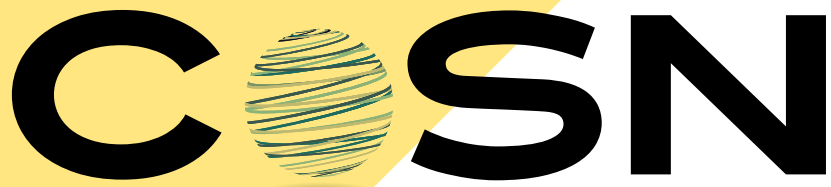




Driving K-12 Innovation

2020 HURDLES +
ACCELERATORS





LEADING EDUCATION INNOVATION

CHALLENGE

Technology is an essential element of learning,
yet the use and application of it is inequitable.

VISION

CoSN is a community of visionary technology
leaders empowering every learner to achieve
their unique potential in a changing world.

MISSION

CoSN provides current and aspiring
education technology leaders for PreK-12
with the community, knowledge, and
professional development they need
to create and grow engaging
learning environments.

*CoSN is vendor-neutral and
does not endorse specific
products, services or
solutions.*



Welcome!



“

TOGETHER, WE CAN
DRIVE MEANINGFUL
INNOVATION IN
K-12 EDUCATION”

Dear Colleagues,
Welcome to the first of the 2020 Driving K-12 Innovation publications—two reports and a toolkit designed to help you identify and engage with the most important topics for K-12 innovation this year. As educators, leaders, researchers, learners, and changemakers, we are challenged to adapt education in the face of rapid technological and societal change. Yet it can be difficult to know how to evolve our systems and practices.

To help you navigate this changing landscape, the Consortium for School Networking (CoSN) has convened an international Advisory Board of distinguished educational technology experts to identify and rank the most important topics for K-12 innovation today. This report discusses key Hurdles (barriers) and Accelerators (megatrends) for innovation, and its forthcoming companion will focus

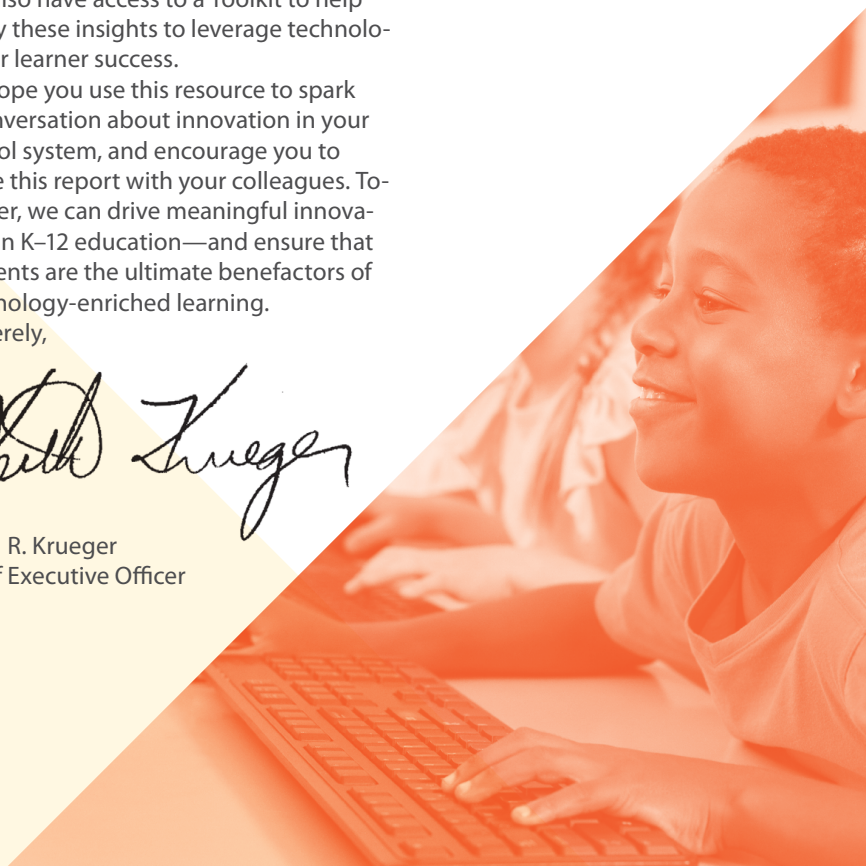
on Tech Enablers (tools). CoSN members will also have access to a Toolkit to help apply these insights to leverage technology for learner success.

I hope you use this resource to spark a conversation about innovation in your school system, and encourage you to share this report with your colleagues. Together, we can drive meaningful innovation in K-12 education—and ensure that students are the ultimate benefactors of technology-enriched learning.

Sincerely,

A handwritten signature in black ink that reads "Keith Krueger". The signature is fluid and cursive.

Keith R. Krueger
Chief Executive Officer





Introduction

“

THIS REPORT
ILLUMINATES THE
TOP 5 HURDLES AND
TOP 5 ACCELERATORS.”

The roadways of education and technology are full of potholes and detours, expressways and carpool lanes. To help navigate the complex map of K-12 education, CoSN's Driving K-12 Innovation initiative brings together approximately 100 educational leaders, researchers, technologists, and changemakers to discuss and determine the key Hurdles (barriers), Accelerators (mega-trends), and Tech Enablers (tools) for advancing K-12 innovation in 2020. This report illuminates the Top 5 Hurdles and Top 5 Accelerators and provides a deep-dive into two Hurdles—Data Privacy and the Evolution of Teaching & Learning—and two Accelerators—Data-Driven Practices and Social Emotional Learning.



Top 5 Hurdles

Top 5 most important Hurdles for schools to address in 2020 in order to pave the way for teaching and learning innovation and extraordinary student outcomes.

1 Scaling and Sustaining Innovation

Whether it be effective teaching practices or technology usage, schools are challenged to support risk-taking projects and identify value-adding innovations—then invest in their ongoing integration; adapt and apply what is working well at a small scale to a school, district, or state level; and embrace the transformation of practices and culture led by innovations.

2 Data Privacy*

Student data can be a powerful tool for teaching, learning, and student support. Yet increases in use and awareness of student data spark more questions about student data privacy, collection, and control. Schools are challenged to create digital ecosystems—and this depends on building understanding and fostering active participation in the complexities of data and data governance. (Note: This Hurdle was called “Data Privacy and Ownership” during the Advisory Board voting process, but has been shortened for clarity.)

3 Evolution of Teaching and Learning*

The teaching and learning landscape is changing, opening up the opportunity to move toward a balance between teacher facilitation and student learning with the help of technology. As teaching, learning, and learning outcomes are constantly being redefined, schools are tasked with ensuring that teaching practices and pedagogies are not outpaced by technology trends, nor by advances in our knowledge of how people learn.

4 Pedagogy vs. Technology Gap†

When new technologies are introduced that educators are expected to utilize, there is not always sufficient training, professional development, or time to understand how to effectively teach with or integrate these tools within curriculum. The forced use of technology in a district can blindside educators across the education system—not just the classroom—and the surmounting of this Hurdle needs to include all stakeholders (including students, teachers, school leaders, district administrators, and others).

5 Digital Equity

This nuanced hurdle encompasses equitable access to and quality of digital technologies, Internet and connectivity, knowledge and digital literacy skills, effective technology use, support, and digital content. For example, not every student has sufficient Internet connectivity or access to tools/technologies; not all schools can afford the latest equipment.

** Featured in this publication.*

† Featured in 2019 publication.



Top 5 Accelerators

Top 5 most important Accelerators for schools to address in 2020 in order to pave the way for teaching and learning innovation and extraordinary student outcomes

1 Learners as Creators[†]

The idea that students don't have to wait to graduate to change the world is motivating schools to embrace real-world learning experiences that promote student-generated ideas and solutions.

