

5 Guiding Principles of Edtech Selection

Adapted from *Better Edtech Buying for Educators: A Practical Guide*

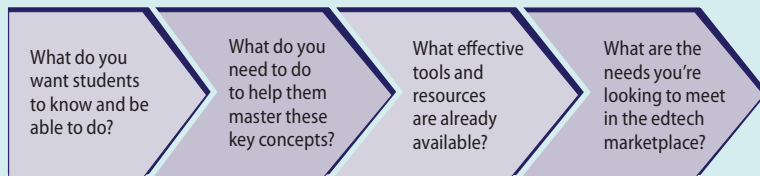
SELECTING THE RIGHT TECHNOLOGY SOLUTIONS to meet the learning needs of students can be a daunting task, often involving a large number of diverse stakeholders with what appear to be competing needs and interests. This guide reframes those difficulties as opportunities, highlighting a path to nimbleness and inclusivity that positions districts and educators as partners, each uniquely suited to explore ways technology can support and advance learning.

1 Alignment with Student Learning Goals and Standards

What do our students need to know and be able to do?

The best way to guide student learning pathways is by beginning with a clear destination in mind. Once you've established these goals, you can identify how to reach them through a system of formative and summative assessments. Only after considering student needs and goals, learning pathways and taking stock of what is currently available does it make sense to start asking what the marketplace has to offer.

IDENTIFYING YOUR EDTECH NEEDS



The Value Add of ISTE Standards

The ISTE Standards describe the way technology might help students and teachers address specific learning goals and amplify learning regardless of content area or grade level. When districts and educators apply the ISTE Standards, they design technology selection, integration and application solutions based on pedagogical best practices and guide the adoption of digital resources based on global technology learning standards.

Alignment to the ISTE Standards communicates that a solution:

- Takes advantage of digital resources for instruction.
- Uses technology effectively and appropriately.
- Promotes digital age learning skills.
- Prepares students for digital age work and life.
- Encourages technology-powered pedagogy.

Supporting Best Practices with SAMR

The SAMR Model provides guidance and a technique for moving through four degrees of technology adoption: substitution, augmentation, modification and redefinition (SAMR). When this model is combined with content and ISTE Standards, they together provide a robust framework that raises the bar on both content and pedagogical requirements for any technological tools under consideration.

THE PROCUREMENT SYMBIOSIS OF EDUCATORS AND DISTRICTS

Educators help districts:

- Surface new school and classroom learning needs.
- Discover and recommend new solutions aligned with these needs.
- Determine whether a solution uniquely solves a problem instead of duplicating existing solutions.
- Share evidence from pilots and trials to verify potential for impact.
- Raise issues of interoperability and usability of student learning data.
- Help inform rollout and implementation plans.
- Provide feedback and input on professional development needs.

Districts help educators:

- Comply with legal and fiscal requirements.
- Protect the privacy and security of student data.
- Ensure compatibility with the district infrastructure and devices.
- Eliminate redundant solutions already purchased and available.
- Offer a level of interoperability to build a more complete picture of student learning and progress.
- Guarantee accessibility and assistive features.
- Assure equity of availability to all educators and students.
- Hold vendors accountable for providing robust support and responding to educator feedback.

2 Importance of Research and Evidence

How do we know what works and what doesn't, and in what context?

The first questions asked when adopting new classroom technologies tend to focus on usability, dependability and affordability. But there are three other essential questions that go beyond functionality and price: **Does it work? For whom? How do we know?**

Considering Levels of Evidence

Among the provisions of the Every Student Succeeds Act (ESSA), signed into law in 2015, is a requirement that all Title I schools purchase evidence-based learning interventions. The law outlines four levels of evidence:

Tier 4. Preliminary. Demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy or intervention is likely to improve student outcomes or relevant outcomes; and includes ongoing efforts to examine the effects of such activity, strategy or intervention.

Tier 3. Promising. Evidence from at least one well-designed and well-implemented correlational study with statistical controls for selection bias.

Tier 2. Moderate. Evidence from at least one well-designed and well-implemented quasi-experimental study.

