

The Need for and Development of the Value Add of Technology on Teaching Framework

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Introduction

Educational technology is now [ubiquitous](#) in K–12 education, propelled by technological advancement, greater accessibility, pandemic-induced need, and increased public funding for technological solutions in schools (*THE Journal*, 2021). But there are costs to such abundance. Schools are awash in edtech tools and often lack consistent, research-based guidance about how to select and strategically deploy tools to benefit students and classroom communities. Indeed, in the same period as schools are spending more on technology and using more edtech tools than ever before, student performance on standardized tests termed “the nation’s report card” [has declined](#) (Mahnken, 2022).

Many educators have long [felt unsupported](#) in their use of educational technology in the classroom, and it is likely that such feelings are a contributing factor to the [teacher burnout](#) and [retention crisis](#) that many districts are facing (Office of Educational Technology, 2017; GBAO, 2022; Will, 2022). Professional learning for teachers often centers on the mechanics of particular tools purchased by schools or districts rather than durable tool-agnostic instructional practices that research has shown to leverage the benefits of technology. Schools often provide educators with guidance on *technology integration practices* separately from guidance on *instructional practices*. The guidance resources typically exist in silos, without a consistent schoolwide vision of technology-enabled teaching and learning that is designed to effectively support student learning and well-being.

Who is this paper for?

This paper is meant to accompany the [Value Add of Technology on Teaching \(VATT\) Framework](#), which was developed over the past 2 years primarily to serve teachers who are struggling with these challenges (Leading Educators, 2023). However, system leaders are the central audience for this accompanying paper because research shows that school and district leaders should be involved in creating the conditions and contexts that allow teachers to use such frameworks successfully.

Research shows that school and district leaders are key to creating the conditions that will allow teachers to flourish in their technology-enabled instructional practice. At minimum, school and district leaders [can remove](#) what the research has identified as first-order (external) barriers to technology-enabled instruction, including lack of access to technology, meaningful professional development, and high-level vision for use of technology in a school or district (Hew & Brush, 2007).

More importantly, school and district leaders [play an important role in creating a context and culture that support teachers](#) in their technology-enabled instructional practice (Ertmer, 2005). That role includes school and district leaders’ ability to change teacher perceptions and beliefs by providing vicarious opportunities for teachers to see the value of technology-enabled learning in context-responsive ways; articulating the benefit of specific examples of

technology-enabled instruction when compared with traditional techniques; and supporting social-cultural spaces that promote effective technology-enabled learning.

What does this paper cover?

This paper is written for system leaders as a companion to the [VATT Framework](#). First, it details the reasons *why* the VATT Framework was developed. This rationale includes the need for bridging the existing gap between instructional frameworks and technology integration frameworks. The goal was to support teachers in utilizing technology specifically in ways that research indicates can advance student outcomes. The rationale also includes a recognition of the importance of flexibility and application to a variety of K–12 school contexts so as to be impactful for the greatest number of direct users (teachers), supporters (system leaders), and beneficiaries (students).

Second, this paper explains *the process* through which the VATT Framework was conceived and conceptualized: the spark for creating a framework to bridge the gap between instructional frameworks and technology integration frameworks, the research and investigations around technology-enabled teaching and learning that served as a baseline for the development of the VATT Framework, the process through which the framework was developed, and discussion of future directions for the framework.

Third, this paper explains *how different interest holders were engaged* in different elements of this process. The Google for Education team recognized the challenge and leveraged outside talent—including researchers, designers, educators, and thought leaders—to help inform development of a resource to help address the need in the field. [WestEd](#), a nonprofit and nonpartisan research and service provider that aims to help schools and organizations support success for every learner, led the investigation phase of the project to conduct baseline research that could be used in the later development of a framework. This investigation phase also included the input of members of a diverse Technical Working Group and of reviewers. [Leading Educators](#), a national education nonprofit that helps education systems find sustainable, people-powered solutions to challenges that affect students' opportunities to learn, led the development phase of the project. This phase included the construction of the VATT Framework and preliminary calls for feedback.

This paper describes these activities in detail, explaining why and how decisions were reached and commenting on how the goals and design of the project have shifted over time. The paper aims to be a helpful reference for system leaders who would like to learn more about how the VATT Framework came to be and the need that it was intended to address. The paper is not intended to evaluate the utility of the VATT Framework. The research basis for such an evaluation will not be known until the VATT Framework has been operationalized in the field.