2 Data-Driven Practices*

With more student engagement/performance and other kinds of data being collected, schools are leveraging that data to make decisions about curriculum, hiring, teaching and learning, and technology investments. Increasingly, school leaders are using data visualization to view academic and operational outcomes.

3 Personalization[†]

As the consumer sector has exploded with new ways to customize user experiences and products, schools are finding ways to provide learning support at the individual level. Personalized learning is when all aspects of learning are chosen by the learner, including but not limited to topic, pace, strategy, and presentation of knowledge/skills.

4 Social and Emotional Learning*

Schools are working to build empathy, grit, persistence, flexibility, and adaptability into curriculum, which arguably shapes worldviews and students' penchant for successful collaboration, problem-solving, and civic responsibility. Further, learning experiences that help build students' character and identity, encourage creative and social risk-taking are being emphasized.

5 Building the Human Capacity of Leaders

When leaders take actions to strengthen the professional community of their schools, providing opportunities for educators and all K-12 professionals to learn and master new skills—regardless of title or rank—it leads with a strategic vision and opens the door to the innovative practices that can enhance student experiences.

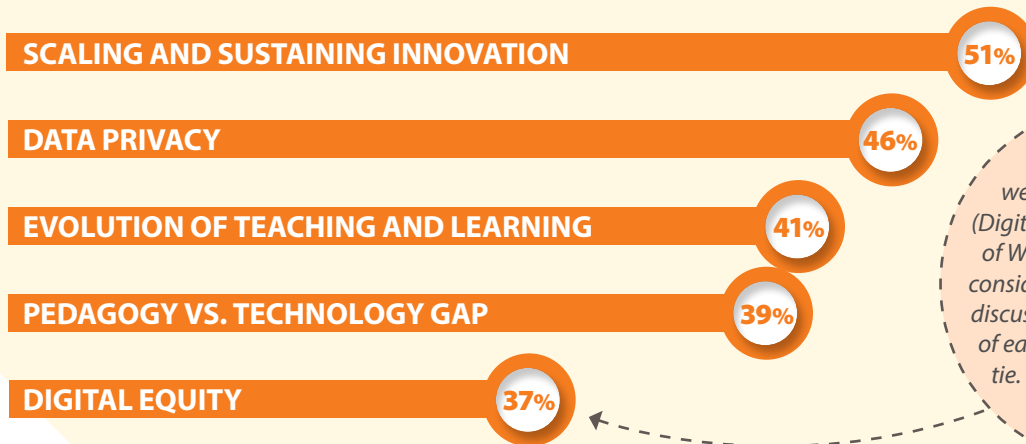
** Featured in this publication.*

† Featured in 2019 publication.

Exploring the Hurdles...

...BY IMPORTANCE

Top 5 most important Hurdles for schools to address in 2020 in order to pave the way for teaching and learning innovation and extraordinary student outcomes (76 respondents):



Two topics were tied for the #5 spot (Digital Equity and The Future of Work). The editorial team considered the Advisory Board discussions and the timeliness of each topic in breaking the tie. The #5 Hurdle for 2020 is Digital Equity.

...BY DIFFICULTY

Top 5 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; (76 respondents)



4.04 – SCALING AND SUSTAINING INNOVATION

3.82 – DIGITAL EQUITY

3.66 – PEDAGOGY VS. TECHNOLOGY GAP

3.59 – EVOLUTION OF TEACHING AND LEARNING

3.59 – DATA PRIVACY

...BY NUMBER

Hurdles currently experienced by the largest number of Advisory Board members who are working in a school, district, or a K-12 organization focused on teaching and learning (54 respondents)



Exploring the Accelerators...

...BY IMPORTANCE

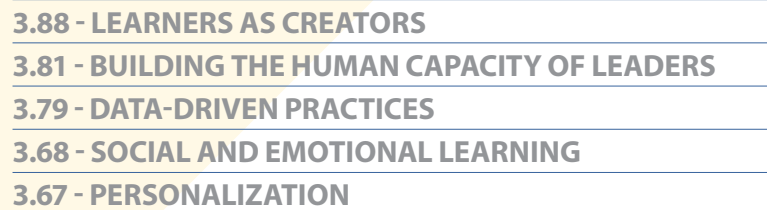
Top 5 most important Accelerators for schools to address in 2020 in order to pave the way for teaching and learning innovation and extraordinary student outcomes (72 respondents):



Three topics were tied for the #4 spot (Social and Emotional Learning; Building the Human Capacity of Leaders; and Learner Autonomy). The editorial team considered the Advisory Board discussions and the timeliness of each topic in breaking the tie. The #4 Accelerator for 2020 is Social and Emotional Learning; the #5 Accelerator is Building the Human Capacity of Leaders.

...BY INTENSITY

Top 5 Accelerators in order 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; (72 respondents):



...BY NUMBER

Accelerators currently experienced by the largest number of Advisory Board members who are working in a school, district, or a K-12 organization focused on teaching and learning (54 respondents)



Spotlight: Data

Data currently is a major issue in education, and appears in the heart of conversations about teaching and learning, safety, leadership and management, equity, and human rights.¹ Data can provide powerful insights, but these opportunities are tangled with risks and challenges that can have disastrous consequences and block innovation. The Driving K-12 Innovation Advisory Board identified Data Privacy (a Hurdle) and Data-Driven Practices (an Accelerator) as two of the top topics for K-12 innovation in 2020. The next section of this report explores these two key elements of data in education.

Hurdle: Data Privacy

Data Privacy defined: Student data can be a powerful tool for teaching, learning, and student support. Yet increases in use and awareness of student data spark more questions about student data privacy, collection, and control. Schools are challenged to create digital ecosystems—and this depends on building understanding and fostering active participation in the complexities of data and data governance.



Exploring the Challenge.

"As more data is collected by ever more systems, tools, apps and the like, we must grapple with the complexity of keeping that data safe" (Peter Drescher, State Educational Technology Directors Association, Vermont, U.S.).

Data Privacy is a complex, multifaceted, and critical issue for education. Three of the nuances that complicate this Hurdle and make it difficult to surmount are Awareness and Competency, Legal Requirements, and Policies and Processes.

Awareness & Competency. Educators and students often have limited understanding and awareness of data privacy issues that permeate the use of technology in and beyond the

classroom. Those who are aware often do not have the knowledge, time, or support necessary to navigate these potholes. Mobile devices and Internet-connected technology are ubiquitous in the lives of many students, and it is imperative that they understand data privacy issues as well as know how and when to protect data.² Further-



WE MUST GRAPPLE WITH THE COMPLEXITY OF KEEPING THAT DATA SAFE."

—Peter Drescher, State Educational Technology Directors Association, Vermont

more, the vast majority of children worldwide have an online presence at a very young age, one usually shaped by their parents.³ "That means a massive amount of public information about them might be generated before they are able to understand what it means to give consent."⁴ Educators, parents, and policymakers are challenged to consider how

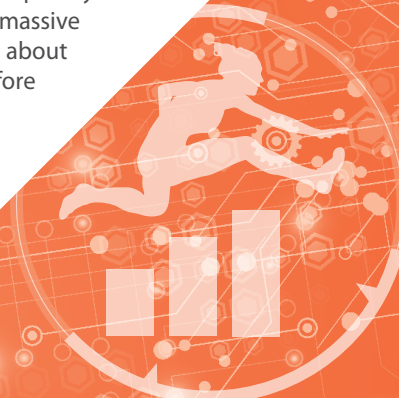
children and students' data privacy and rights should be understood and protected, and the role of education institutions in this.

Legal Requirements. "Addressing student data privacy is complicated by well-meaning individuals who are eager to provide resources to students without considering the data privacy ramifications. Unclear laws, or an unclear understanding of laws that must often be interpreted by educators, not someone with a legal background, further complicates the issue" (Susan Moore, Meriden Public Schools, Connecticut, U.S.).