Tier 1. Strong. Evidence from at least one well-designed and well-implemented experimental study.

Types of Evidence to Consider

When you come across evidence that supports a solution's effectiveness, first ask how reliable the evidence is. Then consider whether the context in which the evidence was collected is similar enough to your own context that you are likely to see similar results.

It is important to read any research with a critical eye. Ask yourself:

- When was the research done? Is it out of date?
- Who conducted the research and who funded it? Did the researcher or funder have a vested interest in a particular outcome?
- What is the sample size and who does it represent? How similar are the participants to those you plan to work with?
- What is the methodology? What type of evidence is provided? Where does it fall on the ESSA tiers?
- Are there outliers in the data, and are they addressed in the interpretation?

To move beyond the limitations of peer referrals and solution-specific outcomes data, schools and districts need to take on new responsibilities to conduct rigorous, systematic self-evaluations. Some partner with researchers at local institutions, while others use digital tools to conduct their own research. For example, the EdTech Rapid Cycle Evaluation (RCE) Coach provides a free web-based platform to help educators and districts plan and execute rapid-cycle evaluations of a solution.

Understanding Types of Evidence

ANECDOTAL: IMPRESSIONS FROM USERS' EXPERIENCES	
Strengths <ul style="list-style-type: none">• Flexible with potential for deep insights• Can provide information on specific contexts and details on how/where a solution was implemented	Common Sources <ul style="list-style-type: none">• Blog posts• Testimonials• Promotional videos• Reflections
Weaknesses <ul style="list-style-type: none">• Weakest form of evidence• Based on an individual's impressions• Cannot provide generalized findings	
DESCRIPTIVE: MEASURES OF OUTCOME OVER TIME	
Strengths <ul style="list-style-type: none">• Provides basic descriptions on potential impact• Common and easy to find in marketing materials and news articles	Common Sources <ul style="list-style-type: none">• White papers• Pre/post examination summaries
Weaknesses <ul style="list-style-type: none">• Leaves out information about critical factors that may have influenced the outcome (e.g. teachers, classroom, curriculum, etc.)• Does not provide comparison group outcomes	
CORRELATIONAL: COMPARISONS OF USERS AND NON-USERS	
Strengths <ul style="list-style-type: none">• Identifies a relationship between use of a solution vs. no-use• Provides comparison group outcomes	Common Sources <ul style="list-style-type: none">• White papers• Comparison charts• Independent researcher reports
Weaknesses <ul style="list-style-type: none">• Does not demonstrate directional causality• Cannot be used as conclusive results	
CAUSAL: ACCURATE MEASURES OF EFFECTIVENESS	
Strengths <ul style="list-style-type: none">• Limits solution as single variable• Only reliable method for demonstrating true effectiveness	Common Sources <ul style="list-style-type: none">• Research journals• Summaries or peer reviewed articles• Independent researcher reports
Weaknesses <ul style="list-style-type: none">• Difficult and expensive to conduct	

Created based on information from Understanding Types of Evidence: A Guide for Educators, published by the Mathematica Center for Improving Research Evidence (bit.ly/2tNzDAv).

Conducting a Pilot Study

Pilot studies can help early adopters build a body of evidence for approval of a new tool or resource or jumpstart the procurement process for wider adoption. From the system level, partnering with teachers to engage in pilot studies can determine validity and reliability of a resource without committing to something that might not be an effective answer to identified needs. Digital Promise's Edtech Pilot Framework describes a comprehensive eight-step process for running successful pilots, with resources for pilot design and implementation, analyzing and collecting data and negotiating purchases.

3 Data Interoperability and Student Privacy

How do solutions collect, share and secure student learning data?

According to Project Unicorn, the term *interoperability* refers to the seamless, secure and controlled exchange of data between systems and applications. Without interoperability, schools bear the financial burden of manually performing tasks that applications should do automatically. This builds hidden costs into every solution that lacks interoperability support.