Table 1 charts the phases of the project and the partners that were involved, at the direction of Google for Education. Subsequent sections of this paper explore these phases and the work of these partners in greater detail. (See the appendix for more information on how this paper was created.)

Table 1. Project Phases and Partners

Phase	Key partners	Key activities
Phase I: Research and Investigation	<ul style="list-style-type: none"> • WestEd as lead research organization • Technical Working Group (TWG) members • Reviewers • Google for Education 	<ul style="list-style-type: none"> • Develop a landscape scan of existing instructional and technology integration frameworks for internal use • Identify key themes and benefits of technology-enabled teaching and learning from research • Solicit written feedback in reaction to key themes and benefits of technology-enabled teaching and learning • Establish goals and criteria for success for technology-enabled teaching and learning frameworks • Make recommendations to the framework design and development team • Develop a thought piece, informed by relevant literature, on technology-enabled teaching and learning
Phase II: Framework Design and Development	<ul style="list-style-type: none"> • Leading Educators as lead development organization • Google for Education 	<ul style="list-style-type: none"> • Review synthesized feedback from WestEd, the TWG, and reviewers • Conduct additional desktop research to better understand the current use cases for existing frameworks and to inform clear design principles for framework development • Crosswalk the thought piece and landscape review with ideas for the framework • Develop and refine the framework language and format, taking into account feedback received from other interest holders • Develop a reflection tool aligned with the framework

Phase	Key partners	Key activities
<p>Phase III: Framework Deployment and Future Directions</p>	<ul style="list-style-type: none"> • Leading Educators • WestEd • Google for Education 	<ul style="list-style-type: none"> • Document the process of the construction and deployment of the framework (WestEd) • Collect feedback from educators through a Teacher Leader Network (WestEd) • Share and pilot the framework with various interest holders, including relevant professional organizations, system leaders, and educational technology organizations (Google for Education, Leading Educators) • Work with developers of notable instructional and technology integration frameworks to construct crosswalks between those frameworks and the VATT Framework so that the frameworks can be used in combination (Google for Education) • Work with school districts to use the VATT Framework as part of a larger technology-enabled teaching and learning strategy (Leading Educators) • Consider customized supports that may be needed to support the operationalization of the VATT Framework in different contexts (Leading Educators)

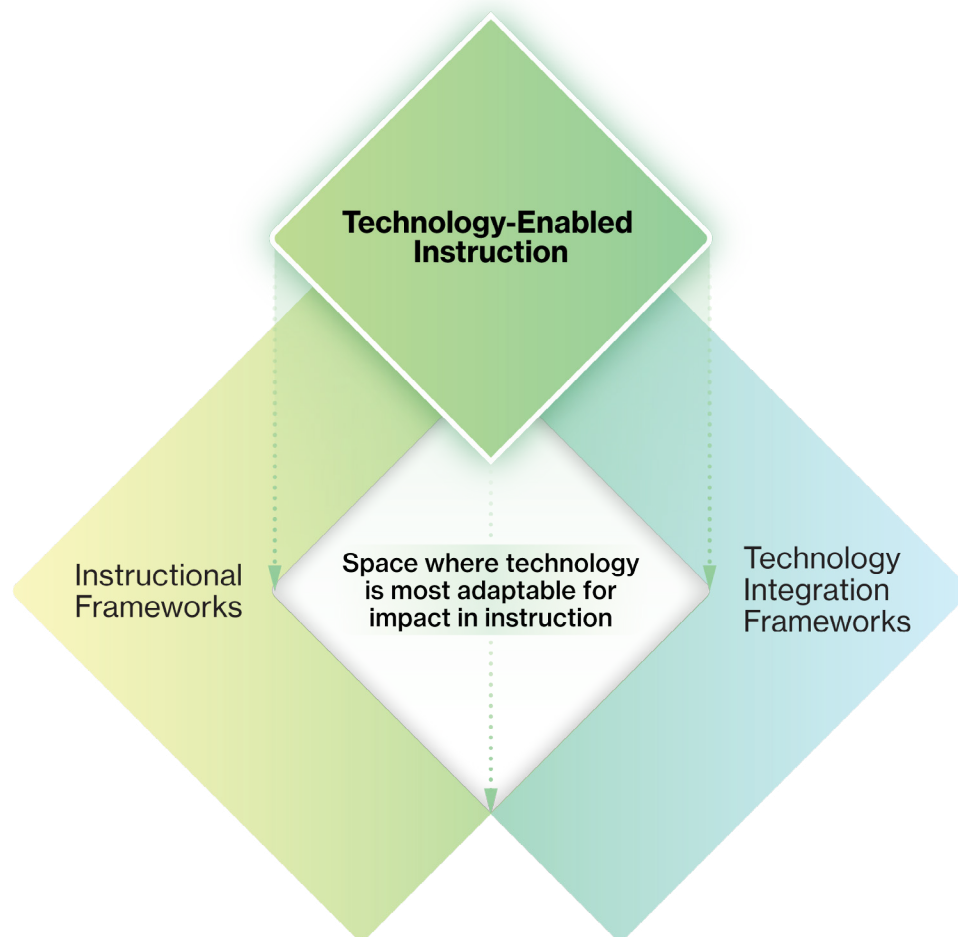
Identifying the Gap Between Instructional Practice Frameworks and Technology Integration Frameworks

