of AI that we expect students to master should be mapped to the professional development of all educational leaders. These include data equity, cyber-social literacies, responsible technology, and social equity" (Mary Lang, Center for Leadership, Equity and Research (CLEAR), California, United States).

### DON'T FORGET TO BUILD THE INTERDISCIPLINARY CAPACITY OF LEADERS

AI is necessarily interdisciplinary, our leaders must develop this as a core capability. This includes learning and development opportunities in change leadership and futures thinking across all subject and administrative areas of schools.

### STRONG LEADERS START HERE

"It's essential for leaders to develop approaches to handle the ongoing change that is essential for success. Physical and emotional well-being strategies, such as rest and regular exercise, are important to not only practice, but model. These can have a ripple-effect through your organization and build resilience that helps make sound decisions when the road gets rocky," (Freddie Cox, Knox County Schools, Tennessee, United States).

# CHANGING ATTITUDES TOWARD DEMONSTRATING LEARNING


## SUMMARY

Transforming K-12 education requires innovative teaching and assessment methods that prioritize authentic learning experiences over standardized testing. By embracing competency-based education, assistive technologies, and real-world problem-solving, students can showcase mastery in meaningful ways that foster engagement and motivation. This shift also supports lifelong learning, preparing students to adapt to evolving technologies and skills. Moving away from outdated assessments reduces boredom, frees up time for advanced learning, and ensures education is dynamic, inclusive, and forward-thinking.


Transforming K-12 education to meet the needs of the learning and working worlds of tomorrow requires innovative teaching methods and a fundamental shift in how we assess learning. This is why Changing Attitudes Toward Demonstrating Learning made its way back on our list in 2024, and remains steady as an Accelerator for 2025.

"Bringing schools into 2025 requires not only changing how we teach but also rethinking how we assess learning," (Ximena Nunez del Prado, Colegio Roosevelt, The American School of Lima, Peru). "Text-based assessments, knowing that most text will have been influenced by generative AI, are a thing of the past. It's time to embrace more innovative, dynamic ways to evaluate students' understanding and skills, ensuring they are prepared for the future."

While standardized testing produces much data, Advisory Board members were vocal about the need to move away from this traditional model as the primary means of evaluating student mastery. "Moving away from standardized testing toward more authentic assessments —where students can demonstrate understanding through projects, creative outputs, or real-world problem-solving — could tap into their intrinsic motivation," (Stacy Hawthorne, Learn21, Ohio, United States). "If students see value in what they're doing and understand that their work goes beyond memorization for a test, they're much more likely to stay engaged." Hawthorne added that when assessments reflect real learning and creation, students have more opportunities to showcase their skills in ways that matter to them, which naturally leads to higher involvement and enthusiasm.

"Bringing schools into 2025 requires not only changing how we teach but also rethinking how we assess learning."

Central to this shift is creating learning environments that encourage learner agency which means allowing students to confidently — and safely — take risks. "Remove as many barriers as possible so learners feel safe and feel like they have a voice in what and how they learn and how they demonstrate mastery of what they learn," (Craig Chatham, Lincolnshire-Prairie View SD 103, Illinois, United States).

The move toward more authentic assessments must also prioritize accessibility. Leveraging assistive technologies, such as video, voice-to-text tools, and other adaptive supports, enables all students to demonstrate their knowledge effectively. "Many educators are embracing accessible and assistive technologies, understanding that these tools can support learner variability and provide alternative supports to demonstrate learning," (Christine Fox, CAST, Florida, United States).

The shift in assessment methods is closely tied to the importance of competency-based education and lifelong learning. As technology evolves, students must be prepared to continuously level up their learning. Advisory Board member David Deeds (International EdTech Consultant, Heredia, Costa Rica) recommends viewing both K-12 and college education as parts of a continuum of lifelong learning. Deeds explained, "Education can't just stop with a degree. Technology is changing so fast that we have to prepare learners to perpetually upgrade their knowledge and skills."

