

The Role of Research in K-12 District Decision Making

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WORKING GROUP A TOPIC DESCRIPTION

The Role of Research in K-12 District Decision Making Working Group investigated how district leaders make decisions about educational technology purchases.

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PURPOSE OF THE RESEARCH

Working group A investigated how K-12 district and school leaders are making decisions about educational technology purchases. Our goal was to better understand district leaders' reasoning and processes for selecting and deploying a digital product, including which, if any, types of data are used to support decision making. We purposely selected five districts at the leading edge of ed-tech innovation and conducted case studies about a recent purchase they had made of an instructional, classroom-oriented digital product (defined as a product used by teachers and/or students in the classroom for the purposes of student learning). In these case studies, we interviewed leaders and teachers about the goal they had for purchasing the product and the processes they used to make their purchasing decision, including who was involved and what data were collected.

BACKGROUND

In a recent study, district leaders reported they rely more heavily on peer / consultant recommendations, pilot tryouts, and end user recommendations than on “rigorous evidence” when making purchasing decision.¹ Further, adoption of an educational technology product is not necessarily linked to its impact on student learning outcomes.² Anecdotal evidence indicates that often K-12 district and school leaders do not seek or require efficacy research (of any sort) about educational technology products prior to its purchase.

Several factors may contribute to this. It could be due to decision/evaluation models that districts and / or schools employ when assessing software and hardware not being well defined. The lens used by district administrators, building principals, and teachers to consider technology to adopt and implement likely reflects the scope of their role, and focus in the organization. If district routines don't allow for teachers to weigh in regarding the needed supports for learning and their use context before purchases, then such evaluations happen post-purchase. Without a clearly defined need or desired outcome, it is difficult to seek out efficacy research to determine whether a particular product / tool might meet that need or result in the desired outcome. It is also possible that the differences in how teachers and administrators evaluate technology makes assessing technology in terms of outcomes difficult. District leaders select technology for

¹ http://digitalpromise.org/wp-content/uploads/2014/11/Improving_Ed-Tech_Purchasing.pdf

² <http://www.edweek.org/ew/articles/2016/05/11/popularity-of-ed-tech-not-necessarily-linked.html>

specific outcomes but the actual use for the technology is determined in the classroom, and discrepancies might lead to alternate outcomes. This gap makes using efficacy research difficult because the rationale behind the choice and the goals of implementation are disconnected. Efficacy research is needed to identify how the educational technology supports learning for whom, and under what conditions.

HYPOTHESES

Assuming that K-12 district and school leaders have crafted a process for a digital product to add value from the monetary, personnel, or digital resources allocated to it, we hypothesized that there is an overall logic that organizes the district's instructional technology purchasing, and its related implementation decisions. The following overarching questions guided our research:

- What is driving K-12 districts' instructional technology purchases?
- What sources of information are K-12 district and school leaders currently using to make education technology purchasing decisions?
- What data are districts collecting to judge the efficacy of various instructional technology products?

CURRENT STUDY

To gain further insight into how and why educational organizations do or do not use evidence in educational technology purchasing decisions, despite limited resources and high stakes for student achievement, we elected to conduct five case studies in purposely selected districts. We designed our research to learn about district educational technology decision makers' reasoning and the processes resulting from it. We identified five sites that had recently completed the purchase of an instructional, classroom-oriented digital product. We defined an instructional product as one used by teachers and/or students in the classroom for the purposes of student learning. In these case studies, we asked leaders and teachers to recount the purposes they had for purchasing the product and the processes they used, including the data collected, to consider its purchase.

METHODOLOGY & PARTICIPANTS

SAMPLE

In October, via a survey, we asked all working group members to identify districts they knew of who may have recently made a purchase of an educational technology product. Between November to March the authors and two other members of the working group sent emails to district Superintendents nominated or otherwise known to them to ask if they would consider having their district participate. The research was described as part of a larger collaborative effort to “move efficacy to the center of the discourse concerning the development, adoption, and implementation of technology in education”.

An email solicitation (see Appendix) was sent out to 14 districts, asking the superintendents if their district had recently purchased an instructional technology product (i.e., intended for classroom use by teachers or students). Thus a criteria for inclusion in the sample was that the educational technology product was intended for use in the classroom by teachers. Of these, 11 districts responded to our inquiry, and we were able to explain the second and third criteria for our sample, which were that the product purchase was led at district level, and that the purchase had been completed and the product was now in use. One district declined to participate citing no recent instruction product purchases. Ten sites met the criteria, and four superintendents declined to participate citing a lack of time for the pertinent staff to discuss the purchasing process with a researcher. Ultimately six districts agreed to participate and five cases were completed in time to be reported upon here.

In part because the working group reached out to district superintendents they knew, this purposive sample is comprised of 5 districts who are all a part of Digital Promise’s *League of Innovative Schools* (League). The League is a national coalition of school district superintendents that fosters collaboration between education leaders and entrepreneurs, researchers, and thought partners. The League is made up of 86 districts across 33 states, serving more than 3.3 million students, and reflects the national scope and diversity of public education in the U.S. The League includes urban school districts such as New York City, the District of Columbia, and Baltimore; suburban districts; rural districts in states such as Kentucky, Alaska, and Alabama; and border communities in Texas. In order to become a member of the League, a district superintendent completes an application that is evaluated based on the following criteria: vision for innovation, proven record of successful implementation of innovative programs, school leadership

and teacher engagement, community engagement, and impact on underserved students. Once a superintendent and their district becomes a league member, they attend League meetings, where they discuss challenges, share successful strategies, and solve problems together. Additionally, League members participate in working groups to plan projects that take ideas to action.

While we do not suggest that a small set of case studies serves as a representative sample of K-12 U.S. schools, we also acknowledge that our sample represents schools more advanced in their utilization of technology, both because of the criteria they met to be a part of the League and because of its work to further advance its members' efforts to implement innovative practices, including the use of educational technology. Ultimately, this multi-site case study provides an opportunity to learn from advanced schools because of this purposive sample.

PARTICIPANTS

In each district (case), we interviewed two to three people (see Table 1). The first interview was with a contact the Superintendent gave to us because of his or her role in leading the purchase. Following the interview with the district-level administrator, we solicited names of other people involved in the selection and purchase process that we should talk to, including requesting a name of a classroom teacher. In all 5 cases we received at least one more name. The numbers of participants and their roles are shown in Table 1.

Table 1.