Educators and school systems must navigate a complex, often multi-layered, set of laws related to data privacy in education. Requirements vary by district, state, and country. In the United States, schools must consider federal and state laws⁵, and the technological and legal environments are ever-changing. Educators and district leaders are currently faced with interpreting and applying legal requirements.

The General Data Protection Regulation (GDPR) has many implications for education, and those schools that must comply still face challenges.⁶

As schools evolve, innovate, and test new technologies, their GDPR



compliance remains critical. For example, a Swedish high school was recently fined for its pilot of facial recognition technology for attendance tracking.⁷

Policies & Processes. Existing student data privacy policies and procedures are often outdated or insufficient in the face of new technologies and an evolving education landscape, and revising or creating these policies is not straightforward. For example, The American School of Lima in Peru is working on its Child Protection Policy, which includes data protection. “This is a hurdle to us because of all the information systems we used... that contains private information from our students, teachers and parents, and on top of that, they are hosted in the cloud by each of the developing companies’ servers worldwide” (Daniela Silva, M.Ed., The American School of Lima, Peru). In creating or updating their data policies and processes, many schools and districts look to organizations, literature, and government resources that focus on student data privacy. Yet recommendations often differ making it difficult to know

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DO NOT
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IMPACT DATA
CAN HAVE.”

—Chad Stevens, Amazon Web Services, Illinois, U.S.

how best to proceed.

Schools and districts also face challenges in implementing their data policies and procedures, including availability of funding and expertise. Technology vendors are an important partner in protecting student data, but they may not always have a strong understanding of relevant education and privacy laws. It can also be difficult for districts to keep up with changes to vendor technology and policies. “Time is limited. It can take weeks for offshore sites to be reviewed and

advice applied. Teachers give up trying to utilise relevant and engaging tools because it’s just too hard to work through the hurdles in time” (Karen Swift, James Nash High School, Australia). This can make it difficult to navigate the goals of protecting student data, teaching and learning innovation, and preparing students for responsible technology use and digital citizenship.



Imagining the Potential.

“People often do not understand the positive impact data can have on improving student outcomes. From using machine learning to develop predictive models to identify students that need support, to leveraging data to adjust instructional programs, we should arm teachers with the best tools to enhance learning environments. I always say nobody wants a doctor to have less data if you are sick and need help, so why not apply this to education as well?” (Chad Stevens, Amazon Web Services, Illinois, U.S.). The Data Quality Campaign details four priorities to make data work for all students: measure what matters; be transparent and earn trust; make data use possible; and guarantee access and protect privacy.⁸ This resonates with the Advisory Board’s insights into the potential of data privacy. In this vision,

- ▶ educators, students, parents, and vendors/partners have the awareness, knowledge, support, and ability to protect data privacy, facilitate appropriate control, and leverage data appropriately for student success;
- ▶ legal requirements are adequate, easy to understand, and implementable;
- ▶ policies and processes include and respect stakeholders, appropriately direct action, and evolve to meet new technological and societal complications;
- ▶ students have agency over their data; and
- ▶ it is easy to responsibly use and protect data.

“

THIS IS A HUMAN ISSUE NOT A TECHNOLOGY ISSUE. IT IS ABOUT CHANGING THE KNOWLEDGE, HABITS, AND BEHAVIORS OF PEOPLE”

—Marlo Gaddis, CETL, Wake County Public School System, North Carolina, U.S



Surmounting the Challenge.

“This is a human issue not a technology issue. It is about changing the knowledge, habits, and behaviors of people” (Marlo Gaddis, CETL, Wake County Public School System, North Carolina, U.S.). Surmounting the Hurdle of Data Privacy requires building awareness and competency, developing policies and practices, and prioritizing and driving change.

These efforts must be ongoing as technology and legal requirements continue to evolve. Schools and districts can leverage resources⁹ from researchers and practitioners and learn from the efforts of other schools and districts.

Build Awareness & Competency.

“Awareness is an important first step but this needs to be used as a foundation for developing a more explicit understanding of how to keep data secure online and to meet privacy expectations” (Andrew Smith, Education Services Australia, Australia).

To surmount this challenge, educators at all levels, across the organization must be educated about student data privacy. The Advisory Board recommends that schools and districts

- ▶ implement regular awareness campaigns that highlight both the issues of data privacy and the benefits of data for education; and
- ▶ celebrate education innovation and technology use that aligns with data privacy values.

“In my district, this Hurdle materialized and became my main focus as technology director when we began providing devices to students and teachers for both in school and out of school use....In our case, it was on us (edtech leaders) to train the teachers, administrators, students, and staff on the ethical and legal ramifications of using apps and software that are not vetted by the

district. We are in the process of developing multi-year professional development, processes for requesting apps and software and creating a resource library for our staff and teachers” (Eileen Belastock, CETL, Mount Greylock Regional School District, Massachusetts, U.S.).

Schools and districts should include parents as part of the conversation around data privacy and technology use for education. It is important to ask “what do the parents know, and what do they need to know? Then, start with the basics—communicate to parents why you have the policy, what protections you’re putting in place, and how they will help the students.”¹⁰ Partner with parents to build a community around protecting student data.¹¹

Students are also important partners in their own data privacy and protection, and that of their peers. Educators must intentionally develop student competency with technology use, cyber safety, digital citizenship, and privacy. “One reality of the increasingly connected K–12 classroom is even the youngest students are routinely going online, using email and engaging with mobile apps that collect their information.”¹² Many students are both tech-savvy and insufficiently adept at protecting themselves online.¹³ These articles and organizations offer suggestions and resources for teaching digital skills to students of various ages.¹⁴

Education technology providers are an important partner in student data privacy and legal compliance. Open and maintain channels of communication with vendors and





potential providers to build understanding on both sides of the relationship. “It is critical for industry to assist schools by providing tools that integrate strong data privacy, along with respecting the transparency that needs to be involved in the use of student data” (*Chad Stevens, Amazon Web Services, Illinois, U.S.*). CoSN’s Protecting Privacy in Connected Learning initiative provides two resources to help schools discuss data security with vendors and vet online tools.¹⁵ Additionally, Commonsense Media provides resources to help review the practices and policies of technology providers¹⁶ and the International Association of Privacy Professionals shares privacy news and resources¹⁷. These resources can help you begin your own assessments and serve as a launching pad for your work.

For example, the New Hampshire Student Data Privacy Consortium (NHCTO) partnered with The Education Cooperative (TEC) who partners with vendors around student data privacy agreements. This allows “districts throughout the small state of New Hampshire to have a voice and to have an impact on protecting their staff and student privacy....New Hampshire has a tough data privacy law and the New Hampshire Department of Education has provided districts with minimum standards that vendors must meet. These partnerships between vendors, TEC, the NHCTO and the state are a collaboration that is assisting in helping all New Hampshire districts reach higher lev-

els of data privacy” (*Holly Doe, Bedford School District, New Hampshire, U.S.*).

Develop Policies & Practices. “As a school system we’ve been intentional about socializing and continuously reiterating data literacy and data culture in order to help facilitate system coherence. This includes a complete

“ FOR SCHOOL DISTRICTS, DATA PRIVACY IS A MULTI-STAKEHOLDER PRIORITY.”

—*Vince Humes, Ed.D., CETL, Northwest Tri-County Intermediate Unit, Pennsylvania, U.S.*

revamp of the data governance structures, professional development, visualizations and system alignment associated with our data system” (*Teshon Christie, CETL, Kent School District, Washington, U.S.*).