Changing Attitudes Toward Demonstrating Learning also focuses on maximizing student engagement and making education more meaningful by advancing learners once they've mastered concepts. "If the students demonstrate such mastery, let's not bore them by making them sit through a week or two of instruction and, worse, take another assessment of the same concepts. Move on," (Gordon Dahlby, Education Technology Policy and Practice Consulting, Iowa, United States). "Yes, there is value in seeing how other students and the educator approach problem-solving or writing or researching, but let's not waste students' time."

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### START WITH PILOT PROGRAMS

"Traditional assessments no longer capture the full range of student learning. Portfolios, passion projects, and performance-based assessments allow students to showcase their mastery through authentic evidence. However, shifting to alternative assessments requires institutional buy-in, including leadership support and teacher professional development. Start with pilot programs, offering teachers PD focused on designing meaningful alternative assessments. Clear communication from leadership will help align expectations across the school and build momentum toward this shift," (Carla Puppo Perfumo, Colegio Franklin Delano Roosevelt, Lima, Peru).

Advisory Board member Caitlin Lemore (ISTE+ASCD, Florida, United States) adds, "It's important to think through how pilot programs will go from beginning to end — what's the methodology and decision making processes regarding pilots and whether or not tools will be adopted. In my research, I've heard from districts that critique their pilot program because so often tools just get adopted even if the pilot doesn't work, because it's the path of least resistance. A pilot program should be an opportunity to critically examine tools to see if they work for a school – or don't.

### IMPLEMENT A MORE SUPPORTIVE ASSESSMENT CULTURE

Assessment culture, or the attitudes, beliefs, and expectations that various members of a community have about assessments and their role in teaching and learning. A school or district's assessment culture can shape, both directly and indirectly, how well assessments support students and teachers. Page 4 of ISTE+ASCD's "Understanding Assessment Culture" offers some suggestions for schools or districts to self-examine assessment culture and explore options for shifting to a more supportive environment.

### USE AI TO TRY NON-TRADITIONAL WAYS OF DEMONSTRATING LEARNING WITH STUDENTS

During the synchronous Accelerators discussion call, Robin Stout (Carrollton-Farmers Branch ISD, TX) shared an example that teachers in her district have been using AI with students as a "rough draft" tool for students to show what they know. The AI will share a traditional, five-paragraph essay format, and students are empowered to come up with their own way of demonstrating learning.

# GENERATIVE ARTIFICIAL INTELLIGENCE


## SUMMARY

Personalizing learning, reducing teacher workloads, and cultivating creativity are just some of the ways Gen AI is impacting education. Gen AI enables adaptive instruction, real-time feedback, and lifelong learning while supporting equitable access and inclusivity. Thoughtful implementation, ethical, mission-driven practices, and AI literacy are essential to address challenges like data privacy and access. By preparing students with skills for the future of work and empowering educators with effective tools, Gen AI transforms schools into engaging, future-ready learning environments.


"The most important thing for educators and school system leaders to focus on in 2025 is understanding how to use generative AI effectively and ethically," (Denis Wisner, Corpus Christi ISD, Texas, United States).

Gen AI is transforming K-12 education by enabling innovative approaches to teaching, learning, and operational efficiency. Its integration offers immense potential, from personalized learning and differentiated instruction to reducing teacher workloads and encouraging creative exploration. However, realizing this potential requires thoughtful implementation, ethical considerations, and a clear focus on enhancing the educational experience while addressing challenges like data privacy and equity.

"Right now, Gen AI is poised to introduce huge changes in how learning can occur. To do so effectively, though, its uses must be primarily focused on enhancing learner agency and creating new avenues for exploration and creation, rather than on automating existing practices. A little of the latter can free up teacher and student time for new developments — but too much of it risks accidentally reinforcing practices that are best set aside moving forward," (Ruben Puentedura, Hippasus, Massachusetts, United States).

One of Gen AI's most powerful contributions is its ability to personalize education. By tailoring instruction to individual student needs, Gen AI enhances accessibility, inclusivity, and engagement. Tools powered by AI can provide real-time feedback, create adaptive learning paths, and support lifelong learning. These capabilities help students become active participants in their education, empowering them to explore new ideas and develop critical thinking skills. "The teacher's leadership role is notable because by enabling [Gen AI] use he/she/they gets his/her/their students to seek their own personalized paths," (Laura Motta, Godparents' project, Montevideo, Uruguay).