Roles of Interviewees by Case Site, in Order of Interview

Case Site	Interviewees' Role
1	Director of Technology and User Experience Media specialist Teacher
2	Assistant Superintendent Teacher
3	Instructional specialist Instructional technology specialist Director of Instructional Technology
4	Assistant Superintendent for Curriculum and Assessment Teacher

5	Director of Assessment and Performance Management Manager of Instructional Technology
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DATA

The interview data were obtained using a semi-structured interview protocol (see Appendix), and were conducted by the three authors. Ten of the twelve 30- to 45-minute long interviews were taped. Due to a technical difficulty, the researcher's notes are the only record of the conversation for two of the interviews. The digital recordings were transcribed by an online professional transcribing service.

The first case, completed in November 2016, served as a pilot case, letting us check our data collection instrument and plans. After case one's first two interviews, the first two authors reviewed our interview notes and discussed whether any changes to the questions or the approach was warranted. We added further notes to our interview protocol to help us document our intent of questions to aid consistency across researchers, and added some minor additional follow-up prompts to questions.

We then engaged in data collection with the remaining four sites in between December, 2016 and February 2017. Two authors completed two cases each, and one author conducted the remaining case study, with each author conducting all of the interviews at a district site so as to support making connections among the interviews from any one site and following the purchase decision making process as it was carried out by multiple district stakeholders.

ANALYSIS

The 12 interview records (transcriptions or interview notes) were uploaded into online qualitative research software (DeDoose, 2016) by the lead author, who then used a structured coding scheme to analyze them. The software allows any portion of text to be coded with one or more codes, as needed.

The structured coding scheme consisted of 13 code areas (see Appendix) that were derived from our conceptual framework of a classic logic model (Kellogg Foundation, 2004), and a model for the decision-making process. Two of the codes (description, and purpose and priorities), were used to capture information about the product that was purchased. Five of the codes (requests, reviews, participants, evaluation, and budget-purchase) were used to capture the steps taken that led to the purchasing decision under study. Two of the codes (pilot testing, and studies and other) were used to mark passages where interviewees described carrying out pilot research or reading and

using others’ research. Four code areas, (logic model-inputs, logic model-outputs and activities, logic model-outcomes, and logic model-evaluation), were used to mark passages where interviewees described ideas about purchases in general, or about other past or future plans for purchases.

The qualitative research software produces code reports, which consist of all excerpts marked with each code, and groups together in sequence all of the excerpts from it under a heading of a document’s name, which was titled to identify the interviewee and case. These code reports were then also organized into case site reports so that within each of the five cases all the coded excerpts were presented in a consistent order. The code and case reports were systematically reviewed by all of the authors to produce the tables and case reports in the results section. The tables and reports were then compared and discussed by the authors to complete the cross-case analysis points in the discussion section.

PRELIMINARY FINDINGS & INSIGHTS

BACKGROUND ON PRODUCTS

As determined by our selection screening criteria, all five of the products purchased by the sites in our study were educational technologies intended to be used by teachers and students in the classroom. As shown in Table 2, two of the products provided text at reader-appropriate levels for students to work with as written sources for research in a variety of areas (PebbleGo and Lightsail). The remaining three products were primarily for Language Arts instruction, including for grammar exercises (NoRedInk), or to practice reading skills (Newsela), or writing skills (ThinkCERCA).

Table 2.

Instructional Technology Products Purchased by Each Site, as Described at Vendor’s Website

Case #, Name of Product	Product Site’s Description Quoted From Vendor’s Web Site (URL of product website)
1, PebbleGo	“Pre-K to grade 3 database for reading and research. . . . includes built-in reading and research tools for emerging readers. Leveled text, educational games, and multimedia help teach concepts to your youngest researchers.” https://www.pebblego.com/welcome_pgo/welcome_pgo.html

<p>2, NoRedInk</p>	<p>Reinforces grammar skills through “interest-based curriculum, adaptive exercises, and actionable data. . . Students can rearrange sentences, edit and markup text, organize ideas into outlines, and manipulate multi-paragraph passages. . . Our engine differentiates instruction to meet each student's needs and to support learners when they get stuck. . . We generate every exercise from students' favorite celebrities, friends, and interests, making the content fun and relevant. . . Color-coded diagnostic data, growth reports, and gradebooks allow teachers and administrators to track progress in real time.”</p> <p>(https://www.noredink.com/)</p>
<p>3 Newsela</p>	<p>“Newsela text is offered at multiple tiers, for every student, no matter their level. . . . designed from the ground up to strengthen reading skills and habits through routine use. . . Quizzes, Annotations and Write Prompts [in]... every article at every level. . . Newsela delivers progress notifications and reminders [to teachers]. . . Binder delivers actionable insights on your students and lessons, so you can see what’s working and what’s not.”</p> <p>(https://newsela.com/)</p>
<p>4 LightSail</p>	<p>“Starting with an initial adaptive assessment, LightSail automatically creates personalized libraries for each of your students based on their reading abilities. These libraries adapt as students grow. LightSail was designed to tackle the logistical burden of differentiation in the ELA classroom, so teachers can focus on what really matters – targeted instruction. . . The LightSail Library contains more than 4,000 texts for students from grades K-12 written across a wide range of Lexile measures. These texts are embedded with assessments and cover a variety of subject matter. . . Students answer multiple-choice, written-response, and Cloze assessments throughout each text. As student ability grows, LightSail tracks achievement and updates the selections in each reader’s library. . . Students can track their progress against individual reading goals, check their Lexile scores and the number of texts they’ve completed. . . Educators get real-time access to meaningful data about student reading behavior, comprehension and growth. With access to student annotations and dashboards that show both individual as well as class performance, teachers are able to fine-tune instruction . . .”</p> <p>(http://lightsailed.com/)</p>

5, ThinkCERCA	<p>“Teach critical thinking through argumentative writing. Collaborate with a shared literacy platform. Enable school leaders and teachers with a research-based approach for teaching argumentative writing across subjects. Engage students with personalized lessons. Spark collaborative discussions and debates in every classroom with ThinkCERCA’s differentiated, self-paced lessons. Track real-time reading and writing progress. Monitor growth on 21st century literacy skills with data that’s accessible to everyone, from instructional leaders and teachers to students and families.” Teachers “personalize lessons in minutes. Automate time-consuming chores. Monitor performance in real time.”</p> <p>http://thinkcerca.com</p>
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BACKGROUND ON SITES

As described earlier, all five of the districts are members of Digital Promise’s *League of Innovative Schools*. Table 3 show how the sites varied in size, ranging from 2,200 to over 28,000 students and with four to 33 schools, respectively. Four of the 5 sites were in districts with preK-12 schools; the smallest district was K-8 only. The percent of students at each school eligible for the Free and Reduced Price Lunch (FRP lunch) program varied, with under 15% of the largest district’s students receiving qualifying and about 44% of the students eligible in the other large district. The schools were spread across the United States, from the West to the East coast areas, in the Midwest and the South, and were located in rural, suburban, and smaller urban areas.