The VATT Framework was conceived as a response to a gap in the landscape of materials serving K–12 educators, which typically focus either on instruction or on technology integration rather than on both.

For more than a decade, researchers have been calling for a shift from focusing on the adoption of technological tools in the classroom to focusing on how to leverage technology in teaching in order to advance student learning. In 2013, scholars Peggy A. Ertmer and Anne Ottenbreit-Leftwich [termed](#) that explicit focus on the relationship between technology and instructional practice as “technology-enabled learning” (Ertmer & Ottenbreit-Leftwich, 2013). The term is still emerging, but it serves as a powerful call to action among both researchers and practitioners who aim to maximize the benefits of technology in the classroom.

In response to this shift toward technology-enabled learning, the current ecosystem of educator-focused frameworks still has a gap to be filled. Figure 1 depicts this gap. In the figure, technology-enabled learning is the space where technology is most adaptable for impact in instruction, a space whose potential is currently left untapped by the ecosystem's focus on instruction independent of technology and on technology independent of pedagogy.

Figure 1. The Current Frameworks Ecosystem, With Examples



On the one hand, in the current landscape, classroom teachers have a wealth of frameworks and other research-backed resources designed to guide *instructional practice*. Such materials typically identify areas of teacher responsibility and map a continuum of effective practices to those responsibilities. Examples include the [Danielson framework](#) (The Danielson Group, n.d.) and the [Universal Design for Learning framework](#) (CAST, 2018).

On the other hand, practitioner-focused *technology integration* materials are also abundant. Such materials explore the processes and approaches that teachers can apply when using technology in order to realize the full potential of a particular tool or to classify their own use

of technology in the classroom. Examples include the [SAMR framework](#) (Terada, 2020) and the [TPACK framework](#) (Koehler & Mishra, 2009).

This gap between technology integration frameworks and instructional frameworks is understandable. Teachers and school communities hold a wide variety of pedagogical beliefs and values, and schools have access to differing technological tools. Implementation of any framework is highly dependent on these contextual factors, and system leaders will establish goals and develop unique visions that respond to their particular contexts.

Nonetheless, there is enormous value in filling the gap between instruction and technology integration with a flexible, research-backed resource. That is because research shows that there are certain areas where technology is uniquely positioned to add value to student learning when used in particular ways. Researchers label these instructional benefits in different ways, but they can be grouped roughly into five categories, as described in Table 2.