For teachers, Gen AI also serves as a vital resource, automating administrative tasks such as lesson planning and grading, which allows them to focus more on direct interactions with students.

Schools are also leveraging Gen AI to address systemic hurdles. For instance, reducing teacher workload — a significant factor in educator retention — is a major benefit. Teachers can use AI to create differentiated lessons, freeing time for meaningful classroom engagement. Similarly, administrators can use AI tools to analyze data for informed decision-making, improving outcomes for students and staff alike. In August 2024, the UK government announced a £4 million of government investment to develop and use trustworthy AI tools that teachers can use to help with grading homework and lesson planning.

Despite its potential, integrating Gen AI comes with challenges. Effective implementation begins with building AI literacy among educators, students,

administrators, and parents/community members. Training staff on how to use AI tools ethically and effectively is essential for ensuring that these technologies align with school missions and goals.

"AI literacy includes the knowledge and skills that enable people to critically understand, evaluate, and use AI systems and tools to safely and effectively participate in an increasingly digital world, and for educators and school system leaders, the development of AI literacy is a necessary prerequisite to harnessing the power of this and other emerging technologies," (Pati Ruiz, Digital Promise, California, United States).

Incorporating Gen AI into education is about more than tools — **it's about preparing students for the future of work.** By equipping them with skills to navigate and utilize AI systems, schools ensure students are ready to succeed in a rapidly evolving world. Advisory Board member Ben Bayle (DeKalb CUSD#428, Illinois, United States) shared that preparing students for the future of work in a Gen AI/Integrative AI systems world is a priority. "Being able to utilize those systems and platforms as an effective tool will be key to their future success," Bayle said.

Ultimately, Gen AI represents a paradigm shift in education, offering opportunities to rethink traditional practices and innovate for the future. By adopting a cautious yet forward-thinking approach, K-12 schools can harness Gen AI's transformative potential to create engaging, inclusive, and forward-thinking learning environments. For school districts who want to evaluate their readiness for integrating AI technologies into instructional and operational frameworks, CoSN and the Council of the Great City Schools (CGCS) offer the K-12 Generative AI Maturity Tool, which includes the Academic AI Literacy Readiness Domain that was announced in November 2024.

With strategic implementation and a focus on ethical practices, Gen AI can empower students, educators, and communities alike. "As we are being impacted on a large scale by AI, we also need to ensure that we are adopting tools in a meaningful way that align to our mission, vision, and goals," (Steven Priest, Wyoming Department of Education, Wyoming, United States).

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### EQUIP EDUCATORS FOR AI INNOVATION

"Professional development (PD) opportunities, along with collaborative initiatives like ISTE's GenerationAI program, help educators develop the confidence to harness AI's power responsibly. PD is a cornerstone of empowering educators to navigate the rapidly evolving landscape of education technology. As the integration of generative AI and other emerging platforms accelerates, providing teachers with the tools and knowledge to use these technologies safely and effectively becomes essential. Advisory Board member Arjana Blazic (EduDigiCon, Grad Zagreb, Croatia) emphasized that "for teachers, professional development on the use of safe, explainable AI systems (XAI) is crucial," highlighting the need for educators to understand not only how these systems work but also their potential implications in the classroom. (Note: XAI systems are AI models and technologies designed to provide human-understandable explanations for their decision-making processes, offering added clarity and accountability).

As the representative of his discussion group, Advisory Board member Michael Flood (Alpine Frog, LLC, North Carolina, United States) noted that "change brings opportunity, but also risks and unknowns. We need better and more coordinated communications, professional development, and engagement to make the most of Gen AI and other new platforms safely, effectively, and efficiently." By prioritizing targeted, ongoing professional development, education systems can ensure that teachers are equipped to leverage innovation responsibly while fostering meaningful learning experiences for their students.