Table 3.

Products Purchased and Their Purposes, and Demographics of Case Study Sites

	Case Site 1	Case Site 2	Case Site 3	Case Site 4	Case Site 5
Educational Technology Product	PebbleGo	NoRedInk	Newsela	Lightsail	ThinkCERCA
Purpose	K-3 Digital Library	Improve Grammar Skills	Digital Library, (reading skills)	Digital Library for iPads	Improve Writing Skills
Urbanicity	Suburban/Rural	Suburban	Urban	Suburban	Suburban
Size*	Medium	Small	Medium	Small	Medium

# Of Schools	26 schools K-12	6 schools K-12	33 schools K-12	4 schools K-8	32 schools K -12
# Of Teachers	1,104	171	1,749	147	1,248
Percentage of Students Eligible for FRP lunch	28.74%	30.6%	14.3%	26.7%	43.7%
1:1 configuration	Some schools are at 1:1	1:1 iPad	3-year Chromebook rollout (started last year in Middle Schools)	1:1 iPad district	1:1 iPad or laptop for grades 6-12

*Size: Small = less than 5,000 students; Medium= 5,000 - 99,999 total students; Large = 100,000+ students

CASE STUDY ONE: PEBBLEGO

Case study site one, in a medium-sized K-12 district in a suburban community in the Southeast, has a vibrant, innovative culture about the role of educational technology in teaching and learning, with a number of schools having one device per student (1:1). Their lead administrator for technology at the district level is also charged in her title with directing the user experience for educational technology. The district employs standing committees for curriculum areas as a communication tool regarding curriculum and instruction initiatives. The standing committee of three media specialists (one each from the elementary, middle and high school levels) identified a need to provide non-fiction materials suitable for K-3 readers to do the research projects typical in that district (e.g., animals, science biography, social studies issues, and so on). They had received multiple requests for more materials for this age group from the teachers they represent, and their review of the relative strengths and shortcomings of their set of database subscriptions confirmed that students at the K-3 reading levels were not well served. These technology leaders also recognized that because younger age children misspell words, which could lead to irrelevant or inappropriate materials being returned if students used a search engine on the Internet, a database of vetted materials at the appropriate reading levels provided multiple advantages to teachers and students. Their stated goal for the product was to get a “kid-friendly database...so kids could engage in supported reading around non-fiction topics. . . [to] engage kids given our access to technology and kids’ abilities to utilize different reading supports, [and in] Keeping with the UDL principles . . . [to] make text accessible to kids in lots of different ways.”

To learn about the process they used to meet this instructional need we talked with the lead district educational technology administrator, the elementary level media specialist on the standing committee, and a sixth-grade teacher at that Media Specialist's school in November of the district's year-long trial of PebbleGo. The process had begun in the prior school year with the elementary school representative to the media specialist standing committee reviewing emails from her peers over the last couple of years to locate the products recently identified by them as suitable for K-3 reading levels. She explained that it was a regular part of all media specialists' jobs to meet with teachers about resources appropriate for their classroom instruction, and that as they identify new needs they convey them to the media specialist standing committee members as their representatives to the district-level decision makers.

The district had informed the standing committee that its funding was not going to increase for database subscriptions, so any subscriptions to be added would need to be offset by those cancelled. To allow all media specialists the opportunity to weigh in on this decision, the standing committee members compiled into a spreadsheet the usage data for current database subscriptions, as well as listed the products on the market that meet the need for nonfiction sources at the K-3 reading level that had been most often recommended by media specialists over the prior one to two years. They emailed this spreadsheet to all of the district media specialists who were then able to comment or ask questions as they together set priorities for what to cancel, and review the suggested new databases for K-3. The director described that, in considering new databases, one review criteria was if they found it database content needed to be updated; for example, if the database still described Pluto as a planet. As a result of these steps some databases were identified for cancellation and PebbleGo was recommended to pilot and learn of its suitability to meet the needs of the K-3 readers.

Once this recommendation was put forward to the district's educational technology office, the Director of Technology and User Experience put PebbleGo through a technical review process that is typical of a product that is general content (i.e., not specific to any particular content area). Educational technology office staff members consider if the proposed purchase overall fit with district technology including considering the product's terms of service, price, and any software (i.e., browsers, OSs) and hardware requirements. In the case of PebbleGo, no concerns were identified and the Director and media specialists' standing committee agreed with the recommendations about which database subscriptions to cancel in order to free up funds to subscribe to PebbleGo. The district purchased a one-year license, as a trial period, for all 16 elementary schools in

the district. The Director noted that for a more content oriented educational technology purchase, their educational technology team would review it for fit with their instructional design and Universal Design for Learning criteria, and the district's lead coaches would consider its alignment with the state's standards of learning, the district curriculum, and the district's commitments to instructional strategies they identify as key pathways to learning. The Director summed this up as a review to ensure the product was consistent with the district's philosophy about teaching and learning. Finally, if textbook funds were used to purchase it, the public and school board could also weigh in when the purchase was reviewed before the board.

During this pilot year, the Director is monitoring usage statistics (log data) and soliciting ongoing feedback from the media specialists' advisory group, and teachers in the district's 16 elementary schools about how PebbleGo meets their students' needs. Usage data came up often in the interviews. The Director framed usage as a summary of inferences about a number of key things:

Folks want to see the kids being able to engage in supported reading around non-fiction topics. . . As we're looking at how do we engage kids given our access to technology, and kids' abilities to utilize different reading supports, and keeping with the UDL principles, how do we make text accessible to kids in lots of different ways? . . . You may have a fifth grader that is having first grade text read to him because that's what he needs.

In explaining how the district strives to meet teacher and student needs in a number of principled ways, she links the usage of materials as a proxy for success in providing for student needs. Regarding this database she concluded, "we want to make sure kids have access to whatever the content, however they need the content," and thus when students are using the content, students' needs are being met.

However, students got access to content in databases like PebbleGo when teachers planned lessons that used such materials. The media specialist described how she was regularly meeting with teachers to learn what types and sources of information they needed for lessons, and thus reasoned that when teachers used materials it implied it met teachers' needs and, by extension, it implied that teachers felt it met their students' needs. The importance of users' interest in the reference materials the school put forward to teachers seemed self-evident to the Media Specialist, who summed it up this way: "I mean, you can buy a really fancy, awesome database, but if nobody uses it then it's not worth the money."