The Importance of Data Integration

Without the seamless integration and sharing of data across solutions, educators may be forced to:

- Manually enter student roster and other information into each tool separately.
- Keep track of multiple usernames and passwords, and log in to multiple dashboards to retrieve reports and access student learning data.
- Manually export and synthesize data across solutions to get a big picture view of student learning.
- Put students at risk because of insufficient privacy and security protections for student data.

Impact of Data Interoperability on Productivity

Seamless data exchange between applications and course management systems can save educators hours on administrative tasks. Interoperability also makes it easier for districts to verify and monitor that an edtech tool has sufficient privacy and security protections. Districts are requiring vendors to support common data standards to be considered in procurement processes; these standards are necessary to share, exchange and understand data.

Support for these standards by an edtech resource typically ensures that it will share data with other edtech resources that support the same standards. Examples include:

- Ed-Fi Alliance provides interoperability standards and services for data sharing among educational solutions with user-friendly resources for schools and districts to get started.
- Common Sense Education Privacy Evaluation Initiative strives to bring transparency to data privacy issues and provides teachers with resources to help make more informed edtech decisions.
- Data Quality Campaign leads advocacy efforts around the use of student data to improve learning.
- IMS Global Learning Consortium is a member community that provides a suite of interoperability standards and specifications for data sharing across solutions and devices.
- The Common Education Data Standards (CEDS) initiative provides data standards and supports for education data spanning the early childhood to workforce continuum including tools, data models and technical assistance.
- The Access 4 Learning (A4L) Community provides freely available, community developed, non-proprietary specifications for sharing data among educational solutions.

Improving Privacy and Security

It's essential that educators keep student data private. This is a requirement of federal and state laws governing schools and data sharing for minors. Even while protecting the privacy of student data, schools can still allow controlled, secure access by trusted individuals when doing so helps students learn and helps educators do their jobs better.

According to the 2016 Future of Privacy Forum Survey, the overwhelming majority of parents surveyed support the collection and use of the following student data by educators and administrators in schools or at the district level for educational purposes: grades, attendance records, special needs status, standardized test scores and disciplinary records. A strong majority supports the collection and use of addresses and phone numbers, health records, participation in school lunch/breakfast programs and criminal records. Parents, however, have varying levels of comfort with who has access to the data, with edtech vendors near the bottom of the list.

Getting data privacy and security right can mean an interoperable data ecosystem that helps educators and parents better understand a student's needs and successes. For this to work, student performance data must flow securely from edtech vendor systems back to the school and from the school to other systems that allow that data to be analyzed and made available for teachers and families.

To help educators strike the right balance between interoperability and security, some nonprofits have created guidelines for assessing a solution's compliance. Common Sense Education evaluates popular edtech tools based on their ability to meet legal privacy requirements and best practices, while the Consortium for School Networking (CoSN) provides an easy-to-follow guide for vetting how edtech tools follow the various privacy policies.

DATA PRIVACY LAWS

Districts are emphasizing and prioritizing solutions that meet the various federal, state and local privacy laws such as:

- Child's Internet Protection Act (CIPA)
- Child's Online Privacy Protection Act (COPPA)
- Family Educational Rights and Privacy Act (FERPA)

4 Challenges of Implementation, Use and Ongoing Support

Do we have the right people, policies and resources in place?

Sustainable, systemic and effective procurement partnerships between school/district leadership and educators require their own type of infrastructure for support. Assessing your system's essential conditions for success and building educator capacity for understanding student needs can help ensure successful procurement, rollout, implementation and evaluation.

Leveraging the ISTE Essential Conditions

The ISTE Essential Conditions provide a framework for educators and their schools and districts to understand the elements necessary to implement and leverage technology for learning effectively.

School and district responsibilities include:

- Ensuring that there is a systematic plan in place for the use of digital learning resources that focuses on student-centered teaching and learning practices.
- Having policies in place to ensure equitable access to the digital resources, as well as financial plans, accountability measures, incentive structures and other policies to support technology use throughout the school or district.
- Empowering educators to take part in the decision-making process and soliciting regular feedback from educators about how things are working (or not).
- Ensuring that educators get sufficient training, support and time to plan and use technology in their classrooms.