Table 2. Instructional Benefits of Technology-Enabled Teaching

Category of benefit	Examples
<p>Personalization, differentiation, and customization to address learner needs</p>	<p>Individualized questions and feedback are part of adaptive, dynamic curricular systems and ideally ensure that students are provided with material that corresponds to their levels and particular needs, allowing teachers to mount appropriate interventions.</p> <p>Teachers use edtech tools that allow students opportunities to learn or express their responses using a variety of modalities, including the option to view a video (visual modality), engage in a 3D printing project (tactile modality), write an answer to a question, or speak a response to a prompt.</p>
<p>Availability, accommodation, and accessibility of curated educational materials and learning environments</p>	<p>A social studies teacher draws on free open educational resources (OER) to curate primary source materials that provide perspectives and voices about a historical event that are not represented in a single textbook.</p> <p>A teacher organizes a virtual field trip in which students “visit” a manufacturing facility or conduct video interviews with economists and other experts to fulfill a learning objective related to international trade of goods and services.</p>

Category of benefit	Examples
<p>Student engagement, interest, and motivation</p>	<p>A teacher uses an edtech program that allows students to select reading passages related to a particular topic area from an extensive list of possibilities, resulting in greater interest, which, in turn, is correlated with better academic outcomes.</p> <p>A teacher guides students to use particular databases or the internet to conduct research using sources that would not be available to them without technology, fostering engagement and cognitive functioning that leads to improved academic performance.</p>
<p>Communication, collaboration, and relationship-building</p>	<p>A teacher leads a conversation about digital citizenship in technology-enabled lessons, offering an opportunity to build relationships between students and with teachers—relationships that are correlated with better learning outcomes.</p> <p>A teacher employs an online tutoring program that provides mentoring alongside academic help, a practice that contributes to a web of relationships of varying strengths that contribute to both short- and long-term academic gains.</p>
<p>Learning analytics</p>	<p>A teacher uses a report generated by a curricular tool to create leveled groups for small-group rotations.</p> <p>Using learning analytics, a teacher may discover that a student skips over all questions requiring written responses. The teacher may decide to offer the student the option of recording a spoken response instead.</p>

The technology itself does not unlock these potential benefits. Nor are all tools constructed with these benefits in mind. Instead, deriving the full value of these potential “power boosts” requires that teachers and system leaders attend to *both* instruction and technology integration in a coordinated way under particular conditions. It is that potential that the research and development phases of work that led to the VATT Framework aimed to tap.

Resourcing an investigation of how to fill the gap

Two years ago, leaders at Google for Education saw an opportunity to help the field by committing resources to establish partnerships with independent, respected research and product partners in order to further investigate and create materials that could bridge the gap between instructional practice frameworks and technology integration frameworks. Crucially, those materials needed to recognize the importance of local context and vision and remain flexible for a variety of implementation scenarios while still focusing on the unique benefits that technology could provide for student learning when used in particular ways.

Jennie Magiera, Global Head of Education Impact at Google explains the importance of engaging partners in order to achieve these goals. “At Google we’re an edtech company, we’re not a research education institution. We try to approach problems with humility,” Magiera reflects. “We said, ‘We need the experts in the room to be driving this work. Our best role is to support the work, to catalyze the conversation, to hold space for the work.’ That brought us to [our two main partners on this work] WestEd and Leading Educators.”

Phase I: Research and Investigation

[WestEd](#), a nonprofit and nonpartisan research and service provider that aims to help schools and organizations support success for every learner, served as the research and convening partner for the investigation phase. WestEd’s [technology-enhanced teaching and learning work](#) examines how to leverage technology effectively to advance student learning outcomes in equity-centered ways. WestEd does not endorse particular products or tools, instead focusing on the intersection of technology and instructional practice—the same approach that the VATT Framework project takes.

Activities and partners during the research and investigation phase

WestEd led a number of research and investigatory activities to serve as a base for the eventual design of a technology-enhanced teaching and learning framework and accompanying tools. For this work, WestEd convened two separate groups of experts: a TWG and reviewers. Table 3 describes these research activities and the key groups involved in each task.

Table 3. Research and Investigation Phase

Key activities, with WestEd as the lead partner	Key groups involved
Develop a landscape scan for internal use of existing instructional and technology integration frameworks	<ul style="list-style-type: none"> • WestEd • TWG
Identify from research the key themes and benefits of technology-enabled teaching and learning	<ul style="list-style-type: none"> • WestEd • TWG • Reviewers
Solicit written feedback in reaction to key themes and benefits of technology-enabled teaching and learning	<ul style="list-style-type: none"> • WestEd • Reviewers
Establish goals and criteria for success for technology-enabled teaching and learning	<ul style="list-style-type: none"> • WestEd • TWG