Indeed, the teacher we spoke with said when he identified a need for materials he would typically start with the media specialist because “She’s so tech savvy that she usually knows something or she usually can figure out some way for me to get what I need or she can get it for me,” and he added that “we are fortunate here because the kid’s laptops come with so many tools already.” If neither of those approaches yielded something matching his need, then he would look around for a free product that wasn’t too “junky or clunky.” He described trial and error approaches to trying educational technology products that appeared to meet his teaching needs. Then, he either stuck with or abandoned things as he found they were accessible and manageable for students’ use of it without his assistance.

To summarize, what drove this district’s purchase was teachers’ expressed needs for nonfiction resources the K-3 reading level, a niche not filled by other databases to which they already subscribed. Their primary sources of information for judging the efficacy of a general content instructional product such as this one, after considering technical “fit” before purchase, are usage data which are being collected via log files created by the software, and any teacher or media specialist opinions that come forward via the district’s standing committees.

CASE STUDY TWO: NOREDINK

In case study two, a small suburban district piloted NoRedInk, a web-based program that uses students’ Lexile scores and expressed interests to generate individualized, leveled materials for language arts practice exercises while tracking students’ performance. The Assistant Superintendent reviewed the product request (i.e., terms of service, privacy, price, technical compatibility) after one teacher advocated for it as a tool to teach grammar in more interesting ways, with the hope it would help students improve their grammar skills and consequently their grammar and writing scores on state tests.

Three months after they had started their pilot, we talked with the assistant superintendent and the teacher who had advocated for NoRedInk’s use in order to understand the district’s decision-making process. The teacher explained that originally she found the freemium version of the product and was integrating it in her classroom to improve her student’s grammar skills. Both she and the students had liked it very much, and she was encouraging peers to try it. The assistant superintendent heard about this teacher’s enthusiasm and recognized that NoRedInk had been promoted in EdSurge (a technology clearinghouse) as a tool that developed grammar skills measured on a standardized test where their students struggled. To capitalize on the recruited teachers’

willingness, he decided to purchase access to NoRedInk for the nine general education teachers and one special education teacher at the district's one middle school and one educator at an elementary school. The pilot started a couple of months after the school year began.

NoRedInk's original teacher advocate in the district explained, "I like to use it not as my core instruction, but as an extra reinforcement that provides them sentences that are funny and interesting and relates to something they know and understand." She was aware that NoRedInk provided teachers with the ability to administer diagnostic tests, provides students with practice opportunities, and then take a growth assessment. She indicated that she planned to use that feature to test the effectiveness of the product and to see if her students' skills are growing. She speculated that all of the teachers in the pilot might do similarly and compare results. At the time we spoke to her, three months into the pilot, she indicated that the data collection so far had been informal. She was providing the assistant superintendent with feedback as he asked, and her school principal was checking in to see if she was receiving enough support. She anticipated that the group of pilot teachers would convene at some point and offer their recommendations to aid the district leaders in making their decision.

The assistant superintendent explained that typically he looked at several kinds of data to assess educational technology products, but at only a few months into using NoRedInk, they had not yet looked at student outcome data. He expected to also turn to the curriculum coach and the teachers to "determine if we're getting bang for our buck." They look at the NWEA test data three times a year to monitor student learning. His office sends out surveys as needed to inventory digital products in use in the district, particularly if he does not feel certain about whether or not they are making enough of a contribution to student learning. However, he feels that his most important source of information is going into the classroom, "Number one thing is me personally going into classroom and talking to teachers, watching students learn. And then me looking at the data. Are we seeing student growth?" He expected that with budget decisions coming up soon he would soon make a decision about purchasing NoRedInk more widely in the district. He explained that in order to purchase the product, he needed to see student growth at 80 percent or higher in the classrooms using the tool, "[The] magic number is 80 percent - if we see that I know what resources we have are good. Anything below 80 percent I question." With other products in the past he has piloted it with some teachers in a grade and used their peers as a comparison group to try and isolate its impact on student learning. While the assistant superintendent acknowledged that we "are living in this big data world" and described his commitment to data-driven decision making for

educational technology adoptions, he described how it was not always easy to sort out the impact of a product on learning:

It is very difficult to determine how effective these products are. You can look at NWEA. But there is the instruction that's happening at the same time...For example, why is our middle school ranked higher? I think it's eSpark, but don't have research to show if it truly is. That research study would cost a lot. Is it maker movement? Growth mindset? The summer project we did isolated it a little more, but the students could have summer enrichment programs that we don't know about. Even when eSpark shows us every year how much NWEA scores go up, that could be our curriculum too.

Nevertheless, he persisted in trying to implement highly recommended educational technology products and then determine how they contributed to student learning. He had a variety of approaches he used to find recommendations, including Common Sense Media, EdSurge Concierge, reaching out to other League districts, contacting companies and asking for the names of schools that are using a product, and requesting demonstrations in his office, to which he is likely to invite teachers.

In summary, this pilot was driven by teachers' need for engaging and interesting tools that improve students' grammar skills to prepare for the NWEAs and state tests. As the tool was first identified by a teacher, the pilot started with strong teacher buy-in and the goals were created in collaboration with their supportive administration. Their decision to purchase was largely driven by satisfaction data as well as test scores to determine the tool's impact on student learning and growth. The district had piloted multiple educational technology tools in the past and in each instance the teachers, principals, and assistant superintendent used student feedback and learning data to inform purchasing and adoption decisions.

CASE STUDY THREE: NEWSELA

Case three is set in a medium sized K-12 district in the Midwest that piloted Newsela as a part of a Chromebook adoption that had started that year in its seven middle schools. Newsela provides text on a variety of topics that can be scaled to many different Lexile levels. Their web site describes how this adaptive text is accompanied by quizzes, annotations, and "Write Prompts" for students, and it also provides progress notifications and reminders to teachers. Much of its design is supportive of teachers work to strengthen students' reading skills. Newsela appealed to the district for how it

could be used to differentiate reading materials and make them freely available for students, which they felt was necessary as a district with full inclusion of special education students about to embark on a implementation of Chromebooks. They piloted the paid version of Newsela in order to gain access to its analytics features that adjust the reading levels and materials automatically, based on students' work. The district leaders hoped this tool would demonstrate to teachers how the digital transformation underway could add value to their work, and enable more personalized teaching.

We interviewed the Director of Instructional Technology, an instructional specialist, and an instructional technology specialist midway through the first year both Newsela and Chromebooks were available to all middle school teachers, both of which had been piloted with a handful of teachers in the prior year. Over the last three years, an increasing number of teachers across the district used the free version of Newsela as they heard of it from the English Language Arts Instructional Specialist or their peers. Teachers' interests in and use of it kept bubbling up to district leaders through the Tech Liaisons, who are full-time teachers that meet quarterly with the district educational technology staff for a two-way exchange about what is happening in the buildings with educational technology. The district technology leaders heard about Newsela use both in those meetings and when they were out in the schools talking with teachers. Teachers' use of Newsela suggested to leaders it might be appropriate content to add to the upcoming 1:1 implementation of Chromebooks for their seven middle schools in the next year. The director explained they were "looking at what types of resources and access to resources kids were going to have now. We have textbooks online, and Google classroom, but we didn't have a ton of digital resources to go along with the roll out."