Alongside building awareness and competency of the complexities of data privacy, schools and districts need to develop policies and processes to guide data use and protection. CoSN’s Protecting Privacy in Connected Learning Initiative provides recommendations for school districts that are building or growing their data protection programs.¹⁸

“For school districts, data privacy is a multi-stakeholder priority, and it touches every aspect of operations—from student transportation to instruction, assessment to athletics, and counseling to community initiatives.”¹⁹ For example, the Baltimore County Public Schools’ Growing Up Digital ecosystem includes information, recommendations, and resources on data privacy, digital literacy, online security, and other key elements of today’s digital and education world.²⁰ CoSN²¹ recommends that school systems:

- ▶ stay current and compliant with federal and state laws;
- ▶ address community and stakeholder expectations early and often;
- ▶ keep instructional impacts in the picture;
- ▶ mitigate risk with responsive, responsible, privacy administration and management; and
- ▶ provide training for educators and staff across the organization.

The Advisory Board also recommends that districts/schools:

- ▶ research the educational value, data protection, and systems integration of technologies under consideration;



- ▶ focus on the purpose of data collection and use - to support teaching and learning;
- ▶ specify what and how data is shared with third party companies;
- ▶ approach data proactively and include data as a regular, ongoing responsibility; and
- ▶ craft policies and processes that make it easier for educators to use technology and be compliant.

Prioritize & Drive Change. Educators, schools, and districts must be active in addressing data privacy and shaping the future of data use and protection for education. “The policies and procedures are important. Yet, without our staff’s active involvement and understanding, we are

Mernaugh of the Illinois State Board of Education recommends that states interested in doing similar work “engage educators early in the project, collect continuous feedback from early adopters, and prioritize work based on educator feedback throughout the life of the project. By centering teachers’ experiences and input throughout the development of a dashboard, you will help ensure that the included data really meets their needs, which ultimately encourages wider adoption and use to better support students.”²²

Leadership is central to successfully overcoming the Hurdle of Data Privacy.²³ CoSN’s Trusted Learning Network recommends six leadership practices for driving data privacy in schools: knowledge, compliance, setting expectations, designated lead, transparency, and resources.²⁴

Accelerator: Data-Driven Practices

Defining Data-Drive Practices: With more student engagement/performance and other kinds of data being collected, schools are leveraging that data to make decisions about curriculum, hiring, teaching and learning, and

 **Exploring the Opportunity.** “If you want to know if something is working or how to improve a system, you gather, look and learn from that data” (*Helen Crompton, Ph.D., Old Dominion University, Virginia, U.S.*).

The global mega-trend of Data-Driven Practices has major implications for education. Data can guide educators to dramatically improve teaching and learning for student success, direct education administration, and enable innovation. In the U.S. student data is collected by schools, districts, states, and federal government to inform teaching & learning, direct resource allocation, assess outcomes, and inform the public.²⁵ According to the Data Quality Campaign 2019 parent and teacher poll, conducted in the U.S., “more than 90 percent of parents say that they support teachers using data to ensure that students are getting the support and enrichment they need, and 86 percent of teachers agree that using data is an important part of being effective in their jobs.”²⁶

For example, many governments and educational organizations in sub-Saharan Africa are leveraging technologies like Geographic Information Systems (GIS) to collect data and inform decisions. GIS has been used for school planning (Mali and Nigeria), to identify rural schools for the Primary School Nutrition Programme (South Africa), and to better understand education facilities, enrollment, support²⁷.

“Effective, bias-mindful, appreciative data-driven practices yield insights on exemplar practices, the level of efficacy for tools & strategies, provide immediate feedback to students and educators, and can provide insights into what works where within and across large systems” (*Philip Neufeld, MBA, Ed.D, Fresno Unified School District, California, U.S.*).

Data can be used to track student progress and identify students who are struggling. For example, Meriden Public Schools in Connecticut, U.S. is using “on-track” reports which are shared and discussed with students, and used for goal setting and progress monitoring.²⁸ Data can also shift the focus from

“ IF YOU WANT TO KNOW IF SOMETHING IS WORKING... YOU GATHER, LOOK AND LEARN FROM THAT DATA.”

—Helen Crompton, Ph.D., Old Dominion University, Virginia, U.S.

getting nowhere fast” (*Vince Humes, Ed.D., CETL, Northwest Tri-County Intermediate Unit, Pennsylvania, U.S.*).

For example, the U.S. state of Illinois is implementing a student data dashboard to empower teachers and provide secure access to data. Kara

technology investments. Increasingly, school leaders are using data visualization to view academic and operational outcomes.

Data-Driven Practices include, but are not limited to, data-driven decision making.



content to student understanding, skill development, and learning application²⁹, and enable students to assess and direct their learning progress. For example, “in many grade levels our students are analyzing their performance on local assessments to set their own goals for the next time they are assessed...We are also taking a serious look at useful tech driven formative assessments and how important it is for the teacher to have quick actionable data to alter instruction to better personalize the learning in the classroom” (*Holly Doe, Bedford School District, New Hampshire, U.S.*). Personalization is another powerful opportunity supported by data.

Beyond teaching and learning, data-driven practices can assist with education administration and systems that surround learning. Data can help reduce decision-making risks³⁰ and support safety, security, and threat prevention in education.³¹



Illuminating the Complications.

Across the globe, use of data-driven practices in schools and districts ranges from no or introductory data use, to data for benchmarking and

foundational data-driven practices, to innovative applications and leveraging emerging technology. Across this spectrum of situations and applications, nuances of data-driven practices complicate educators’ ability to leverage this Accelerator. These complications include understanding and capability to leverage data effectively and responsibly, processes and security, and data relevance and usability.

Understanding & Capability.

In general, teachers believe that data is important for effective teaching, but it is often up to the teacher to develop and apply the necessary data skills.³² According to the OECD, teachers need capability, motivation, and opportunity to use data to inform their work.³³ Schools and districts must invest in training and application of data, and this can be costly and time-consuming. Educators also need support to leverage operational data for school activities beyond teaching and learning. Furthermore, districts must foster understanding with parents, students, community members, and other stakeholders.

EDUCATORS NEED SUPPORT TO LEVERAGE OPERATIONAL DATA.

Processes & Security. Educators, including teachers, must also be included in designing data processes, priorities, and implementation, and districts must build trust around data and data use. Data Privacy, one of the top Hurdles for K-12 innovation, also complicates schools’ ability to leverage Data-Driven Practices. Many of the nuances of Data Privacy also apply to Data-Driven Practices, including the necessity for awareness and understanding, legal compliance, and appropriate policies and procedures. Unresolved privacy concerns can make educators reluctant to pursue data-driven practices.

Data-driven security and surveillance practices are a critical and timely issue for K-12 education. In the face of school shootings, bullying, and violence in and around education settings, many districts are implementing security solutions that rely on data, artificial intelligence, and surveillance technology. For example, many schools are “investing in new security technologies that scan social media posts, school assignments and even student emails for potential threats.”³⁴ Yet even new technology solutions

“There also needs to be ways for districts to analyze data quickly so it is actionable” (Holly Doe, Bedford School District, New Hampshire, U.S.). Data must be accessible to educators and presented in formats that are both easy to understand and reflect the complexity of student learning.

There are also important equity considerations for data-driven practices. Data can be leveraged to support equity, but it also has the potential to exacerbate existing biases and inequalities, and harm student learning

higher levels of data fluency (and literacy)” (Kim Flintoff, Curtin University, Australia).

To leverage this Accelerator, school systems must provide training, professional development (PD), and support for educators to develop their data knowledge and skills. For example, in the European Union, the DATADRIVE project is providing educators with knowledge, skills, and resources to use data. With collaborative partners from six countries, this project is developing, piloting, iterating,



THERE IS A GREATER NEED TO UNDERSTAND HOW DATA CAN INFORM OUR DECISION MAKING”

—Kim Flintoff, Curtin University, Australia

are no guarantee of increased student safety and they come with critical privacy and civil liberties issues.³⁵

Corporate partners and vendors are important partners in data-driven practices, working with educators and school systems to develop and implement tools that provide information about teaching, learning, and operations. Yet resources, school readiness, and vendor priorities can be barriers to successful collaboration.