Educator responsibilities include:

- Contributing to the development of a shared edtech vision in their school/district.
- Advocating and requesting ongoing professional learning opportunities to ensure that they are effectively leveraging available solutions.
- Making sure digital curriculum resources align with and support digital age learning and complement standards and student learning goals.
- Getting support both in learning how to use a solution and in knowing how to apply it to their classrooms.
- Making sure they know how to get technical help without significant lags.
- Providing ongoing feedback to support the continual assessment and evaluation of digital solutions.
- Maintaining an open relationship and ongoing communication with parents about what's happening in the classroom.

District-Level Levers for Success

Before a new resource is deployed, budget for and ensure that educators have access to ongoing, quality training and technical support. Consider the development of professional learning opportunities as an opportunity for partnership building. Rather than leaving classes and workshops to prepackaged, external PD or building a standard-issue district slideshow, engage educators in building the kinds of professional learning they wish they could attend. In addition, plan how you'll capture and share implementation success stories.

Without easy-to-use and responsive communication channels, technology implementations are much more likely to fail. A solution may be too complex or might not be a good fit for some classroom environments. Teachers might find that the tool isn't flexible enough to integrate successfully with existing content and resources. Without feedback channels, school and district leaders are unlikely to know a new effort is failing until after educators have made up their minds.

Even with the best planning, district leaders will face recalcitrant users who feel certain that edtech can't improve learning. Being open to questions, building supportive relationships between reluctant users and their successful peers, identifying the specific frustrations faced by individual teachers and thinking through how these new tools might ease their struggles can all help shift thinking and reduce resistance.

Educator-Level Levers for Success

Educators looking to play a larger role in edtech procurement should consider two key words for approaching the process—"how might." "How might I join in the selection of the new technology announced for every math classroom?" or "How might we make a clearer pathway for approval of teacher-discovered mobile apps?" A key phrase in many design-thinking protocols, asking how might assumes good will and opens your audience to the possibility of a new way of doing things.

In addition, coming to the conversation with evidence of need and potential solutions sets a positive tone. By running small-scale, classroom-level, sanctioned pilots, teachers can demonstrate the power of innovative tools and practices to improve student learning. Organizing or joining professional study teams or learning networks and sharing your learning with district leaders can also light the path for success.

To learn more about the Essential Conditions, go to:
www.iste.org/standards/essential-conditions

5 Educators as Purchasing Partners

What questions should we be asking, and how do we bring everyone to the table?

By reimagining procurement and bringing all stakeholders into partnership, schools and districts will be better positioned to ensure that classroom technology meets student needs. You have the ability to change learning.

Guiding Questions

The questions provided here are catalysts to help schools and districts reimagine and refine edtech procurement processes. A *no* or uncertain answer to any of these key questions should give your team pause and lead to follow-up conversations before other, less imperative questions are considered.

When Evaluating Current Procurement Practices

1. How do we ensure our procurement practices include educator voice?
2. What are our guidelines regarding the acquisition of edtech solutions outside of the school or districtwide process? Can we co-design formal or informal protocols to offer clarity and guidance?
3. How might we systematize the evaluation of solutions and apps and share lists of approved resources?

Before the Purchase

1. What problem are we trying to solve?
2. Who should be included in the purchasing process?
3. What will success look like?
4. Are these needs already being met by existing resources?
5. What are our standards for data interoperability, safety and security?

When Talking to Vendors

1. What data and interoperability standards does this solution adhere to?
2. How does the solution ensure privacy and security?
3. Which student learning goals is the tool designed to meet? What documentation or research do we have to verify that the solution will help us meet these goals?
4. Does the solution address an identified need and complement our curriculum?

When Making a Purchasing Decision

1. Does the solution meet our requirements for interoperability and data privacy and security?
2. Does the solution meet our definition of success?

3. Is the solution simply automating something in our classrooms or is it making something possible that would be impossible without technology?
4. Does the solution augment the teaching and learning process, or just replicate it in a digital environment?
5. Does the solution put users (educators and students) first?