EdTech Leaders recognize that AI has potential risks and benefits. The overwhelming majority (97%) see benefits in how AI can positively impact education and over a third (35%) of districts report having a Generative AI initiative. (2024 State of EdTech District Leadership Report, CoSN)

## AI TRAINING FOR ALL TO AVOID DIGITAL EQUITY GAPS

During one of the discussion calls, Advisory Board Member Mike Carvella (Oak Ridge Schools, Tennessee, United States) shared that “we have to train everybody, not just our teachers, not just our students, but our community members and parents. A big fear is that without doing this, we’re going to see more digital learning gaps. We’re going to see kids who are well versed in using AI and online learning or any other kind of technology and then those who are not based on fears or thoughts that it may go away.”

## EXPLORE AI LIKE SNORKELING

“With AI in particular, we are in a place where we can't yet see where the ‘bottom of the ocean’ is, so diving in headfirst could either be dangerous or fun. That being said, I liken it to snorkeling. You are staying on the surface for a while, taking a look at what's below the surface, diving further down once in a while to explore, but you always have to come back up for air once in a while and restart. When it comes to innovation, I truly feel we have to take that approach,” (Duane Shaffer, Learning Technology Center, Illinois, United States).

## WORK ACROSS DEPARTMENTS TO IMPLEMENT AI IN SCHOOLS

During the Tech Enablers discussion call, Advisory Board member Lorne Rodriguez (Chicago Public Schools, Illinois, United States) and his group concentrated on "establishing digital and AI literacy, demystifying AI, and empowering stakeholders to utilize and implement Gen AI ethically, safely, and securely". They advocated for a cross-departmental approach to break down silos and identify areas across the organization that could benefit from generative AI solutions.

# ANALYTICS & ADAPTIVE TECHNOLOGIES


## SUMMARY

Analytics and adaptive technologies drive innovation in K-12 education by personalizing learning, empowering students, and optimizing instruction. These tools tailor educational experiences to individual needs, leveraging real-time data and AI to support growth, advance engagement, and promote learner agency. They enable educators to make data-driven decisions, address diverse achievement levels, and prepare students for future challenges. By fostering equity and creativity, these technologies transform education into a more inclusive, dynamic, and effective system.


Analytics and adaptive technologies, such as AI-powered platforms and Generative AI tools, are transforming K-12 education by enabling learning experiences tailored to individual student needs. With classrooms often encompassing students at varying levels of achievement, these technologies allow educators to move beyond one-size-fits-all approaches. By leveraging data and adaptive systems, schools can create unique learning paths, ensuring every student receives targeted support and opportunities to grow, regardless of their starting point. "We should focus on building adaptable, personalised learning experiences for students," (Arjana Blazic, EduDigiCon, Grad Zagreb, Croatia).

At the core of this transformation is the ability of adaptive technologies to analyze student performance and adjust instruction in real time. These tools enable educators to pinpoint areas where students need additional help or challenge them with advanced material.

"I've read that in classrooms today, student learning levels span five different grades. If we can accelerate learning by creating a more personalized and engaging approach by using the above enablers, we may be able to better meet our students where they are and create a unique experience for more learners. We know that trying to create an experience for the 'average' student will not work because there are no students who actually fit the average model," (Ryan Cox, Osseo Area Schools,

At the core of this transformation is the ability...to analyze student performance and adjust instruction in real time.

Minnesota, United States). "Technology resources, such as Gen AI, adaptive tech, and rich ecosystems give us the best chance to help our students grow, regardless of where they are. AI and adaptive technologies can customize learning and provide students with the individualized supports that are needed."

And students agree on the importance of AI for learning. In a 2023 study from Indonesia, data showed that 88% strongly agreed, 9% agreed, 2 % disagreed, and 1 % strongly disagreed. The results of the study showed that "students are greatly helped, especially for learning, especially in finding learning topics to follow up the learning process in class. They can find out quickly what information they need. It can analyze students' learning styles and provide customized feedback and

support. They can also identify areas where students may need additional assistance and provide targeted interventions to address these gaps."

Beyond academic support, analytics also empower educators and administrators by offering insights into student behavior, performance trends, and instructional effectiveness. Data-driven decision-making helps schools identify gaps in learning, allocate resources effectively, and implement evidence-based interventions. This fuels a culture of continuous improvement, where instruction is optimized based on real-time feedback and analytics.