Key activities, with WestEd as the lead partner	Key groups involved
Make recommendations to the framework design and development team	<ul style="list-style-type: none">• WestEd• TWG
Develop a thought piece, informed by relevant literature, on technology-enabled teaching and learning	<ul style="list-style-type: none">• WestEd

Engaging the expertise of the Technical Working Group and reviewers

The members of the TWG were identified by leaders at Google for Education. The TWG included six individuals based in the United States with backgrounds in K–12 teaching, administration, research, technology integration, and culturally responsive instruction. The TWG represented a diversity of backgrounds and expertise to inform the design of a framework. Their work in the research and investigation phase helped to surface topics that were important dimensions of the value proposition of teaching with technology, including issues related to academic rigor, students’ social and emotional well-being, and the importance of employing an equity lens. (See the Acknowledgments section at the front of this paper for a list of TWG members.)

WestEd staff convened the TWG in several working meetings to leverage their expertise in defining the parameters of the framework and to identify key questions for the design and development team’s consideration. WestEd staff also reached out asynchronously to nearly two dozen reviewers who were jointly identified by staff at WestEd and Google for Education. From throughout the country, the reviewers included classroom teachers, researchers, nonprofit leaders, and school system leaders. The aim was to understand their experiences with technology-enabled teaching and edtech tools, their use of frameworks in instruction and technology integration, and the needs that they had. (See the Acknowledgments section for a list of reviewers.) WestEd shared insights of the reviewers with the TWG in order to inform its approach and recommendations for the design and development phase.

WestEd staff and TWG members also reviewed multiple instructional frameworks and technology integration frameworks as a baseline for understanding the current landscape of the field, as well as how the related topics of equity and student well-being are connected within existing teaching resources. This initial scan was used to identify gaps as well as concepts and approaches from those frameworks that could be leveraged in the eventual design of the VATT Framework. This initial review also proved critical as a baseline for identifying the key themes and benefits of technology, a set of ideas that was further developed by WestEd staff through a [thought piece](#) drawing on literature about technology-enabled teaching and learning (Huebner & Burstein, 2023).

In all of these activities, WestEd staff typically produced an initial draft or set of ideas. TWG members offered feedback, revisions, and ideas both asynchronously and in meetings. The diversity of perspectives represented on the TWG was important for surfacing topics that a single perspective, field, or role would not have captured. In addition, because the TWG included practitioners, TWG feedback often focused on the practicality of suggestions for educators and system leaders.

According to Magiera, the diverse backgrounds and roles of the experts who served as TWG members and reviewers were important for leveraging differing areas of expertise. “We were trying to design against myopia of having one voice in the space designing alone. It would make it very easy for that single entity to fall victim to bias because they were coming from their own institutional point of view,” Magiera says. “Having so many institutions at the table [as represented among] reviewers and the TWG, created productive tension to pull...to make sure that we’re constantly pushing and having a deep, thoughtful conversation.”

Using research to establish guardrails and conditions for success

Among the most important contributions of the TWG was to establish clear guardrails and conditions of success for developing a framework based on the initial investigatory phase of the project. The group felt that the eventual tool ought to be flexible to serve a variety of school contexts but that it also needed to be concrete enough to set educators up for success.

The research explored in WestEd’s [thought piece](#) shows that there are certain baseline requirements for successful technology-enhanced teaching and learning (Huebner & Burstein, 2023). Researchers often distinguish between first-order (external) barriers and second-order (internal) barriers. While not all of these barriers are insurmountable, lessening them can set up educators and systems for success in pursuing technology-enabled instructional practices that derive the most benefit for student learning outcomes. Table 4 lists examples of first- and second-order barriers as identified in the literature.

Table 4. First- and Second-Order Barriers to Effective Technology-Enabled Teaching

Examples of first-order (external) barriers	Examples of second-order (internal) barriers
<ul style="list-style-type: none"> • Lack of access to technology • Lack of professional development • Lack of a school or district vision for technology integration • Poor or unsupportive leadership 	<ul style="list-style-type: none"> • Real and perceived knowledge and skills of teachers • Teacher beliefs about technology-enabled learning and teaching • Teacher pedagogical values and beliefs

Source: [Huebner & Burstein, 2023](#)

First-order barriers are difficult to overcome when system leaders are working to create a culture of effective technology-enabled practice in classrooms. For example, if schools do not have internet access or computer hardware, it will be difficult for teachers to leverage the full potential of technology-enabled instructional practices. Similarly, if schools lack a vision for technology integration or have poor or unsupportive leadership, teachers have few incentives for adopting technology-enabled instructional practices that deliver the power boosts where they are most effective.

