

Research to Policy:

Recommendations for RFAs Based
on the Learning Sciences



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About ISTE and Course of Mind

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. ISTE's worldwide network believes in the potential technology holds to transform teaching and learning. ISTE sets a bold vision for education transformation through the ISTE Standards, a framework for students, educators, administrators, coaches, and computer science educators to rethink education and create innovative learning environments. ISTE hosts the annual ISTE Live Conference & Expo, one of the world's most influential edtech events. The organization's professional learning offerings include online courses, professional networks, year-round academies, peer-reviewed journals, technology in education books, and other publications. Learn more at iste.org.

COURSE OF MIND

Course of Mind is ISTE's learning sciences initiative. Course of Mind creates resources for educators, education leaders, specialists in edtech procurement, and educational policymakers who want to make learning more impactful, efficient, and inclusive through a deeper understanding of the learning sciences. Through publications, podcasts, model policy, and online courses, Course of Mind seeks to empower educators and leaders to understand how to use the learning sciences to build upon existing teaching practices to more fully realize the power of education for learners of any age. Learn more at courseofmind.org.



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Introduction to this Guide

In 2018, ISTE embarked on Course of Mind—an initiative focused on using the learning sciences to improve learning experiences and environments, instructional practices, school and district decision-making, and state and local policy. To this end, Course of Mind provides multiple layers of support to a variety of stakeholders—including educators, education leaders, specialists in educational technology (edtech) procurement, and policymakers—with online courses, model policy, podcast episodes, and publications.

Who is this guide for? The purpose of this publication is to provide learning sciences guidance to policy makers who are crafting Request For Applications (RFAs) for local grants that support the purchase and integration of edtech products, including digital curriculum products. In providing such guidance, the objective is to help policy makers (especially at State Education Agencies or SEAs) create RFAs that encourage practitioners at Local Education Agencies (LEAs), including districts and schools, to make the best possible use of available grant funds for the purchase and implementation of edtech products.

Why are the learning sciences important? The learning sciences are directly aligned to evidence-based practices in schools, providing alignment to federal policy, namely the Every Student Succeeds Act (ESSA) and its emphasis on levels of evidence. With that direct connection to federal policy around evidence-based practices, the learning sciences can help policy makers align RFAs so there is a domino effect that subsequently informs district/school decision-making, instructional practices, professional learning choices, and support systems. By targeting RFAs, this publication acts as a third policy resource alongside ISTE’s Policy Recommendations to Activate Learning Sciences in Your State¹ and Policy Recommendations to Activate Learning Sciences in Your District.²

How was this guide developed? To develop the guide, researchers conducted interviews with 18 experts in the learning sciences and edtech procurement to understand what they felt was most important to include as guidance for policy makers and practitioners. In addition to the interviews, researchers reviewed multiple resources, including research articles and other publications focused on the learning sciences, some of which are cited in this document. The interview data and existing resources directly informed the recommendations presented here.

What exactly is in this guide? This document is designed for policymakers to use as a reflexive tool as they create RFAs for LEAs to respond to, and for practitioners as they prepare their proposals. ESSA emphasizes levels of evidence, and the learning sciences are a valid standard that should be used in crafting RFAs as appropriate. As such, this guide provides recommendations for designing a better RFA and, subsequently, helping LEAs use available funds to implement the best possible learning experiences.

1 Song, J., Olszewski, B., & Sundararajan, N. (2019). *Policy Recommendations to Activate Learning Sciences in Your State*. Arlington, VA: ISTE.

2 Song, J., Olszewski, B., & Sundararajan, N. (2019). *Policy Recommendations to Activate Learning Sciences in Your District*. Arlington, VA: ISTE.

What are the learning sciences? The learning sciences make up an interdisciplinary field of research with the common goal of studying and understanding how people learn and how to apply this understanding to the design and evaluation of learning experiences. Key fields include cognitive psychology, educational psychology, human development, linguistics, and social psychology. Knowledge from these fields helps promote an understanding of learning as an interaction between a learner and their environment, including peers, teachers, and learning material. As such, the learning sciences have substantially changed how researchers and practitioners think about the why and how of students' learning processes.