Relevance & Usability. Beyond knowledge and processes for data-driven practices, schools also face challenges with the data itself. Existing data may not be able to produce the desired insights, being irrelevant, incomplete, or untrustworthy, or overly simplistic to describe complex phenomena.

and success.³⁶ For example, a recent study illuminated and “explored tensions between accountability-driven data use and data use for continuous improvement, data use to confirm assumptions and data use to challenge beliefs, and the use of data for tracking and flexible grouping.”³⁷



Leveraging the Accelerator.

Leveraging the global mega-trend of data-driven practices requires school systems and educators to build understanding and data competency, design processes that enable decision-making, and consider data relevance and usability.

Build Understanding & Skills.

“There is a greater need to understand how data can inform our decision making and requires much

and deploying frameworks, tools, and training to help educators use evidence for school improvement and student success.³⁸

A recent study in an urban district in the United States reviewed the implementation of a data-driven decision making (DDMD) program to “develop principals’ capacity to analyze, manage, and make good use of their school-level data.” The program included a quantitative data dashboard and bimonthly professional development. The study suggests four recommendations for other schools: “(1) Clearly define the goals for capacity building, (2) Plan for changes in PD culture and alignment, (3) Anticipate additional technical requests and desires for assistance, and (4) Build trust in DDDM.”³⁹

Educators must place learners



at the heart of data initiatives and data-driven practices, and students should also be engaged in understanding and using data. For example, students created an infographic to visualize their mobile phone usage as part of Michael Lambert's Big Data class at Concordia International School Shanghai in China. "It was one of those 'ah-ha' moments. Creating a personal visual infographic is like watching yourself on video" (*Michael Lambert, Concordia International School Shanghai, China*).

Design Processes. "Leveraging data seems so simple...but is a big challenge. It has to be an entire district focus to really make a difference. You have to show it in all functions of district operations to ensure that it is a culture point throughout the district. Putting small pieces of very relevant, actionable data in front of teachers and administrators to get started is the most critical step to start building a culture around data driven practices" (*Kris Hagel, CETL, Peninsula School District, Washington, U.S.*).

In addition to advancing understanding and capability, schools must design processes and systems that enable easy and appropriate data collection, analysis, and use. This "involves organising day-to-day work in a way that enables and encourages teachers to engage with



LEVERAGING
DATA SEEMS
SO SIMPLE ...
BUT IS A BIG
CHALLENGE."

— *Kris Hagel, CETL, Peninsula School District, Washington, U.S.*

each other and in activities around making use of evidence. Authorities and school leaders can support this by providing and helping with knowledge management systems, and by weighing the costs and benefits of changing a school's work processes.⁴⁰ Districts should establish research partnerships and collaborate with teachers to design and iteratively improve data practices.

School systems must also intentionally build trust and engage with the complex issues surrounding data privacy and rights, including Big Data, data mining, and learning analytics.⁴¹

Focus on Relevance & Usability.

"Understanding what data can (and can't) say, what data we should be collecting, how to better help students learn to understand and use their own data are all critical to maximizing what is possible for learning" (*Jeremiah Okal-Frink, Ph.D., Dell Technologies, New York, U.S.*).

School systems must focus on obtaining and leveraging high-quality, relevant, and usable data—and it is imperative to pinpoint what existing data is capable of revealing. In designing or revising data processes, educators can center efforts around what they hope to learn or measure, and make sure that they collect data relevant to that question. "I wonder if we're trapped in thinking either about the data-we've-always-had or the data we wish we had for the past 20 years (e.g. portfolios)?... What if our conversation about data-driven practices wasn't driven by preconceptions of what data is available?" (*Jeremy Roschelle, Ph.D., Digital Promise, California, U.S.*). Along with this comes the challenge of maintaining complexity of data while making it usable.

Intersections

Data Privacy and Data-Driven Practices are two important and intertwined topics for K-12 innovation in 2020. In order to leverage data-driven practices, it is imperative that school systems address data privacy; data-driven practices and processes can help direct conversation and solutions to data privacy concerns. To address the complications and leverage the opportunities of these topics, the Driving K-12 Innovation Advisory Board suggests that educators and school systems:

- ▶ Build awareness and capability of stakeholders.
- ▶ Invest in professional development.
- ▶ Design and iterate policies and processes.
- ▶ Center efforts around student well-being, learning, and inclusion.
- ▶ Embrace complex change.

Spotlight: Teaching & Learning

THERE IS SIGNIFICANT
CHANGE HAPPENING
AROUND THE HEART
OF EDUCATION—
THE LEARNER.

“In today’s world, everyone needs to know the “why” the “what” and the “how” of learning and clearly understand the emotions that surround the situation of learning” Dr. Beverly Knox-Pipes, BKP Solutions & Nova Southeastern University, Michigan, U.S.). There is significant change happening around the heart of education—the learner. As technologies evolve, societies change, and new insights emerge about how people learn, school systems are adapting to major shifts in the knowledge and skills that students need and the pedagogies and systems that guide student learning. The Driving K-12 Innovation Advisory Board identified the Evolution of Teaching and Learning (a Hurdle) and Social Emotional Learning (an Accelerator) as two key topics for K-12 innovation in 2020. The next section of this report investigates these two aspects of learning.

Hurdle: Evolution of Teaching and Learning

The Evolution of Teaching and Learning defined: The teaching and learning landscape is changing, opening up the opportunity to move toward a balance between teacher facilitation and student learning with the help of technology. As teaching, learning, and learning outcomes are constantly being redefined, schools are tasked with ensuring that teaching practices and pedagogies are not outpaced by technology trends, nor by advances in our knowledge of how people learn.



Exploring the Challenge.

“The rapid evolution of pedagogy; propelled by drivers like the fourth industrial revolution, globalization, climate change; require responsive instructional models and learning experiences that fit local contexts and assure students with critical global values” (*Philip Neufeld, MBA, Ed.D, Fresno Unified School District, California, U.S.*)

Developments in technology, changing work and societal futures, new insights into how people learn, pedagogy innovation, and shifting education priorities are catalyzing changes in teaching and learning approaches. This Hurdle is complicated by technology evolution and adoption, pedagogy and learner-centric approaches, and educator development and support.

Technology. Teaching and learning is changing, yet this evolution may not be as far along as it seems. “The presence of technology makes the classroom look and feel different, but I think that in many cases, the subsequent impact on learning from the technology use is not being leveraged” (*Karen Swift, James Nash High School, Australia*). The implementation of technology in education is not enough in and of itself.⁴² Research on the impact of technology on learning suggest that technology can be a powerful tool for elementary student learning if it is comprehensively integrated with pedagogy.⁴³

For example, education systems in sub-Saharan Africa are increasingly



“ TECHNOLOGY MAKES THE CLASSROOM LOOK AND FEEL DIFFERENT, BUT...THE SUBSEQUENT IMPACT ON LEARNING...IS NOT BEING LEVERAGED.”

—Karen Swift, James Nash High School, Australia

utilizing information communication technologies including cloud-based services, digital textbooks and resources, and open education resources. Over the past five years, teacher access to, understanding of, and enthusiasm for ICTs has grown. However, “governments still focus on providing Internet access, digital content, and equipment to schools, and pay far less attention to helping teachers enhance and transform teaching through technology.”⁴⁴

Rather than focusing on the implementation of a technology, educators must center their innovation efforts around student learning, balancing “learning goals, available technologies,

students’ prior knowledge and learning needs, and the context in which teaching and learning develop.”⁴⁵

Pedagogy. According to the 2018 Organization for Economic Co-operation and Development (OECD) Teaching and Learning International Survey (TALIS), at least two thirds of teachers frequently use “instructional practices” intended to clarify instruction or manage the classroom. A little over half of teachers use “cognitive activation practices” which require students to think critically and problem solve.⁴⁶ Across the globe, educators are challenged to continually adapt pedagogy in the face of

ever-changing technologies, societal futures, and learner needs. “We need to ensure that pedagogies are not only not outpaced by technology trends, but also by advances in our knowledge of how people learn” (*Liz Lee, ISTE, Washington D.C., U.S.*). This ever-changing environment and context-specific considerations of different school systems make it difficult to know what changes to make and how to implement them.