Second-order barriers such as teachers’ knowledge and beliefs are malleable and can be influenced by system leaders’ actions, such as by providing opportunities for personal experience or vicarious experience or by creating sociocultural influences for technology-enabled learning. Overcoming second-order barriers is not a condition for success but rather a part of the process of instituting a systemwide program for encouraging effective technology-enabled instructional practice.

WestEd and the TWG drew on the literature about the barriers to technology-enabled teaching and an understanding of the resources and systems that schools already use to establish the following conditions for success for an eventual framework to bridge the gap between instructional frameworks and technology integration frameworks:

- ability to be used in combination with frameworks and curricula that schools and districts are already using, not as a replacement for those resources
- ability to be applied to academic subject, grade level, technological tool, or technological system in order to be leveraged by the greatest number of educators

- ability to be used in a variety of school settings assuming certain baseline requirements were met (e.g., access to internet, access to computers)
- ability to be deployed by an individual teacher or with the support and backing of an entire system, with a preference for the latter

Phase II: Framework Design and Development

With the research and investigation phase completed, Google for Education engaged Leading Educators as the lead partner to design and develop a framework and supporting materials. [Leading Educators](#) is a nonprofit and nonpartisan professional learning and product development organization that aims to create systemic change and equitable outcomes by partnering with schools and districts to offer learning opportunities for teachers. The organization’s approach emphasizes the transformative power of educators to be change agents within their systems, aligning with the goals of the teacher-centered and system-supported framework envisioned for this project.

Activities and partners during the framework design and development phase

Leading Educators led a number of activities with a central goal of developing and designing a framework that could help teachers determine how to use technology effectively in their various areas of responsibility given their particular school and teaching contexts. This work was principally conducted by staff at Leading Educators. Table 5 describes the activities for which Leading Educators was responsible and the key groups involved in each task.

Table 5. Framework Design and Development Phase

Key activities, with Leading Educators as the lead partner	Key groups involved
Review synthesized feedback from WestEd, the TWG, and reviewers	<ul style="list-style-type: none"> • Leading Educators
Conduct additional desktop research to better understand the current use cases for existing frameworks and to establish clear design principles for framework development	<ul style="list-style-type: none"> • Leading Educators
Crosswalk the thought piece and landscape review with ideas for the framework	<ul style="list-style-type: none"> • Leading Educators

Key activities, with Leading Educators as the lead partner	Key groups involved
Develop and refine the framework language and format	<ul style="list-style-type: none"> • Leading Educators
Provide feedback to iterations of the design process	<ul style="list-style-type: none"> • WestEd • TWG • Reviewers
Synthesize and respond to feedback from system leaders, teachers, and other interest holders	<ul style="list-style-type: none"> • Leading Educators
Develop a reflection tool aligned with the framework	<ul style="list-style-type: none"> • Leading Educators

As an initial step, the Leading Educators team members familiarized themselves with the resources provided by WestEd. Leading Educators staff also reviewed current use cases for existing technology integration and instructional frameworks, using these to determine clear design principles that could inform the development phase. They also leveraged contemporaneous conversations and other touchpoints that they had with system leaders, teachers, and other experts in Leading Educators’ network.

Albert Kim, Managing Director of Program Strategy at Leading Educators, explains that both the desktop research on framework use and the educator contact points were important for understanding teacher needs.

“We heard from teachers that a lot of the focus in the edtech arena was on all the amazing features of technological tools, not necessarily their needs or responsibilities. Chief among the needs was capacity. It already felt like an impossible job and adding tech without explicit connections to teachers’ core work was not going to help.”

Kim explains that this initial set of insights centering teacher needs emerged as a key design principle. “It was important to start with that need that teachers told us existed for them.”

Throughout this phase of work, the staff at Leading Educators sought to orient their work around research. As an example, they built insights from WestEd’s [thought piece](#)—specifically the areas in which technology-enabled teaching can benefit learners—into certain elements of the framework (Huebner & Burstein, 2023).