Adaptive technologies also promote learner agency by giving students greater control over their educational journeys. These tools provide students with autonomy to choose how they learn, explore topics of interest, and demonstrate their understanding in creative ways. To take advantage of this, schools must acknowledge and navigate the tension between learner agency and traditional systems. This shift aligns with the growing emphasis on students as active participants in their education, preparing them for a world that values critical thinking, problem-solving, and creativity. For instance, AI can facilitate project-based learning experiences that challenge students to tackle real-world problems, nurturing skills necessary for future success.

Moreover, analytics and adaptive technologies support the integration of Accelerators like Learners as Creators and a focus on system transformation. Rather than merely optimizing current educational models, these tools offer the potential to redefine what is expected of students and educators. By setting higher standards and providing tools to achieve them, schools can prepare students for the rapidly evolving demands of the workforce and society. This includes tasks that require innovation, collaboration, and leveraging technology to create solutions.

Implementing these technologies also addresses long-standing challenges in education, such as Digital Equity and inclusivity. Adaptive platforms can bridge gaps by offering all students access to high-quality, tailored instruction, regardless of their background or resources. Additionally, these systems can promote engagement and motivation, particularly for students who may struggle in traditional learning environments.

### 10 THINGS TO CONSIDER WHEN IMPLEMENTING ANALYTICS & ADAPTIVE TECHNOLOGIES IN YOUR DISTRICT

Knowing that Analytics & Adaptive Technologies is a Top Topic for 2025, CoSN's EdTech Innovation Committee recently discussed the Tech Enabler and why it's important for moving education forward. Read 10 key takeaways from the timely conversation.

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### PERSONALIZE THE LEARNING EXPERIENCE

"Use technology to tailor learning paths to individual student needs and interests. This could involve adaptive learning platforms, AI-powered tutoring systems, or simply using technology to provide students with more choice and autonomy in their learning," (David Vidal, EIM Consultores, Spain).

### IDENTIFY THE CHALLENGES TO SOLVE FOR YOUR STUDENTS

"To quote Bryk, Gomez, Grunow, and LeMahieu (2015), 'you have to see the system that produces the outcomes.' Driving innovation requires driving a very complex system, central to which is our students. If we can keep our students in the center, working to ensure that they experience learning opportunities that support them as whole learners; are personalized to their unique needs, interests, and motivations; and that focus on deeply developing knowledge and skills (vs. a focus on seat time), then I think that whatever innovation is introduced will have the opportunity to become impactful. **Begin by identifying the challenges to solve for your students, not by selecting a technology."** (Beth Holland, The Learning Accelerator, Rhode Island, United States).

# UNTETHERED BROADBAND & CONNECTIVITY


## SUMMARY

Untethered broadband and connectivity enable access to modern tools and inclusive learning environments. Reliable internet supports personalized learning, adaptive technologies, and accessibility tools, empowering students and educators. Addressing infrastructure and affordability gaps, particularly in underserved areas, ensures all students can engage meaningfully. By prioritizing connectivity as a foundation for innovation, schools can create equitable, dynamic, and future-focused education systems that cultivate engagement, creativity, and critical thinking.


Untethered broadband and reliable connectivity are foundational for innovation in K-12 education, enabling the use of modern tools, technologies, and practices that enhance teaching and learning. "Without it, connectivity issues or lack of connectivity will prevent the others from enabling technology opportunities or even being possible. We still have a small population where connectivity of any kind at their home isn't possible yet,"(Patrick Hausammann, Clarke County Public Schools, Virginia, United States).

And Hausamann's district isn't alone: More than 2.5 billion people worldwide lack internet access, and, according to analysis by UNICEF and the International Telecommunication Union, 1.3 billion children around the globe from the ages of 3 to 17 (two thirds of this age group), do not have the ability to access the internet.

Advisory Board member Lisa Gustinelli (St. Vincent Ferrer School, Florida, United States) explains that the problem of Untethered Broadband & Connectivity covers two areas of need. The first: **Basic infrastructure to ensure connectivity.**

The connectivity gap is particularly stark in rural and underserved areas. According to the U.S. Federal Communications Commission (FCC)'s 2022 Broadband Deployment Report, 17% of rural Americans lack broadband access with adequate speeds, compared to just 1% in urban areas. Additionally, more than 42 million Americans lack access to broadband meeting FCC minimum speed standards. These gaps prevent many students from participating fully in digital learning environments, completing assignments, or accessing rich digital resources. Federal programs, such as the Broadband Equity, Access, and Deployment (BEAD) initiative, aim to bridge these gaps by funding infrastructure projects in unserved and underserved regions.