Some key principles from the learning sciences include but are not limited to the following:

- Learning is inherently difficult, but there are practices like retrieval, spacing, and elaboration that make it more efficient.
- Safety and connection to others are key in the learning process.
- Deep thinking helps students make meaning out of what they are learning.
- A sense of agency and purpose helps motivate students to learn.
- Making mistakes, reflecting on those mistakes based on feedback, and making meaning out of revisions is key to the learning process.

Bringing these principles to life in policy can be challenging, although interviewees cited several recommendations for accomplishing this goal:

- Provide as many practical examples of learning sciences application in both instructional training and innovation as well as educational technology selection in RFAs as is possible.
- Provide tools and information to help LEAs and district practitioners better evaluate edtech products against the learning sciences, checking for product features that align to best practices.
- Encourage LEAs to focus on and unpack product usability in the edtech selection and purchasing process.
- Provide support to help LEAs improve product procurement, including aligning edtech selection decisions to the learning sciences.

This guide offers five recommendations for constructing RFAs that reflect the best takeaways from the science about how people learn. They are:

1. Define the role of the learning sciences in the RFA process.
2. Help LEAs have more informative conversations with product providers.
3. Provide robust product evaluation tools grounded in the learning sciences.
4. Encourage professional learning focused on the learning sciences.
5. Craft RFAs that allow for flexibility in LEA response.

These recommendations, as a package, are important because they position evidence-based practices at the center of processes used to distribute funding that supports educational innovation. But rather than hemming in options, these recommendations encourage flexibility on the part of state agencies to incentivize creative ideation on the part of LEAs to meet their unique needs. Let's unpack each of these five recommendations.



Recommendation 1: Define the role of the learning sciences in the RFA process.

In crafting your RFA, define the learning sciences and provide relevant examples of what they look like in practice so that LEAs considering the RFA share a common definition. Why is this important? Take into consideration that many teacher education programs often do not focus on learning sciences in their curriculum. Once educators are in the field, they find themselves needing to evaluate edtech products (to choose the best ones for their students), but don't know how. Consequently, some LEAs that do not have an understanding of the learning sciences make edtech procurement decisions resulting in products going unused because they are not meeting teaching and learning needs. Here are some steps you can take to help define the role of the learning sciences in the RFA process:

- 1 Define the learning sciences and clearly articulate how they apply within the RFA. This information can help practitioners make informed decisions about instruction, edtech procurement, and learning environments. Sample language is provided below.

The learning sciences make up an interdisciplinary field of research with the common goal of studying and understanding how people learn and how to apply this understanding to the design and evaluation of learning experiences. Key fields include cognitive psychology, educational psychology, human development, linguistics, and social psychology. Knowledge from these fields helps promote an understanding of learning as an interaction between a learner and their environment, including peers, teachers, and learning material.

- 2 Host informational sessions about the RFA and specifically talk about the role of the learning sciences in it. Be specific and actionable in how you address this. For instance, if the RFA has to do with learning management systems, you can emphasize how the LEA can ensure that the LMS they are considering supports effective use of multimedia content including images and text (i.e. dual coding).





Recommendation 1: Continued

3

Include links to articles, videos, and other resources in the RFA so that stakeholders can make connections between the learning sciences and the funding opportunity. Examples of such resources include:

Course of Mind

- Learning sciences course
- Blog articles
- Podcast
- “Walking the walk” of the learning sciences in course design

The Learning Scientists

CAST’s UDL Research Database

Deans for Impact. (2015). *The Science of Learning*. Austin, TX.

Digital Promise

- Introduction to the Learning Sciences
- 10 Key Principles
- 10 Key Insights & Practices for Educators

The Learning Accelerator. *Learning Sciences Series*.

National Research Council. *How People Learn: Brain, Mind, Experience, and School*.

Daniel Schwartz, et al. *The ABCs of how we learn: 26 scientifically proven approaches, how they work, and when to use them*.

Daniel Willingham. *Why Don’t Students Like School?*

Pooja Agarwal and Patrice Bain. *Powerful Teaching: Unleash the Science of Learning*.



Recommendation 2: Help LEAs have more informative conversations with product providers.