Magiera says, “There was an ah-ha moment [in the development process] when the value-add piece was developed that was really a lightbulb moment for everyone.” The team aimed to center its development not on how technology could be leveraged in instruction and other areas of teacher responsibility but on a deeper set of questions about impact. Magiera lists these questions: “How do we identify the value-adds that are possible via technology? And

how do we index that as the intersection of the value-add with the instructional impact?” She says, “That was the moment that unlocked the framework for us.”

Kim agrees that the “value-add” element was transformational as the Leading Educators team put its design principles into practice in constructing the framework.

“With the VATT Framework, there’s a different way to think about the value, promise, and potential of technology in the classroom that felt more holistic [than what was already available], that didn’t seek to replace, but sought to connect [teachers’ use of existing frameworks].”

Three shifts in framework development: audience, reflection, and areas of responsibility

As with any new product or tool, the framework’s parameters shifted in response to what Leading Educators learned from interest holders in the field. Nonetheless, the essential guardrails that had been identified by the TWG in collaboration with WestEd remained consistent.

Over the course of Leading Educators’ work, the framework shifted in three critical ways. First, the audience for the framework shifted from focusing exclusively on teachers to also including system leaders. This shift reflected a key insight from the research phase—that a school or district vision for technology-enabled teaching and learning, combined with supportive school and district leadership, is essential for teacher success in utilizing any framework. As a result of this insight, Leading Educators worked to create a durable and flexible framework that could be used by a teacher or a system leader with or without adoption across an entire system.

Although research showed that systemwide support and adoption was clearly desirable, Leading Educators also did not want to exclude participation from teachers who lacked that support. Kim reflects that the Leading Educators team tried to stay focused throughout the process on the “teacher as the end user” even as it also understood that context matters deeply. “We saw [the VATT Framework] as an opportunity to give teachers more say in their day-to-day, when they could affect systems-level decisions. In order to reach that potential, systems leaders need to be involved,” Kim says.

Second, the emphasis of the project shifted from measurement to reflection. Magiera says:

“We wanted to create a framework that would be used as a reflective and growth tool to help both educators and system leaders take a look at the adoption and utilization of technology in their spaces and reflect on what is the impact that they’re seeing. We didn’t want it to be used as a weaponization against teachers or students or technology or anything. We didn’t want it [to be a method of] oversight to evaluate teachers or evaluate practice.”

Magiera explains that the reflection tool accompanying the VATT Framework aims to achieve that balance. “We tried to work with the reflection tool to make it additive to practice and meant to be a companion and respectful to practitioners rather than something that could be used against them.”

Kim says that striking the right balance was not easy. “There’s a fine line between reflection and evaluation and we often don’t get to decide how [a tool] is going to be used. We found that we needed to move away from a rubric style in our framework’s design,” Kim says.

“What ultimately unstuck us was to look at the observational tools and supports that teachers use regularly in the classroom, and to use that style in designing a practical tool. We wanted teachers to reflect on this value-add construct of technology adding value at a level of detail and specificity that would allow them to think about how their use of edtech maps to these broader areas of impact, or to hone in on specific practices that are embedded in each area of impact. In short, we wanted to start with what they know best—students, classroom, priorities—not necessarily tech.”

Finally, initial drafts of the framework were organized around instruction, technology integration, student wellness, and equity. Later drafts were streamlined to reflect teachers’ key areas of responsibility. That approach aimed to allow teachers to engage with the framework more easily by pinpointing the goal of a particular lesson or technology-enabled practice. Every section in the revised framework was designed to incorporate social and emotional learning and diversity, equity, and inclusion principles, for example, rather than segmenting each of those concepts in its own area of the framework. Kim explains, “A lot of our early conversations with TWG members were very equity-driven. There was such a strong push around looking at teachers as people and looking at the teaching profession more holistically.” Kim credits those conversations with having a deep influence on the future direction of the VATT Framework.

Phase III: Framework Deployment and Future Directions

With the VATT Framework fully developed, Google for Education aims to build greater awareness of the tool so that systems, tools, teachers, and other interest holders have a common language when using the VATT Framework to support their own work. Magiera says, “It doesn’t matter how elegant the framework is or how easy it is to use. It won’t do its service if it doesn’t become common practice.”