When Piloting

1. Does the solution actually adhere to promised interoperability standards and pledges of data privacy and security?
2. What is required to implement a solution in the classroom and at scale?
3. What features/capabilities of the solution make it easy to learn and use for both students and educators?
4. What features/capabilities ensure that students of all abilities have access to it?
5. What happens if the solution is not feasible to implement?
6. How will we support educators in their use/implementation?
7. How will we manage the solution? Will the district or school manage it remotely, or do educators manage it in the classroom?
8. What barriers will need to be addressed before a more expansive implementation?
9. Is the district planning a staged rollout or will everyone get it at the same time?

After Implementation

1. Is the solution moving us toward our definition of success?
2. What learning are we gaining from implementation at scale?
3. How might we improve communication between users and the school or district?
4. What are unexpected educator and system needs, and how might we meet them?
5. What ongoing professional learning is necessary to improve success?
6. What is the roadmap for improving or extending/enhancing it over the next two-three years?



Resources

For more information on the topics discussed in this guide, please check out the following resources:

Alignment with Student Learning Goals and Standards

- ISTE Seal of Alignment (www.iste.org/standards/seal-of-alignment)
- ISTE Standards (www.iste.org/standards)
- ISTE Standards Community (bit.ly/2JKAcbv)
- SAMR Model (bit.ly/2qIRqsR)

Research and Evidence

- Digital Promise (digitalpromise.org)
- ERIC (eric.ed.gov)
- Every Student Succeeds Act (ESSA) (www.ed.gov/essa)
- ISTE Edtech Advisor (www.iste.org/membership/edtechadvisor)
- LearnPlatform (learnplatform.com)
- Mathematica Center for Improving Research Evidence (cire.mathematica-mpr.com)
- Rapid Cycle Evaluation (RCE) Coach (edtechrce.org)
- What Works Clearinghouse (WWC) Practice Guides (ies.ed.gov/ncee/wwc/PracticeGuides)

Data Interoperability and Student Privacy

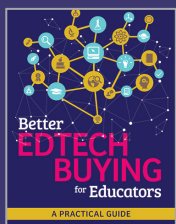
- Access 4 Learning (A4L) Community (www.a4l.org/page/SIFSpecifications)
- Common Education Data Standards (CEDS) (ceds.ed.gov)
- Common Sense Education (www.commonsense.org/education)
- Common Sense Privacy Program (privacy.commonsense.org)
- CoSN—the Consortium for School Networking (cosn.org/privacy and cosn.org/interoperability)
- Data Quality Campaign (dataqualitycampaign.org)
- Ed-Fi Alliance (www.ed-fi.org)
- The Future of Privacy Forum (FPF) (fpf.org)
- IMS Global Learning Consortium (www.imsglobal.org)
- Project Unicorn (www.prounicorn.org)
- Project Unicorn Product Library (projectunicorn.learnplatform.com)
- Project Unicorn’s Ten Questions for Edtech Vendors (bit.ly/2uw2kEA)
- Trusted Learning Environment Seal (trustedlearning.org)

Implementation, Use and Ongoing Support

- EdSurge Product Index (www.edsurge.com/product-reviews)
- Future Ready Schools (Futureready.org) and the Future Ready Framework (dashboard.futurereadyschools.org/framework)
- ISTE Essential Conditions (www.iste.org/standards/essential-conditions)

About ISTE

The International Society for Technology in Education (ISTE) is a nonprofit organization that works with the global education community to accelerate the use of technology to solve tough problems and inspire innovation. Our worldwide network believes in the potential technology holds to transform teaching and learning. For more information or to become an ISTE member, visit iste.org.



Learn More

This resource was created based on information from the guide, *Better Edtech Buying for Educators*, which provides detailed break-downs of the five principles and includes real-world examples illustrating each topic. Check out the guide at iste.org/BetterBuying.



About Project Unicorn

Project Unicorn is an effort to improve data interoperability within K–12 education. They aim to create a community of innovators who make the broader case for secure interoperability by determining shared priorities, working in partnership with school systems and vendors to understand its importance and benefits, creating a demand side push for interoperability through partnerships, and educating buyers to consider the total cost of ownership through informed comparison of vendors.