Within the RFA, encourage LEAs to have informative conversations with edtech providers by asking them to illustrate uses of the product based on LEA needs. For instance, one way to do this is via product demos and discussions that take into account the district's specific context. Some SEAs even include specific policy guidance support, such as that offered by the [Arizona Department of Education](#). The following questions can help LEAs reflect on their needs and ask informed questions of providers that will lead to more intentional purchases of edtech.

For more direction on how to ground conversations with product providers in the learning sciences, consult the Course of Mind procurement toolkit resources at <https://courseofmind.org/toolkit>.

Questions

Use cases

LEA Reflection:

- What features of our local schools are most relevant to us?
- How can we showcase those features so that our conversations (including demos) with product providers show us examples and evidence that are relevant to our students, teachers, staff, and administrators?

Questions for Providers:

- How does your product fit the needs of a district like ours?
- Can you provide evidence—such as use cases—from districts like ours where your product improved the learning experience or learning outcomes?
- How does your product design reflect learning science principles in a way that will meet our specific needs?

Evidence of Learning Sciences

LEA Reflection:

- What specific needs do we have to meet with this product when it comes to ESSA's levels of evidence?
- How will we evaluate if the tool meets our needs?

Questions for Provider:

- Please provide research/evidence of your integration of the learning sciences within your product and its features.
- How do you consider the learning sciences in product design, including content, user interface, and activities? What kinds of instructional design principles did your development team use in creating this product, and how do those principles show up in the user experience?
- What kinds of evidence did you consult when considering the effectiveness of your product? What kinds of studies did you complete? Can you provide us with a copy of your results?
- Are there LEAs that took part in your studies that are similar to our LEA, and if so, can you refer them to us so that we can talk about their experiences with your product?



Recommendation 3: Provide robust product evaluation tools grounded in the learning sciences.

Too often, edtech selection and procurement processes lead to decisions that result in inconsistent use of products and, oftentimes, frustration for school and district stakeholders at multiple levels. Streamlining product evaluation can help solve for this problem, ensuring that districts and schools purchase the right edtech for their teachers, students, and staff.

A robust product evaluation tool should be valid (effectively measures product quality against the learning sciences) and reliable (can be used by multiple people to produce a consistent rating). Through its edtech selection toolkit (<https://courseofmind.org/toolkit>), Course of Mind has developed rubrics for digital curriculum, formative assessment, and learning management system products that can help edtech decision makers assess the quality of products against the learning sciences. The rubrics include the definition, description, and purpose for each component as well as what it means when the component is absent or, in contrast, exemplified by the product. An example of one such component for digital curriculum products is presented below.

Learning Sciences Rubric Sample – Digital Curriculum

Worked Examples

Definition: Worked examples of concepts are present, concrete, and contrasting as appropriate.

Description: Examples should show how a solution is worked out for a particular type of case or problem. Examples can take on different forms for different subjects, and help make a concept concrete for students. Contrasting cases (A vs. B) are also often informative by showing a “non-example” that distinguishes a new concept from others already covered.

Purpose: New concepts need to be related to existing knowledge in order for us to learn (i.e. incorporate new knowledge). Examples are a great way of tying new concepts to known ones, and concrete/worked examples and contrasting cases/non-examples facilitate the connections between relevant prior knowledge and new concepts.^{3,4}

ABSENCE	EXEMPLAR	RATING
There are no concrete or worked examples in the lesson. The lesson focuses on abstract content.	Concrete examples of the content are included throughout the lesson, and worked examples and/or contrasting cases (including examples that are culturally familiar to students) are included for each new concept.	<ul style="list-style-type: none">• Not Satisfactory• Meets Expectations• Exceeds Expectations

3 Rawson, K. A., Thomas, R. C., & Jacoby, L. L. (2015). The power of examples: Illustrative examples enhance conceptual learning of declarative concepts. *Educational Psychology Review*, 27(3), 483-504. <https://doi.org/10.1007/s10648-014-9273-3>

4 Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). The ABCs of how we learn: 26 scientifically proven approaches, how they work, and when to use them. W W Norton & Co



Recommendation 4: Encourage professional learning focused on the learning sciences.