Even when connectivity is available, many families cannot afford reliable internet access.

Equally important as infrastructure is the **access and affordability of broadband services.** Even when connectivity is available, many families cannot afford reliable internet access, which exacerbates inequities in education. Addressing affordability is essential to ensure that all students, regardless of their socioeconomic background, can engage meaningfully in their learning. Through her work, Gustinelli has helped many families and community members gain access to broadband, including Ukrainian refugees who needed to connect to their child's school and start looking for work. She mentioned her neighborhood schools have E-rate and are doing their best to help students connect at home

with Wifi poles, learning hubs, and hotspots. "It's still unconscionable to me that we have access to electricity, running water and postal service yet Untethered Broadband is still out of reach for so many," Gustinelli said.

What's more, according to CoSN's 2024 State of EdTech District Leadership Report, a growing number of districts no longer provide any services to address student home broadband access — 31% in 2024, compared to 19% in 2022. Additionally, there was a decline in the number of districts providing hotspots to unconnected students, from 69% in 2022 to 49% in 2024.

Those who have access to computers for their students can help to ensure they at least have the devices they need. Advisory Board member Freddie Cox (Knox County Schools, Tennessee, United States) shared that his district untethered their Chromebooks at the high school last summer and allowed families to "opt out" of keeping their devices all summer (in previous years, they had to "opt in"). "This enabled students to have access all summer, reduced administrative burden of keeping track of which kids required a device over summer, and ultimately saved instructional time on both the spring and fall semesters by dramatically decreasing the number of students who needed to go through a deployment or turn in. Damages and unreturned devices were minimal compared to the time saved."

But what we must realize is that untethered broadband is the backbone for leveraging other Tech Enablers and Accelerators. Adaptive technologies and Gen AI depend on reliable internet to function effectively. For example, personalized learning platforms and accessibility tools require seamless connectivity to provide real-time feedback, adapt to student needs, and facilitate collaboration. Without untethered broadband, these technologies cannot fully support students or educators.

## TIPS & RECOMMENDATIONS FROM THE ADVISORY BOARD

### INVEST IN BROADBAND AS A FOUNDATION FOR INNOVATION

During our discussion call, one of the Advisory Board member groups shared, "While the pandemic disrupted, teachers were more open to trying new things. Post-pandemic teachers have reverted to avoiding the enablers that helped during the pandemic. Leveraging AI as a teacher to be more efficient with the stuff a machine can do without losing the human element that only the teacher can do. **Without Untethered Broadband & Connectivity, many of the other enablers can't happen,**" (Ana Estrada, Brandon Manrow, Sandra Paul, Andy White, Jason Schmidt, Jody Kokladas, Beverly Knox-Pipes, Wanda Terral).

### EXPLORE CREATING AN LTE NETWORK FOR YOUR STUDENTS

"Since creating our own LTE network in Desert Sands Unified School District, which offers all students access to free internet at home, we have seen so many similar examples. Having internet access is necessary to participate in your child's education as well as all the other aspects of life. We must find a way to level the playing field on this issue. Since creating our own network we have created a task force for all three school districts in our area as well as the colleges, non-profits, and city organizations to work together to ensure internet access for all in our area. We have not solved the issue yet, but we are committed to the work," (Kelly May-Vollmar, Desert Sands Unified School District, California, United States).

### 24/7 ACCESS THE INTERNET TO DEVICES EQUALS BETTER TECHNOLOGY USERS

"From a 'learning impact' perspective, research shows that students with 24/7 access to devices learn how to use technology effectively. 24/7 access to the internet and devices after school hours allows students to access information beyond what is provided by the teacher and the textbook, information in various formats, reading levels, and multiple sources. In addition, 24/7 access to technology provides both educators and parents the opportunity to teach learners how to be responsible and safe users of technology, how to perform effective searches, how to validate facts, and other important skills associated with digital literacy. In the context of the proliferation of AI tools, more than ever, all learners should have 24/7 access, not only from an equity perspective, but also to ensure that all students are savvy users of technology," (Beatriz Arnillas, 1EdTech Consortium, Florida, United States).