Part of the vision for their 1:1 implementation was that they would be able to personalize learning and differentiate materials for students. Newsela's free features included the ability to adjust written materials by Lexile level, and as a full inclusion district, teachers had to provide the materials on a topic of study at different reading levels to students, which they wanted to do so without making kids' different capabilities obvious to their peers. Because of shifts in the curriculum over the last ten years, teachers were trying to use more non-fiction materials in classes, particularly for the study of current events. More recently, their state's adoption of the Common Core standards meant greater emphasis on student reading comprehension, as well as working with text in more complex ways to foster deeper understanding. Newsela provided them access to non-fiction and current events materials by varying levels and tracked to standards; it also built in ways for students to provide extended responses to pieces, or to answer quiz questions, which the English Language Arts Curriculum and Instruction department

recognized would help teachers work with students on comprehension and complexity in their written responses. The leaders and teachers alike were curious about how the learner analytics built into Newsela might also help them personalize learning, but those capabilities were only available in the paid version. The leaders then asked Newsela to share a list of users in their district and, after realizing the extent of the grassroots interest, they decided to explore a pilot of the paid version of the software.

The decision making process for a pilot of the paid version of Newsela began when district leaders pulled together a group of stakeholders, including the educational technology team, a few instructional specialists, and a director at elementary, middle, and high school levels with a number of those teachers who were already using Newsela, to discuss the product and whether to more widely adopt it. At that meeting the teachers shared why they like Newsela, and demonstrated how they were using it in a classroom. The group discussed what they imagined would be the value from the analytic capabilities added in the paid subscription version. The group agreed the increased capabilities were appealing, so they then put Newsela through the district's digital resource vetting process.

This vetting process, put into place a year ago, examines such things as the educational technology for its compatibility with Chromebooks, applicability to different grade levels and subject areas, the licensing, and the cost structure for the number of kids who may benefit. The Director described that prior to this they had “digital resources all over the place and no one knew who had what and who was paying.” In the new process, a principal or curriculum director would start with a Google form to provide basic information that would allow the educational technology team to decide if they need more information, if they want to do a pilot or not--or had enough teachers used the product to suffice as a pilot, and identify what feedback is needed. This process is used for all digital resources the district will support and pay for. The Director explained the first screening criteria is whether or not it will work on a Chromebook, and then added “we're trying to look at tools that have the ability to hit multiple grade levels, that have the analytic piece for sure. But then also looking at, that synchronization with Google classroom is another big piece.” They saw the analytics as an important tool for teachers to use in personalizing students' learning.

The pilot of the paid version of Newsela ran for six months in the classrooms of 12 middle school teachers, 8 elementary teachers and 6 high school teachers, to provide an opportunity to determine the real differences between the free and the paid versions, and if those differences were worth paying for. The Director explained during this time

“The teachers could really see how well their students were comprehending the text” and that with their own custom questions “it really allowed teachers to get specific and address learning targets.” The stakeholder group reconvened and based upon teachers’ report of how the analytics had been helpful, they decided to purchase it. The Director explained that the guiding question for that discussion was “do we feel like this would be beneficial for all kids and all teachers?” He elaborated that “We didn’t look too much at student’s scores on Newsela versus student’s scores in general. We looked more at, do you feel like you are better able to target your instruction at a student-specific level? That was more of our driving factor so we didn’t look too much at the grade piece of it.”

To date, mid-way through the first year of piloting Newsela as a part of their Chromebook rollout with all teacher and students in the middle school grades, the program was used at will by teachers. This is in keeping with the district philosophy that teachers should steadily grow their repertoire of educational technology used, but such tools are resources for teaching, and they are not required to use them. District leaders indicated that this year they would look at usage statistics collected within the program itself, and then next year delve deeper:

Probably halfway through the year next year, we’ll really start looking at high school and middle school of how it’s being used, how often, what for, how is the data helping them drive their instruction, personalize and all that stuff. Right now it’s more of a basic, just are we using it? And mid-year next year we’ll really start diving into, what does that usage look like?

For this inquiry, planned data sources included talking to teachers while out in buildings or during coaching sessions, and leveraging the quarterly meetings with tech liaisons as a conduit for information on what is happening in classrooms.

To summarize, this mid-sized district built upon teachers’ interest and experience with this product and expanded access to a version with more features. This allowed them to frame Newsela as a tool for teachers to personalize learning, which was a goal of their district-wide Chromebook adoption. The data of concern to them includes teachers’ opinions and classroom uses, but its use is not required.

CASE STUDY FOUR: LIGHTSAIL

Case four is set in a small K-8 district in the Midwest that purchased Lightsail, an iPad-based app that provides 4,000 texts for students across a range of Lexile levels and subject matter topics with embedded multiple-choice, written-response, and Cloze

assessments. The software tracks students' comprehension and as they progress they are presented with materials of greater difficulty. The app also includes a social network component that supports students and their teachers exchanging ideas about the texts. The initial appeal of Lightsail to the district was simply its ability to provide a robust library of fiction and nonfiction texts at a variety of reading levels, but during the adoption process they realized that the product's assessment and interactive features would offer considerable additional value to their teachers' approach to novel study.

Our interview with the Assistant Superintendent and a teacher who was trying out Lightsail in her classroom occurred in March of their first year of the product's use after the pilot. The Assistant Superintendent explained that when she first saw a reference to Lightsail the district was in their fourth year of implementing iPads with students at a 1:1 ratio. The district wanted to provide a digital library to students via the iPad, and had tried one other approach to doing this, but was not happy with it, and then reviewed other options, which they also rejected. She contacted the Lightsail sales representative to come and do a demonstration for her, the superintendent, and the assessment coordinator. She explained that in a small four-school district like hers, she wore many hats including overseeing curriculum and instruction and has substantial hands-on involvement with any purchase of curricular resource for student instruction. She recounted that at the time they felt like they were simply reviewing a possible source for a digital library. After that demonstration, the district personnel were satisfied that not only would the product deliver a library through the iPad, but its note-taking and annotation features could potentially redefine how they approached novel study if teachers used them to create a back-and-forth exchange as students reflected about the texts. She described the district as very data-driven and so the built-in learner analytics appealed to them a lot as well.