As mentioned in Recommendation 1, educator preparation programs rarely emphasize the learning sciences at the heart of their curriculum. Providing this foundation through professional learning—for both new and veteran teachers—can be helpful in motivating better edtech procurement decisions, instructional practices, professional learning choices, and support systems. As such, through the RFA process, SEAs can encourage professional learning and awareness about the learning sciences as well as the integration of the learning sciences in a variety of system-level wraparounds. What might this look like? RFAs could include suggestions for LEAs to:

- 1** Include learning sciences (or related fields such as UX design, instructional design) as hiring criteria. The individuals hired can serve as advocates for integrating the learning sciences into learning environments and activities.
- 2** Provide and incentivize continuous professional learning focused on the learning sciences for educators. In addition to the ISTE U *Launch into Learning Sciences: How Learning Works* course, Course of Mind also offers a set of microcourses that unpack learning myths such as learning styles and right and left brain dominance at <https://courseofmind.org/toolkit>.
- 3** Provide learning opportunities to parents and other caregivers so they understand what the learning sciences are and how they can support their children's learning progress. In addition to Course of Mind's short micro-learning experiences that debunk famous learning myths (like learning styles—available at <https://courseofmind.org/toolkit>), there are a number of other great resources such as [podcasts from The Learning Scientists](#).
- 4** Incorporate opportunities for educators and administrators to deepen their understanding of how assessment, feedback, and learning analytics can help teachers optimize student learning.
- 5** "Walk the walk" of the learning sciences in the design of learning experiences. Check out an example of how Course of Mind did that in the [course development process](#).





Recommendation 5: Craft RFAs that allow for flexibility in LEA response.

Every district is different. Every learning environment within that district varies. Every educator is one of a kind. Every student is unique. Each family's needs vary. Each and every community requires a distinct approach. As such, LEAs should have the flexibility in their response to an RFA to contextualize integration of the learning sciences for their instructional interventions, student support structures, and edtech tool selection. In particular, leveraging the momentum of existing initiatives can often be a way to roll in new related priorities—such as the learning sciences—without having to launch entirely new efforts, which can overwhelm educators and leaders alike. The following list includes some ways to be flexible in RFA language to promote such contextualization. Accompanying each piece of guidance below is an example of how a district tailored their integration of the learning sciences, oftentimes in selection and implementation of professional development:

1

Remind LEAs that they can expand upon a network or social infrastructure that already exists. An example of this is from *Frederick County Public Schools*. Because adding the learning sciences as an entirely new district-wide initiative was not something they could do, they found a creative way to weave the learning sciences into an existing program. [This case study](#) describes how the district transformed the role of teacher leaders into ambassadors for learning sciences. Because district teacher leaders were already driving change in professional learning and curricula development, this shift was natural for the district to make.



2



DELTA COUNTY JOINT SCHOOL DISTRICT 50J

Incentivize LEAs to partner with external agencies and organizations to support their distinct implementation of the learning sciences. LEAs can become overwhelmed with new priorities and related initiatives, especially if they do not have the capacity to do everything on their own. An example of a district that decided to not “go it alone” with the learning sciences is *Delta County School District*. [This case study](#) describes how the district worked with the Center for Transformative Teaching and Learning and Neurotech Global to provide microcourses to all educators based in the learning sciences.

3

Encourage the use of personalized incentives for implementing the learning sciences. Rather than forcing districts to all do the same thing, assure responding LEAs that using funds for a tailored combination of incentives for participating teachers and leaders is an option. For instance, LEAs can include career advancement opportunities as incentives. [This case study](#) describes how the *District of Columbia Public Schools* did just that, setting up a process to incentivize educators to learn about the learning sciences by incorporating salary increases and leadership opportunities into training pathways.





Recommendation 5: Continued

4



Recommend LEAs integrate learning sciences efforts with other existing professional development initiatives. For example, [this case study](#) describes how *Washoe County School District* combined professional learning for the learning sciences with their existing SEL training. To do this, the district designed a survey that asked educators about their SEL approaches, and based on educator responses, they designed professional learning focused on the learning sciences that was also aligned with existing SEL goals.