Training & Support. Evolving pedagogy and applying technology for education is complicated by education leadership, educator and community buy-in, and professional development. School systems must lead and support innovation in tangible ways, and leaders must be willing

by the communities they support and their perception of learning practices. Insufficient professional development can prevent educators from trying new ideas and from successfully uniting technology and pedagogy.



Imagining the Potential.

The Evolution of Teaching and Learning has the potential to shift education from a hierarchical teacher-student dynamic to perfectly-balanced partnerships between teachers and students co-creating learning. Faced with the necessity of changing educational approaches, educators and students can evolve teaching and learning together. The 2018 OECD TALIS instrument revealed several shifts in teaching and learning. These

development and support.

Recenter Around Learning. “The greatest promise of learning technology will remain unfulfilled if pedagogy (and associated research) does not evolve alongside it. Also, new approaches are essential to addressing the challenges produced by Future of Work, and supporting Lifelong Learning” (*Ruben Puentedura, Ph.D., Hippiasus, Massachusetts, U.S.*).

More than technology innovation and curriculum, schools must focus on learning. This means actively re-thinking existing practices, re-imagining learning processes and classroom norms, and re-evaluating learner needs. “Innovation at the level of practice must be seen as a normal response to addressing the daily challenges of a constantly changing classroom. Change is not an extra, but a pedagogical problem-solving process that builds on the creative, intuitive and personal capacities of teachers.”⁴⁸

Data collection and analysis can help illuminate student learning and development—including academic and non-academic outcomes—but the application of technology solutions must be led by learning. For example one Fresno Unified School District in California, U.S. is focusing on learning and evolving pedagogy through their Personalized Learning Initiative. This project is “based on a pedagogical model designed to foster a collaborative learning culture where teachers and students take ownership over their own learning”⁴⁹

and leverages professional development, data analytics, and vendor partnerships.

These resources offer additional suggestions for teaching and learning innovation and learning-centered pedagogy.⁵⁰

Redefine Teacher and Student Roles. Along with changing pedagogy, the evolution of teaching and learning challenges educators to re-define the roles of teachers and



THE APPLICATION OF TECHNOLOGY SOLUTIONS MUST BE LED BY LEARNING.

to step out of their comfort zone envision and model innovation. This Hurdle is complicated by those who are resistive to change, prefer not to collaborate, or lack the time to invest in change-making. “Systemic narrow focus on student academic outcomes partnered with teacher recognition tied to student performance creates inertia in teacher practice” (*Karen Swift, James Nash High School, Australia*). Educators may also be influenced

changes include an increased use of student assessments and improvement in teacher-student relations across the 48 countries and economies included in the survey.⁴⁷



Surmounting the Challenge.

Addressing the ongoing Hurdle of teaching and learning evolution requires a multifaceted approach that unites pedagogy shifts, learner-centric approaches, and educator

TEACHERS ARE LEARNING ...FROM STUDENTS USING TECHNOLOGY ON A DAILY BASIS.”

—Lisa Gustinelli, St. Vincent Ferrer Catholic School, Florida, U.S.

students. For example, Winchester Public Schools in Virginia, U.S. has transformed teachers' roles into Personalized Learning Coaches for their new Innovation Center.⁵¹ "This change has in turn reshaped our professional learning plans and teacher evaluation systems to match the new role" (*Jason Van Heukelum, Ed.D., Winchester Public Schools, Virginia, U.S.*).

In Finland, schools are required to offer phenomenon-based learning experiences—student-led, interdisciplinary, project-based activities grounded in the real world. These interest- and discovery-driven projects require teachers to adapt their work "from a more traditional direct-instruction approach to a hands-off one depending on what students need," to provide students with the support, skills, or content for their project and context.⁵²

At Brookside Elementary School in British Columbia, Canada and elsewhere, another approach is being implemented that shifts classroom dynamics. 'Genius Hour' is school time dedicated to student-driven learning on topics that interest them.⁵³

Schools in China, Hong Kong, Indonesia, Singapore, Thailand, and elsewhere are experimenting with technology-enhanced assessment "as a tool to inform and support learners in the systemic pursuit of continuous and lifelong learning, rather than merely for evaluating learners for accreditation and selection purposes."⁵⁴

An important part of moving to teacher-student co-ownership of learning is educator willingness to learn from students. "Many teachers are afraid of new technology developments. Our teachers are learning new strategies

from students using technology on a daily basis" (*Lisa Gustinelli, St. Vincent Ferrer Catholic School, Florida, U.S.*). For example, teachers saw students using an augmented reality cube that allows people to interact with 3D objects and were inspired to leverage this technology for learning in their classes. In addition to partnering with students in the evolution of teaching and learning, it is imperative to bring parents and community members into the conversation and changemaking.

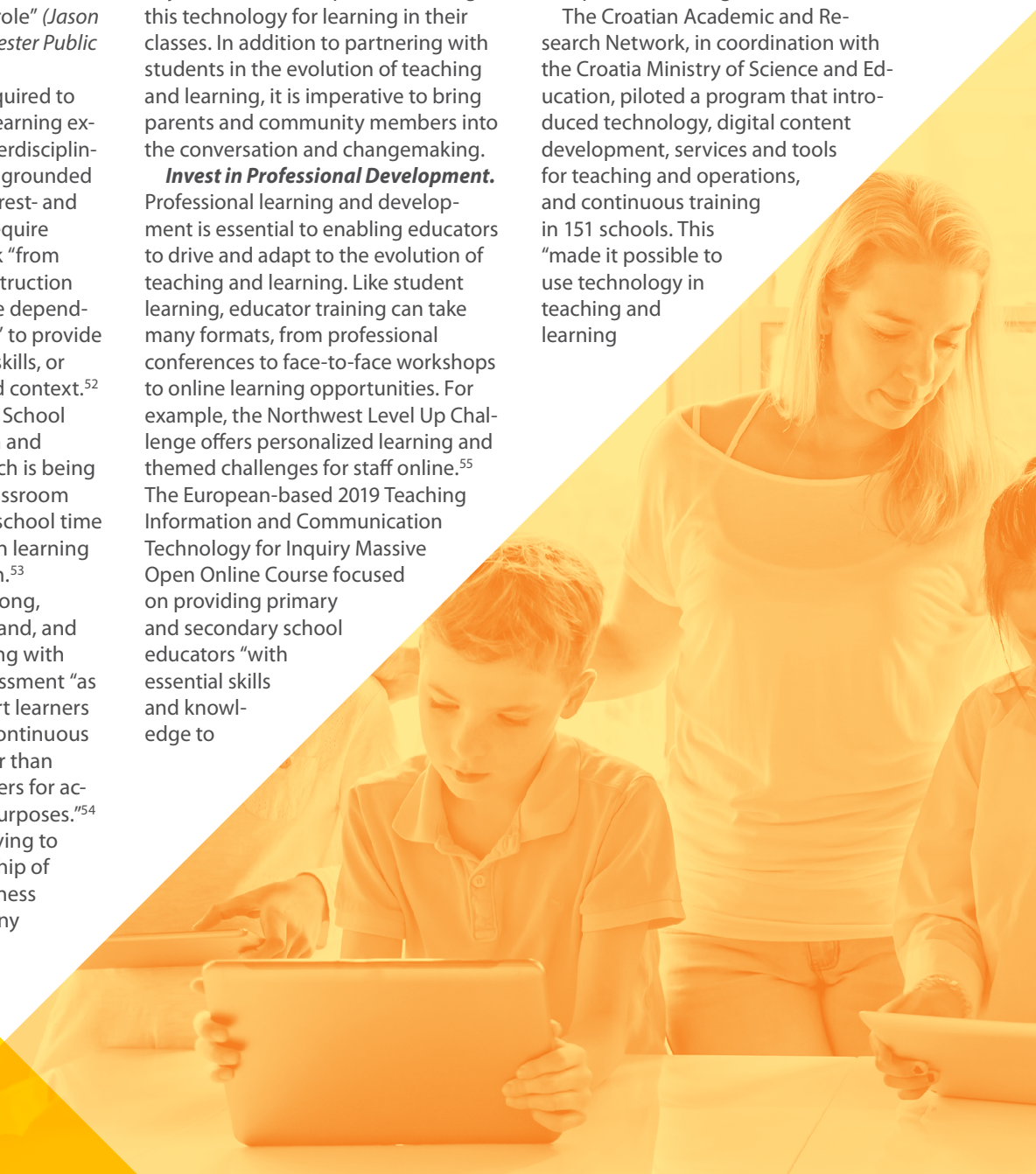
Invest in Professional Development.