The Assistant Superintendent described the decision-making process as starting after that initial demonstration to administrators. She invited librarians from each of their four schools to a second demonstration and they each brought a teacher along who had a strong practice for book study and the use of literature in the classroom. Whereas for a typical curriculum adoption they would have developed a rubric to review products, that did not happen in this case because consideration of the product had initially been framed as a simply access to texts. Like during the first demonstration, the participants in the second demonstration realized that the app was more than a library and became excited about how they could leverage those other features. It was also very appealing to them that the district would get to keep the 4,000 book titles accessed through the app even if they no longer subscribed to it. The Assistant Superintendent reached out to two

other districts that were using Lightsail and heard only positive things from them about the product. The district decision makers then purchased access to the program to pilot it in three of their schools in grades two to five.

The teacher we spoke with provided her classroom perspective on the benefits of the district's approach to offering products to try out, as well as the importance of tracking whether or not teachers actually used product features during a pilot. She described herself as committing through the pilot last year to collaborating closely with the school librarian to "work through any glitches encountered and learn how to use it to the best of its capabilities for the classroom." From her perspective, the program provided a number of features that were needed in part because the district did not actually provide a formal language arts curriculum package (reading, writing, phonics, comprehension, grammar) for the third to fifth grades. While materials had been considered for a curriculum package adoption in the past, they had been rejected because of incompatibility with the district's iPad technology or for other reasons. She appreciated how the district "did not micromanage" their classroom planning and that software programs were often presented as options they were encouraged to try, but not required to use. In this tradition, she first saw Lightsail as an option but then quickly realized it presented an appealing solution:

This honestly kind of started as a supplement to whatever we're picking and choosing. It's been a really frustrating piece of our teaching that we don't really have this curriculum. Most of us are not curriculum writers, but yet we're forced to kind of look for good quality literature, good quality non-fiction, and a way to assess it, a way to know that the children are engaged in it. Lightsail seemed to at least address a lot of those issues.

She explained that the main need Lightsail filled for her was to provide fiction materials that are accessible via iPads for language arts instruction, "I just felt that it was addressing most of my needs, and I committed to it." She thought some of the other teachers in the pilot had used it less frequently than she did, having found something else that suited their needs better. For non-fiction content she herself used other curriculum materials purchased for social studies and science. However, this teacher found some of the other Lightsail features less practical for use in her instruction. She was skeptical about students' Lexile scores in Lightsail when they did not seem to match what "she saw in real life," and that some students' scores changed but others did not, which students questioned too, "I know it's based on an algorithm and all kinds of things like that, but it's kind of frustrating sometimes, because we can't really answer the child

to tell them why it has or hasn't changed.” She liked that it captured students’ reading minutes, and the program’s Thinkfeed feature where students can react to the reading as they go along, but could not remember whether it was in this program that she graded students’ end of book answers or another, “because there's so many programs we use, I'm trying to remember which is what.” While she had asked the district to purchase within Lightsail a set of a book title for a whole class novel study, she found that this did not work well because too many students were at different reading levels. However she liked using the product to assign students independent reading. This teacher’s earnest trial of a variety of Lightsail’s features that appealed to district decision makers showed that some were more useful to her than others, and some not useful at all. Her summary of the effort she and a librarian put into this pilot highlighted some real costs of technology purchase decisions that are not easy to track:

. . .You commit to working through the problems, but in the meantime, it ends up being a huge, huge time suck. Last year I met with [the media specialist] after school, I can't even tell you how many times, just to work out issues that we were having with Lightsail, or going back and forth with emails. . . .We just kept going with it. That's one thing I don't think [admin] even really understands or appreciates, all the behind the scenes things that most teachers have to experience with these programs.

Regarding outcomes, the district administrator reported that she had not collected any formally because she would not expect to see many measureable changes until the program was more familiar and entrenched in teachers’ classrooms, “I don't think we're quite there yet. Usually with these tools, it's usually year three, I have found in our brief history of doing this, that we start to find out was the pay off there.” She added that she had observed that teachers and students have favorable reactions to it, and to her the benefit to students of these high levels of usage statistics were self-evident:

What I'm seeing is, anecdotally, if something doesn't work with it, the kids get upset because they want to get into their Lightsail to read their book. If we're having a technical glitch, it's not like the kids are like, "Woohoo! I don't have to do Lightsail." When the teacher says, "We're going to work on Lightsail while I'm working with the small groups, you can go into your Lightsail." They're excited and they're happy. . . .Right now, across the country, we have the fourth highest amount of minutes read in the country for Lightsail, and we're a small district. I have two teachers in my district in two different schools that are in the top ten users in the country. The thing with reading is the more you read, the better

reader you can become. Just that simple rule, and that simple thought that I have more kids reading both at school and at home, is a winner for me.

She explained that the access to a digital platform and through it a library account that is always accessible was an important way for the district to support its mission of providing equitable opportunities for students.

Since every single one of my kids has a device, and 95 percent of them take it home, 24/7, I know these kids have books at home to read. [Equity and access is] huge. It's huge. We are a very diverse district. . . . I have kids at home that have no books. Then I have kids at home that have probably books written by someone in their family. . . .To have the knowledge that every single kid could, if they wanted to, sit down and read a book instead of turning on the game box, it's a really good feeling.

To summarize, this small district was able to quickly involve the few key district decision makers needed to review and purchase a product that fulfilled the primary function of a cost-effective digital library while also providing potentially useful added value to the language arts curriculum, should teachers elect to use those features. Their data collection to date and planned for reflected these optional uses by teachers.

CASE STUDY FIVE: THINKCERCA

Case study five is set in a medium-sized, suburban K-12 district in a Common Core state. When we spoke with the Director of Assessment and Performance Management and the Manager of Instructional Technology, the district was over halfway through a school year long pilot of ThinkCERCA. On the product's website it is described as a collaborative tool that supports learning in critical thinking through argumentative writing. ThinkCERCA promotes its differentiated, self-paced lessons as well as platforms to host discussions and spark debates in every classroom. In addition, the company highlights the tool tracks reading and writing progress in real-time, and monitors growth on 21st century literacy skills with data that is accessible to everyone, including instructional leaders, teachers, students, and their families. Their Director of Assessment and Performance Management recounted how students' lackluster performance the first year they took the Smarter Balance assessments resulted in important feedback that the district was not teaching to the rigor of the writing standards to which they would be held accountable. The Director explained the district leaders knew that it needed a product to "help teachers learn the standards and the performance expectations along with the students . . . [to] help students really own their learning, develop their own

pathways, and understand what the expectations for their next learning trajectory or skills progressions might mean.” They felt Thinkcera would help teachers and students alike learn of the new performance expectations demanded by their state’s adoption of the Common Core.