# ACTIONABLE INSIGHTS: **ADVICE TO DO MORE WITH LESS**

Many schools are facing budget and resource challenges. Whether you're a small or under-resourced district, or are experiencing financial changes, consider these ideas to do more with less. CoSN's Driving K-12 Innovation Advisory Board and EdTech Innovation Committee came together for a special joint meeting in December 2024 specifically to troubleshoot this challenge.

## HURDLES

### ATTRACTING & RETAINING EDUCATORS AND IT PROFESSIONALS

- Maximize AI tools to assist teachers with efficiency for routine tasks to avoid burnout.
- Look to hire people who are willing to try to solve problems prior to seeking answers.
- Create growth pathways and leadership development within your district. Ex: Technician getting certifications to advance to networking, shadowing colleagues in areas of interest, rotations, staff leadership development programs, etc.
- Find out what matters to your employees when it comes to retention, and if people are leaving, be sure to conduct exit interviews. They may not be leaving (or staying) for the reasons you assume.

### EVOLUTION OF TEACHING & LEARNING

- As a community, create a portrait of what a local graduate looks like and use that as the north star for instruction, leadership, and processes.
- Redefine what being educated means to remove useless content that disengages students.
- Explore purposeful professional development (i.e one-on-one instructional coaching support), which has proven to be successful in quality integration and achievement with EdTech.

### DIGITAL EQUITY

- Ensure Generative AI models are trained by individuals from diverse backgrounds to minimize bias and promote fairness in the technology.
- Provide education for families around digital citizenship and community engagement.
- Consider creating and leveraging a local consortium for buying power.

# ACCELERATORS

## LEARNER AGENCY

- Empower students to follow their passions and interests to develop their learning pathway.
- Build on local trends and interests to encourage learner agency.
- Teach children how to make decisions from K-12; greater focus on problem solving skills.

## BUILDING THE HUMAN CAPACITY OF LEADERS

- Identify tools and platforms that can streamline data visualization to impact student learning.
- Hire tech coaches who are inviting, patient, have expertise, and celebrate teacher and leader efforts.
- Make learning about instructional technology a component of leadership: retreats, principal meetings, and newsletters.

## CHANGING ATTITUDES TOWARD DEMONSTRATING LEARNING

- Shift from process-based assessment towards thinking skills.
- Redefine graduation requirements to include more than academic measures and seat time.
- Collaborate with other public entities to help close gaps and knowledge share on strategies and resources.

# TECH ENABLERS

## GENERATIVE ARTIFICIAL INTELLIGENCE

- Start with educating the local community more about AI to help support its implementation and adoption amongst all stakeholders. Find ways to alleviate fear and help people become comfortable.
- Present AI as something to help solve teachers' needs and let them play with AI to see it for themselves.
- Consider using AI as a first round editor for a classroom of papers.

## ANALYTICS & ADAPTIVE TECHNOLOGIES

- Protect student data when using technology. "Educators and tech directors need to figure out what technologies in Analytics and Adaptive Technology are safe for students to use," (Erica Shumaker, Learn 21-Ohio Chapter of CoSN). "We want to pay people for their services. But also, please don't monetize our student data while you're doing things."
- Need for more of a system across states and companies to vet safety of apps and products. (State systems, at the least, to meet this need.)
- Implement technology that meets the needs of students.

## UNTETHERED BROADBAND & CONNECTIVITY

- Consider lifecycle planning. Because even when broadband is available, you must have the funds to be able to purchase the hardware.
- Evaluate building infrastructure: Old buildings make it hard to improve technology.
- An ideal long-term solution for a school district may be to build its own LTE, have hot spots that it loans out, and work with the community to build a network in their area.

# TAKING A HOLISTIC VIEW

In identifying the Top Topics for 2025, our members uncovered strategies that go beyond the boundaries of individual themes — offering a roadmap for comprehensive progress in K-12 education.