In the near term, WestEd staff are convening a Teacher Leader Network to offer feedback on the VATT Framework in a series of facilitated sessions. The group may also suggest tools and templates to support the use of the VATT Framework. The Teacher Leader Network is composed of 10 school-based classroom teachers from across the United States who

teach different subjects and grade levels and who work in different types of schools. (See the Acknowledgments section at the front of this paper for a list of Teacher Leader Network members.) In addition to having their teaching responsibilities, all members of the Teacher Leader Network have leadership roles in their school communities, often as a leader of a professional learning community or as an edtech coordinator. Staff at Leading Educators plan to draw on the feedback of this group in considering how to advise systems on how to engage with the framework and in planning for future design and development projects.

In the longer term, Google for Education plans to work with systems and organizations to support adoption of the VATT Framework, to work with other organizations on cross-walks between the VATT Framework and other technology integration and instructional frameworks so that they can be used in combination with one another, and to explore new possibilities for supporting adoption of and operationalization of the VATT Framework. For its part, Leading Educators is considering how to work with system leaders to embed the VATT Framework in their larger technology-enabled teaching and learning strategies and is considering whether and how to create customized supports for deriving maximum benefit from the framework in different contexts. These supports may include grade-specific or subject-specific examples or additional tools for specific leadership roles within a system.

Table 6 describes some of the activities that are already planned or are being considered for future work.

Table 6. Framework Deployment and Future Directions

Key activities	Key groups involved
Convene and document a Teacher Leader Network consisting of a diverse group of teachers to offer feedback and possibly suggest supporting tools and templates	<ul style="list-style-type: none"> • WestEd • Teacher Leader Network
Share and pilot the framework with various interest holders, including relevant professional organizations, system leaders, and educational technology organizations	<ul style="list-style-type: none"> • Google for Education • Leading Educators • Professional organizations • System leaders • Educational technology organizations
Work with developers of notable instructional and technology integration frameworks to construct crosswalks between those frameworks and the VATT Framework so that they can be used in combination	<ul style="list-style-type: none"> • Google for Education • Creators of existing instructional and technology integration frameworks

Key activities	Key groups involved
Work with school districts to use the VATT Framework as part of a larger technology-enabled teaching and learning strategy	<ul style="list-style-type: none"> • Leading Educators • System leaders, teachers, and other experts and testers from Leading Educators' network
Consider customized supports that may be needed to support the operationalization of the VATT Framework in different contexts	<ul style="list-style-type: none"> • Leading Educators

All of these planned or possible future activities aim to support the use of the VATT Framework through one of three methods: surfacing or publicizing specific examples of how the framework can be operationalized, developing resources that correspond to the unique circumstances and needs of different groups, and demonstrating how the VATT Framework can be leveraged in ways that are consistent with existing practices and cultures. The central goal is to support system leaders and educators as they seek to leverage the benefits of technology for instruction and for additional areas that inform teachers' work, including classroom community and culture and practice and growth.

Although the exact contours of these future activities have not yet been determined, they will all leverage similar processes as the research and development phases of this project. These processes include relying on partners who are respected in their fields, prioritizing learning from research, engaging in deep and responsive listening to practitioners, and looking for approaches that empower and support teachers themselves.

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Appendix: Background for Developing This Paper

This paper was written by WestEd and documents the need for and development of the Value Add of Technology on Teaching (VATT) Framework. The paper was commissioned and supported by Google, but WestEd exercised editorial control over the final copy of the paper.

The WestEd team compiled and reviewed relevant internal documentation related to the development of the VATT Framework. This documentation included meeting minutes, meeting recordings, presentations, and drafts of the framework and supporting materials. These materials were used to construct interview protocols with key interest holders in the research and development phases of the VATT.

To surface themes, timelines, activities, and quotations used in this paper, the WestEd team conducted and analyzed interviews and email correspondence with the following individuals: Albert Kim, Managing Director of Program Strategy at Leading Educators; and Jennie Magiera, Global Head of Education Impact at Google.

In addition, in drafting this paper, the WestEd team drew on previous research that it had conducted as a baseline for documenting the need for the framework. That research includes a thought piece (Huebner & Burstein, 2023) on technology-enabled instructional practice.