The Director of Assessment and Performance Management and the Manager of Instructional Technology described the district’s educational technology decision making as a multi-step process they’d launched over one year ago to tame what the Manager called “the wild wild west”, with many digital or web-based products purchased at the school level without district level coordination to ensure technical compatibility, manage inputs of student rosters and outputs of data, and minimize redundancy. The Director also described how some digital products were put into place as byproducts of an adopted print curriculum, and that often the digital add-ons were not vetted at all for quality, and subsequently they found these supplemental pieces were not being used.

The thorough process the Director and Manager created to review materials now involved many administrators and stakeholders throughout the process of a pilot, including a Digital Advisory Team (DAT), a Digital Integration Team (DIT), and a Digital Evaluation Team (DET). The process would also include various teachers and other stakeholders as it seemed pertinent to the specific nature of what was to be piloted and where. The first step in the process is for an educator (i.e., teacher, principal, or central office team member) to nominate a product to be piloted in one or more classrooms by filling out a form to provide information on the product, its vendor information, the educational or technical solution the proposer believes it provides, the initiative or strategic plan it is addressing, and potential funding sources for the purchase. The DAT team reviews this form to screen for obvious concerns like a lack of funding, student privacy issues, or duplication with an existing district resource. If they see no major problems, then products that require interoperability with existing district IT structures are referred to the DIT team, headed by the Network Director. The DIT reviews the compatibility with the district’s iPad iOS, and things such as if district data integration or any middleware software, or if LTI or API is required. They share their assessment as a red, yellow or green light, to represent how much effort it would take the district to implement and support the tool. The DAT meets monthly, where they review the finding by the DIT, and the proposer(s) can present. The DAT would then recommend killing the request, approving its purchase by the requestor, or initiating a pilot. The Manager gave a tool without content, such as a digital video conversion tool or a portfolio system, as an example a purchase that would not require a pilot. Once the DAT signs off, they send their approval over to the purchasing department. However, if the product were

content-based, instead of signing off on it, they would next route it to the relevant curriculum and instruction team for a review.

With the curriculum and instruction team's approval and input, a pilot would get planned, especially if a product is being considered for district-wide adoption. The Director explained that whether to pilot or not was considered in light of the total cost of ownership, whether from the costs were from the technology itself or from the costs required to prepare and support instructional staff to use it. For example, if a product's features included learner analytics but would require significant investment to train teachers to use it and then take their time to delve into student results to leverage lesson plans based upon the analytics, the product would be considered as critical to pilot to determine if it warranted such an investment. The Director shared that her office had the capacity to run about three of the twelve-week pilots per semester, and about six or so a year. The Manager indicated that in the previous year 67 requests had come to the DAT, and of those about half were instructional in nature. So roughly twenty percent of the instructional requests went through a full pilot process.

During the planning for the pilot, they considered questions such as "Will the product be fully integrated? How is the professional development going to be structured? What supports are needed? What does the implementation plan look like?" The district collects data in six domains to evaluate pilot success, which were derived from the district's vision for learning, its instructional framework, and best practices. These criteria include whether it supported personalized learning, blended learning, student ownership and the development of student agency, rigor and common core standards alignment, and development of the four C's and 21st century skills, did it help the students learn, and ease of use. To design the instruments and determine how to collect the necessary pilot data, the director developed a framework with eight evidence sources: teacher surveys; student surveys; teacher logs; data collection protocol; student achievement results based on analytics inside the platform as well as independent tools; teacher focus groups; student cognitive interviews; and teacher observations.

To oversee the pilot, the director of assessment and performance management would form a group of about four to eight stakeholders, including relevant content program leads and teacher leaders. This pilot committee would design how to assess the six domains using the eight data sources. For example, a request of teachers might be for logs via a Google Form where once or twice a week during a ten- to twelve-week pilot they make a statement about their experience with the technology. The committee reviewing the data would look for signs of frustrations with the technology, or evidence

of student learning in the remarks the teachers volunteer. The committee members would oversee classroom observations with a protocol, which mostly focuses on observing students and their engagement. The director explained:

Do we see students transferring the skills that they might be learning on the adaptive learning platform into some kind of sharing with their peers and transferring the knowledge to demonstrate that they've truly mastered the skill. So that's . . . back to that four c's and rigor. We ask the observer who's doing the teacher observations to look for evidence of blended learning. To not just assume it's happening, but actually look for the evidence. So is it clear that what is happening in a teacher facilitated learning group is supported or supportive of what's happening when students are immersed in the adoptive platform in their one-on-one rotation station. Something of that nature.

During the pilot, the committee meets either weekly or bi-weekly to discuss its progress and look at the data collected to date. In the end, they create an executive briefing evaluating the pilot's success, based on the data sources and criteria described above, and present it to the district leaders and cabinet. If the district supports moving forward with a purchase, the director of assessment and performance would negotiate with vendors, using the evidence they collected, to find the right deal for the district. The director reported that often the vendors are very interested in what they learned during the pilot.

To summarize, this district supports innovation through the thorough process they designed to determine whether an educational technology product is successful in meeting the needs of their students. The district uses this process in order to fully vet the products requiring the most investment so they may make wise decisions most likely to benefit the learning and educational experiences of their students.

DISCUSSION

A number of themes emerge across these five cases. First, forces beyond the district influence what these sites purchased. The shift to one device per student and state standards is driving some of their search for tools. In case four (Lightsail) there was an explicit desire to purchase an electronic library to deploy and add further value to devices already in the hands of students. In cases three (Newsela) and five (Thinkcera), district leaders mentioned how reaching skill levels required by the Common Core standards drove their search for instructional products that would help their teachers

work with students.

In each case we heard statements about selection criteria or interest in the product stated in terms of the districts' instructional philosophy. For example, in cases one (PebbleGo) and four (Lightsail) a part of their rationale for providing a digital library was their desire to provide an equitable number of resources for learning to all students in their districts. In other cases the leaders described how the product they selected had been evaluated in terms of the district's areas of improvement emphasis.

The type of educational technology tool that is purchased influences the interest districts have to seek student-level outcome data as evidence of the product's efficacy. For the purchases associated with access to content (i.e., PebbleGo and Lightsail) school leaders considered usage or log data generated by the program itself as sufficient indication that the program is "working." Where the software's functionality encompassed skill development (i.e., grammar, reading, and writing in NoRedInk, Newsela, and Thinkcera, respectively) leaders stated future plans to look at student-level outcomes as a means for judging if the program "worked". But only in cases three (Newsela) and five (Thinkcera) did we hear of plans to try and correlate students' uses of the products with outcome data beyond what was generated by or within the technology itself (i.e., local, state, or national test scores).