Let these global perspectives from our esteemed Advisory Board empower your efforts to reimagine and drive innovation in 2025.

## WHAT DO YOU THINK IS THE MOST IMPORTANT THING FOR EDUCATORS AND SCHOOL SYSTEM LEADERS TO KEEP IN MIND IN ORDER TO DRIVE IMPACTFUL K-12 INNOVATION IN 2024?

"Be willing to try. Be willing to try new things in order to innovate. We have to be willing to fail, learn from our failure and fail forward" (Steven Priest, Wyoming Department of Education, Wyoming, United States).

"We must stay focused on what we want our education systems to look like and build our technology systems to match that vision. A lot of changes are hitting us faster and faster each day and we have to keep our vision for education at the forefront to ensure we get an education system that we want for all our children" (Kris Hagel, Peninsula School District, Washington, United States).

"Transparency builds trust in all aspects of the learning ecosystem. Change is possible when all members of the learning community feel heard and valued" (Mary Wegner, University of Alaska Southeast, Alaska, United States).

"It is important that EdTech leaders set aside time to think ahead, dream big, and imagine the what ifs. It is easy to get bogged down in putting out fires, maintenance, and repair. The only way to break that cycle is to intentionally depart from it and open up room for innovation and future thinking" (Amy Zock, Decatur County Schools, Georgia, United States).

"Keep thinking outside the box!" (Brandon Manrow, Corpus Christi ISD, Texas, United States).

"For educators and school system leaders to drive impactful K-12 innovation in 2025, the most important thing is to prioritize human-centered change that respects both individual needs and collective goals. Thus, educating leaders on how to create psychologically safe environments empowers them to lead change initiatives with reduced resistance, increased collaboration, and a greater likelihood of sustainable success. Drawing from my background in education IT and neuroleadership science, it's clear that successful innovation hinges on integrating practical, brain-based strategies into all change management experiences from AI to parking patterns. Offering education leaders strategic practices by which they can foster embedded supports for ensuring change experiences that prioritize teachers and students feel valued, aligned with mission, and empowered to adapt will support sustainable change regardless of the initiative. This approach not only nurtures resilience but also equips everyone with the skills and confidence needed to thrive amid change, and help shift school systems toward more responsive, impactful models that can not only weather, but thrive in the ongoing ecosystem that is education in today's world," (Laura Boone, BrainSAFE Education, Arizona, United States).

"First listen to everybody, always align the innovation with the strategies of the school (vision and mission), considering those initiatives will be much easier to let people understand why we are doing what we are doing," (Jackson Vega, Colegio Franklin D. Roosevelt, The American School of Lima, Lima, Peru).

"Collaboration is key within the district, partnering with district and school system leaders and educators to make transformations happen. Additionally, listening and creating spaces for collaboration within immediate communities is transformative" (Nicole R. Carr, Digital Promise Global, North Carolina, United States).

"Think of your job as an innovation advocate vs. a technology leader" (Keith Krueger, CoSN - the Consortium for School Networking, Washington, D.C., United States).

# ACKNOWLEDGEMENTS

**CoSN gratefully acknowledges its sponsors for supporting the Driving K–12 Innovation series:**

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**Additionally, CoSN is grateful for its supporting organizations (in-kind partners):**

- AACTE (American Association of Colleges for Teacher Education)
- AFT (American Federation of Teachers)
- All4Ed/Future Ready Schools
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- NEA (National Education Association)
- NSBA (National School Boards Association)
- NSPRA (National School Public Relations Association)
- SETDA (State Educational Technology Directors Association)
- XINYUN (BEIJING) EDU-TECH LTD.

**CoSN would also like to extend special thanks to our Editorial Board:**

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- Caitlin McLemore, Senior Research Associate, ISTE+ASCD, Florida, United States
- Laura Pollak, Supervisor, NASTECH and Data Privacy & Security Service, Nassau BOCES/ RIC, New York, United States

**CoSN acknowledges the vision and leadership of**

- Laura Geringer, Project Director, Graphic Facilitator, and Graphic Designer (PumpkinBerry Consulting)
- Stephanie King, Writer and Communications Manager
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