Professional learning and development is essential to enabling educators to drive and adapt to the evolution of teaching and learning. Like student learning, educator training can take many formats, from professional conferences to face-to-face workshops to online learning opportunities. For example, the Northwest Level Up Challenge offers personalized learning and themed challenges for staff online.⁵⁵ The European-based 2019 Teaching Information and Communication Technology for Inquiry Massive Open Online Course focused on providing primary and secondary school educators "with essential skills and knowledge to

teach STEM and ICT with the help of inquiry-based pedagogy."⁵⁶ Beyond online courses, social media are also complicating teacher professional development as they provide new avenues for educators to find and share ideas and practices.⁵⁷

Educators need a lot of support, both face-to-face and virtually. For example, the Concordia International School Shanghai in China has instructional coaches who support teachers, assist with educational tools, help design curriculum, and provide training.⁵⁸

The Croatian Academic and Research Network, in coordination with the Croatia Ministry of Science and Education, piloted a program that introduced technology, digital content development, services and tools for teaching and operations, and continuous training in 151 schools. This "made it possible to use technology in teaching and learning





“ THE DEVELOPMENT OF SEL COMPETENCIES WHILE STUDENTS ARE IN SCHOOL PREDICTS A VARIETY OF LATER OUTCOMES.”

—Kaylen Tucker, NAESP, Virginia, U.S.

on a daily basis thus increasing digital competence of school staff” (*Arjana Blazic, Teacher Trainer, Zagreb, Croatia*). The next phase of the project will include all Croatian primary and secondary schools.

Educator attitudes toward and willingness to engage in professional development and change efforts differ. A study in Dutch secondary schools identified five “types” of teachers when it comes to professional development which “could be used to select or match the right group of teachers to a particular intervention or to organize different professional development activities for different types of school teachers.”⁵⁹ These resources suggest ways to foster educator learning and professional development.⁶⁰

Leadership is key to encouraging and supporting educators in overcoming the Hurdles of educational change. The NAESP Center for Innovative Leadership offers resources to help education principals and leaders drive change.⁶¹

Accelerator: Social and Emotional Learning.

Social Emotional Learning defined: Schools are working to build empathy, grit, persistence, flexibility, and adaptability into curriculum, which arguably shapes worldviews and students’ penchant for successful collaboration, problem-solving, and civic responsibility. Further, learning experiences that help build students’ character and identity, encourage creative and social risk-taking are being emphasized.



Exploring the Opportunity.

“Social emotional well-being will be critical in our ability to co-exist, collaborate and implement solutions in a complex and diverse global context” (*Beatriz Arnillas, itslearning, Massachusetts, U.S.*).

Social Emotional Learning (SEL) is widely considered to be essential for students. Understanding and manag-

ing emotions help students succeed at school⁶² and “the development of SEL competencies while students are in school predicts a variety of later outcomes, such as participation in postsecondary education, success in the workforce, civic engagement, and personal well-being.”⁶³ SEL strategies, implementation, and outcomes are a major current focus for education researchers and practitioners, as well as an important topic for achieving the United Nations’ Sustainable Development Goal #4.7: Education: Sustainable Development and Global Citizenship.⁶⁴

SEL “has to do with feeling safe, being encouraged and able to take social risk, finding your identity in the learning, making the learning experiences authentic to yourself” (*Peter Drescher, Vermont Agency of Education, Vermont, U.S.*). The Collaborative for Academic, Social, and Emotional Learning (CASEL) outlines five SEL competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.⁶⁵

When EDUC'4x100 switched to a project-based learning STEAM curriculum at Colegio Bandeirantes in Sao Paulo, they integrated SEL into their hands-on approach. "School should be a lab for life skills, giving students the opportunity to practice social interactions in a safe, moderated environment where an adult can help them learn to deal with conflicts and hardships, giving them tools and strategies to promote respectful dialogue and acceptance" (*Cristiana Assumpção, Ed.D. EDUC'4x100, Florida, U.S.*).



illuminating the Complications.

The Advisory Board identified several nuances and challenges for leveraging Social Emotional Learning, including buy-in and communication, resources and implementation, and academic integration. Their insights resonate with academic literature related to barriers and challenges of SEL adoption.⁶⁶

Buy-in & Communication. Understanding, communication, and buy-in are significant challenges to implementing Social Emotional Learning programs. "There can be push-back from teachers who don't feel like this is a component of their job, or members of the community that don't approve of activities like mindfulness" (*Cheryl Steighner, Tacoma Public Schools, Washington, U.S.*).

For SEL to be effective, educators, parents, and community members need to have a shared understanding of its value, the focus and nature of their school or district's SEL activities, and their role in SEL success. If the community is not on the same page about social emotional learning, then students may receive conflicting messages from different teachers and authority figures.

"We talk about SEL in terms of students but rarely in terms of our own staff/parents/community. SEL is for ALL. When we focus on the social emotional health of the whole community, we better meet the needs of students" (*Marlo Gaddis, CETL, Wake County Public School System, North Carolina, U.S.*). Adult stakeholders must engage in healthy social and emotional practices for SEL to be successful.



SCHOOL SHOULD BE A LAB ...TO PRACTICE SOCIAL INTERACTIONS IN A SAFE, MODERATED ENVIRONMENT."

— *Cristiana Assumpção, Ed.D. EDUC'4x100, Florida, U.S.*

Resources & Implementation.

Successfully implementing SEL interventions is further complicated by often insufficient financial resources, professional development and pre-service training, and time. There is also an overwhelming number of possible interventions of varying levels of quality⁶⁷, and effective SEL is not "one-size-fits-all." SEL must be flexible and responsive to student needs—"focused on strategies for teachers to implement as appropriate, rather than a sequenced curriculum for them to follow."⁶⁸

Effective SEL is important for all, and can be particularly powerful for students experiencing a variety of psychological, social, economic challenges⁶⁹, including adverse childhood experiences.⁷⁰

For example, at a middle school in Wake County Public School System in North Carolina, U.S., a focus group of students and staff identified the challenge of lack of training, understand-

ing, and comfort in working with students who are dealing with trauma. "Educators use SEL in conversations and say that teachers should provide SEL but rarely do districts and schools prepare teachers and/or the students to handle when their community or members are in crisis" (*Marlo Gaddis, CETL, Wake County Public School System, North Carolina, U.S.*). The district has counselors who support students dealing with trauma, but a student's interactions with other staff, teachers, and students are also highly impactful. The district is considering how to address this across the board, from bus drivers to education leaders.

Academic Integration. "If a student cannot get along with others and manage their emotions this gets in the way of all other learning" (*Heather Gauck, NBCT, Grand Rapids Public Schools, Michigan, U.S.*).