Make sure the RFA language is flexible enough to spark creativity rather than limit innovation on the LEA's part. RFAs should provide LEAs a blank canvas where they can then share their contextualized vision for implementing the learning sciences to best meet their community's needs.



Conclusion

The recommendations presented in this guide can help policy makers who craft RFAs for LEA grants that include the purchase and integration of edtech products better align RFA expectations with the learning sciences. Simultaneously, better RFAs help LEAs align what they want from a grant with the science of how people learn. Incorporating the learning sciences into RFAs provides a high quality evidence-based approach to decision making about both edtech purchases, as well as instructional practices, professional learning choices, and support systems. In doing so, the learning sciences offer policy makers one more tool to help LEAs align their requests to ESSA's levels of evidence, with the ultimate goal of improving outcomes for students.

While this guide targeted recommendations grounded directly in the learning sciences, there exist many other important perspectives and sources of evidence worth citing when crafting and responding to RFAs. Although an in-depth look at those is beyond the scope of this guide, their complementary role in helping education policy makers and practitioners effectively select and implement digital solutions in schools is worth noting. Some guiding questions related to these key issues—such as about equity, accessibility, interoperability—include the following:

- **Equity** – Are the products being considered serving all students equitably? When choosing new edtech products, traditionally underserved student populations—including students of color, neurodiverse, differently abled, and gender diverse—need to have equitable access to learning experiences.
- **Accessibility** – Are the products following current [WCAG guidelines](#)?
- **Assessments** – Do assessments consistently provide students actionable, automated, informative feedback? Do such platforms provide teachers clear instructional recommendations based on student performance?
- **Adaptability** – Are the products adaptable rather than fixed? In other words, can educators customize parts of the product to better meet their needs and accommodate their students' needs?
- **Opportunities for Feedback and Continuous Product Improvement** – Are product providers offering ways for stakeholders to ask for changes to products that better meet users' needs?
- **Big Buying Power** – Can SEAs negotiate on behalf of LEAs to secure better deals on edtech products?
- **Interoperability**⁵ – Will new products that are being considered integrate with existing products and systems? Will the interoperability of those products meet a high standard, such as that specified by [Project Unicorn](#)?
- **Data Privacy and Use** – Are data being collected in ways that align to accepted data privacy laws and policies? If so, are data able to be appropriately accessed and understood by all stakeholders, including educators, parents and caregivers, and students?

⁵ [Project Unicorn](#) defines “interoperability” as “the seamless, secure, and controlled exchange of data between applications. At the core of interoperability is a focus on better informing instruction and driving student-centered learning experiences.”

Conclusion: Continued

- **Safety and Connection** – Are products providing opportunities for safe and meaningful connection among students, teachers, and other stakeholders? Safety and social connection play a crucial role in learning; without this safety foundation, learning isn't feasible.
- **Wellness** – Are products encouraging or integrating themes and topics around overall wellness—specifically, mental health and social emotional learning?
- **ISTE Standards** – Do the products being considered effectively encourage the use of the ISTE Standards in the classroom? Do the products go beyond content transfer and practice to student creation, collaboration, creative problem solving, and digital citizenship?
- **Research and Evidence** – Do providers cite rigorous use of research evidence—including original research studies—in their product descriptions? How would educators know the research basis of any particular product?

ISTE and EdSurge provide a suite of resources—including the [Course of Mind toolkit](#)—to aid in better understanding the learning sciences and their application to edtech selection. The [EdSurge Product Index](#) provides product information including certifications to help practitioners discover new products, and Course of Mind is one piece of ISTE's broader strategy around improving edtech selection and procurement. In working with education stakeholders at all levels, ISTE aims to help SEAs make the RFP process not only a method for distributing funds to support educational improvement, but also a regular opportunity to ground the practice of education in the science of how people learn.



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Recommendation 1

Define the role of the learning sciences in the RFA process.



Recommendation 2

Help LEAs have more informative conversations with product providers.



Recommendation 3

Provide robust product evaluation tools grounded in the learning sciences.



Recommendation 4

Encourage professional learning focused on the learning sciences.



Recommendation 5

Craft RFAs that allow for flexibility in LEA response.