Social interactions and emotional nuances transcending academic subjects and permeate life within and

beyond education systems. Yet it is challenging to implement SEL in a way that is integrated with 'academic' learning. "Traditional SEL curricula are often complex and burdensome to implement, and schools struggle to embed program lessons across the day in various contexts."⁷¹

This includes digital and technology-rich contexts, and the prevalence and evolution of technology further complicates the adoption of SEL. "As technology mediates more interactions, addressing SEL in technology-enhanced environments matters more and more" (Jeremy Roschelle, Ph.D., *Digital Promise, California, U.S.*). Technology has the potential to both assist with and exacerbate student social, emotional, and physical wellness issues.



Leveraging the Accelerator.

"I believe we are much better at making learning successful when we have addressed this Accelerator" (Peter Drescher, Vermont Agency of Education, Vermont, U.S.). Leveraging Social Emotional Learning for student success necessitates building understanding and stakeholder investment, driving adoption, and integrating SEL across the school environment.

Build Understanding & Investment.

"The school has to be prepared to make sure everyone has the same

understanding of what are the social-emotional skills that will be taught, what is acceptable and what has to be corrected. If students get mixed messages from different teachers, it undermines the overall goal trying to be achieved" (Cristiana Assumpção, Ed.D., *EDUC'4x100, Florida, U.S.*).

Developing understanding and buy-in from educators, parents, and community members is critical to the success of Social Emotional Learning initiatives. Research on different motivations for engaging in SEL suggest centering conversation with parents around these topics: the benefits of SEL for students; the integration of SEL and academic learning; the roles of all stakeholders in SEL.⁷²

For example, Wake County Public School System in North Carolina, U.S. intentionally opened a channel of communication with parents around social emotional learning and technology use. The district realized that students' social emotional health is related to their behavior with social media and began offering a well-received evening program for parents around social emotional wellness and technology.⁷³

Drive SEL Adoption. Just as parents and educators have a role to play in student's Social Emotional Learning, all stakeholders can promote and drive SEL adoption. "Social-emotional learning benefits everyone. Even if school-wide implementation is not possible, teaching students how to respond to thoughts and emotions appropriately can make a world of difference even in a single classroom. It's especially

important in a technology driven age, because it is so easy for people to say and do things online that they would not do face to face" (Susan Bearden, CoSN, Washington D.C., U.S.).

The Data Quality Campaign provides recommendations for leveraging data to support SEL. "When considering how to measure and support social-emotional learning, state policymakers should build trust by communicating clearly, ensuring that those closest to students are empowered with the information they need, and understanding the connections between social-emotional and academic learning."⁷⁴

To drive SEL adoption, the Advisory Board also recommends that schools and teachers:

- ▶ identify tools and apps that can support students;
 - ▶ incorporate SEL activities into the school day, regardless of subject;
 - ▶ share resources and examples for SEL integration; and
 - ▶ invest in professional development.
- ▶ Integrate SEL. In implementing Social Emotional Learning, schools must consider its holistic integration across academic subjects and throughout school activities. One of the numerous paths for adopting SEL is the CASEL Guide for Schoolwide Social and Emotional Learning, centered around CASEL's School Theory of Action.⁷⁵
- In conjunction with CASEL, the Wallace Foundation and the RAND Corporation are currently conducting a 6-year initiative to better understand and improve SEL practices in school and out-of-school settings.⁷⁷ The Partnerships for Social and Emotional

“AS TECHNOLOGY MEDIATES MORE INTERACTIONS, ADDRESSING SEL... MATTERS MORE AND MORE”

—Jeremy Roschelle, Ph.D., *Digital Promise, California, U.S.*

Learning project aims to understand "whether and how students will benefit if adults in schools and out-of-school time (OST) programs work together to align and improve experiences and climate to foster social and emotional learning."⁷⁸ The intermediate resources and findings emerging from the partnership and these organizations can help educators understand and implement SEL in their contexts.⁷⁹

Intersections

The Evolution of Teaching and Learning and Social Emotional Learning are key, interconnected topics for K-12 innovation in 2020. Both topics are influenced by societal and technological shifts, as well as student needs and experiences. The mega-trend of Social Emotional Learning has the potential to both exacerbate the challenges of the Evolution of Teaching and Learn-

ing and help educators overcome this Hurdle. To take advantage of the opportunities they present, schools and educators should:

- ▶ center efforts around learning;
- ▶ align processes and technology use with student learning and needs;
- ▶ invest in educator training and professional development;
- ▶ leverage data; and
- ▶ intentionally drive change.

CASEL SCHOOL THEORY OF ACTION⁷⁶

1
**Establish
a Shared
Vision**

2
**Assess
Resources
and
Needs**

3
**Embed
Professional
Learning**

4
**Adopt
Evidence
Based
Programs**

5
**Integrate SEL
Schoolwide**

6
**Use
Data for
Continuous
Improve-
ment**

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80. See Online Appendices for complete lists of Hurdles and Accelerators: <https://www.cosn.org/k12innovation>

Appendix A: Methodology

To arrive at the Top 5 Hurdles and Top 5 Accelerators for 2020, the Advisory Board navigated a three-stage process of selecting topics for consideration, discussion, and voting.

Stage 1: Initial Survey

The Advisory Board completed a survey to select the Hurdles and Accelerators for subsequent discussion, focusing on the obstacles and opportunities that are the most important, impactful, and under-examined. From this survey, CoSN narrowed down the original list of 29 Hurdles and 23 Accelerators, carrying forward for discussion 15 Hurdles and 15 Accelerators and adding 5 new Hurdles and 1 new Accelerator recommended by the Advisory Board.⁸⁰ Starting with this more focused list of Hurdles and Accelerators created more time and space for deep, meaningful conversations.

Stage 2: Discussion

Each of the selected topics were discussed by the Advisory Board in an online forum. To focus the conversation, this stage of the process was divided into two parts: Respond to Prompts and Deepen the Discussion. First, the Advisory Board considered a series of prompts related to the actions necessary to understand and respond to the Hurdles and Accelerators.

BUILD—What, if anything, would you change about our current definition of this Hurdle/Accelerator?

PERSONALIZE—What are some of the nuances that complicate this Hurdle? How is this Accelerator materializing at your school/district/municipality?

EXPAND—What are some of the nuances that complicate this Hurdle/Accelerator?

STRATEGIZE—How can we surmount this Hurdle? How can we leverage this Accelerator?

ALIGN (for Hurdles)—Which Accelerators align with this Hurdle?

IDENTIFY (for Accelerators)—What are the current barriers for leveraging this Accelerator?

Building on this foundation, the Advisory Board shifted their focus to responding to colleagues and deepening the discussion. Responses in this part of the discussion were free-form, with no set questions to answer. However, a few ideas provided an optional creative boost to jump start discussion.

CONVERGE or DIVERGE—In what ways does your experience resonate with or differ from your colleague's post?

ILLUSTRATE—What related examples do you see in education or elsewhere?

EXPAND—What questions do you still feel need to be addressed or clarified?

Stage 3: Final Survey

Inspired by this vibrant discussion, the Advisory Board completed a survey to select the most important Hurdles and Accelerators for K-12 innovation in 2020. This final activity of the Hurdles & Accelerators phase illuminated:

- ▶ the Hurdles and Accelerators that Advisory Board members are experiencing in their own K-12 environments (this suggests how many schools/districts are being impacted);
- ▶ the “surmountability” score for each Hurdle and the “intensity” of each Accelerator;
- ▶ the Top 5 Hurdles and Top 5 Accelerators for 2020; and brief justifications, examples, and/or recommendations for the top topics each individual selected.

Online Appendices

The following materials can be found on the Driving K-12 Innovation website, <https://www.cosn.org/k12innovation>.

- ▶ Full list of Hurdles with working definitions for each
- ▶ Full list of Accelerators with working definitions for each
- ▶ Hurdles & Accelerators Initial Survey Questions
- ▶ Hurdles Discussion Prompts
- ▶ Accelerators Discussion Prompts
- ▶ Hurdles & Accelerators Final Survey Questions

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