We also saw that district's level of data literacy or the extent to which district leaders had an assessment focus in their responsibilities influences what happens with the use of data in piloting educational technology products. In case five (Thinkcera) there was a Director of Assessment and Performance Management who, when she applied her job's focus to the topic of educational technology, created the most elaborate process among the five cases. In case three (Newsela) the Director of Instructional Technology had a very data-driven mindset that was evident in his approach to setting up and running pilots of products.

Overall, we saw in all five cases that districts rely on teachers' interests, opinions, and inclinations to use educational technology products as very important indicators of its value. Subscription-based products are added quickly, or potentially dropped, based upon teachers' uses of educational technology products.

IMPLICATIONS & RECOMMENDATIONS

These innovative districts already use more thoughtful and involved decision making processes for educational technology than has been previously reported as typical in

K-12 schools. Nevertheless, the cases suggest several implications for how to strengthen the chain of data-based reasoning.

PRACTITIONERS

Practitioners might work to better leverage teacher voice, which we saw was often an important part of their process, to understand the instructional need the educational technology product is intended to address, so that research can be designed to determine whether the product meets that specific need. If leaders create district routines to gather and synthesize stakeholder input to select educational technology products (e.g., through stakeholder meetings, flowcharts or decision trees), it would clarify to all stakeholders how to give input on a product and increase the amount and quality of that input. This in turn would likely allow leaders to identify the type of efficacy research needed about the educational technology product. This information could then be sought from vendors, research literature, or generated by the district via its pilot processes.

EDUCATIONAL TECHNOLOGY ENTREPRENEURS

Educational technology companies could identify the intended impact of their product, and develop specific measures districts might use to assess changes in student learning outcomes (such as learner analytic features, log data, etc.). These could then aid districts in designing and conducting efficacy research that fits their specific context and research questions.

RESEARCHERS

Researchers familiar with a variety of research design methods and approaches can offer the educational technology producers and consumers advice on the relative merits of them. For instance, it should be clear which type of research study (action research, improvement science, randomized control trials, etc.) is needed to gather the standard and granularity of evidence required for the risk and cost associated with implementing a particular product.

POLICYMAKERS

Policymakers can consider how to promote initiatives that provide technical support to districts to conduct more rigorous pilots that collect data they can use to determine whether an educational technology product “works” for their students. Numerous organizations have developed frameworks and recommendations (e.g., Department of Education Rapid Cycle Evaluation Coach, Learning Assembly Toolkit, Digital Promise Ed-tech Pilot Framework), yet additional systemic support is likely necessary to help

districts implement these tools and practices.

FUNDERS

Funders can support further research on educational technology products, developing data literacy among practitioners and entrepreneurs, as well user friendly tools and frameworks that help school districts address their key questions about how educational technology products support their students' learning.

UNANSWERED QUESTIONS & NEXT STEPS

The limitations of this research is that it is not generalizable; the sample was limited to small- and medium-sized League schools, and a limited number of types of educational technology products were represented. Thus, there are many questions that remain that suggest a number of next steps. Further cases might be conducted in sites that offer a wider variety of sizes, levels of innovativeness, and a wider variety of educational technology products. With a broader base of knowledge for insight, researchers might be able to design a survey that could collect information about K-12 educational technology decision making with a generalizable sample of U.S. schools. This would provide a more robust knowledge base to inform developing interventions that strengthen the chain of data-based reasoning used in K-12 educational technology decision making.

CONCLUSION

These cases highlight users' voices as critical to providing insight into more advanced League schools' capacity and preparation to bring research into their educational technology decision making. Design-based thinking and improvement science might help us frame this significant problem in new ways, and would suggest we must work with and from users' points of view.

APPENDIX

Email Recruiting Districts

Dear xxxx,

I am reaching out to see if you might be interested in participating in a research project that is part of a much larger [collaborative effort](#) to move efficacy to the center of the discourse concerning the development, adoption, and implementation of technology in education. Digital Promise, the University of Virginia, and the Jefferson Education Accelerator have brought together more than [150 of the nation's leading educators, philanthropists, researchers, entrepreneurs, and investors](#) to each spend a year together in [ten working groups](#) researching and analyzing different parts of this huge problem.

The working group I am a part of is conducting a research project focused on understanding the factors that influence K12 district decision making. We are seeking districts that have recently purchased an instructional tech (curriculum) product in which to conduct some case studies. At each district site, we hope to conduct semi-structured interviews with 4-6 key stakeholders who can provide insight into the purchasing process. The overall time commitment would be approximately 45 minutes per district representative.

If you are willing to have xxxx participate, our working group and research leads, Aubrey Francisco and Sara Dexter (copied here), would love to schedule a short call to share more about the project and overall effort. They'd be seeking your input on and recommendations for the key job roles in xxxxx's purchasing process who we should seek to interview.

All best,

Interview Protocol

1. Describe what was purchased and the scope of its deployment.
 - What was the decision making process like?
 - What was the sequence of events?
2. What are the priorities the district has that they felt the instructional technology would help them address?
 - What teaching and learning needs are you wanting to meet?

3. How does your district approach the decision making process (DMP)?
 - What org systems are engaged?
 - Which stakeholders are involved?
 - What explains what source(s) of information are used in their decision-making processes? and when and why, by whom, and how? In cases where efficacy research is not used, why is that?
4. What are the outcomes/ impact results did you expect? for teachers? for students?
5. What associated “peopleware” did you identify as needed to complement your hardware or software purchases?
 - How did you you identify such learning was needed by those who would implement? (i.e., could have come from efficacy or other sources consulted in advance. Is there any needs assessment or identification of skill sets.)
6. What associated organizational support elements did you identify as needed to complement your hardware or software purchases?
 - How did you you identify such support (personnel, time, policy, etc) was needed by those who would implement?
7. How do you determine the impact of this instructional technology?
 - What do you collect/monitor in order to help determine the impact of this instructional technology?
 - Who is involved in analyzing it? How do you report it, and to whom?
8. We’ve been discussing an instructional technology product destined for classroom use by teachers and students. Does this process you’ve described seem typical for all types of hardware and software your district purchases?
9. For your future purchases, what types of data about educational technology resources do you believe might be helpful to/ would influence making purchase decisions?

Coding Scheme

Code	Description
Product: Description	Information about what they bought and what it does
Product: Purpose & priorities	Information about what they hoped to get from the product. What drove them to it, what needs, challenges, and opportunities motivated them to purchase it?
Process: Requests	Interactions or processes that led to the product being requested
Process: Review	Interactions and processes that were a part of the reviewing of the educational technology under consideration.
Process: Participants	Interactions and processes that influenced WHO weighed in on the procurement
Process: Evaluation	PLANS for evaluation as a part of the process (see also LM: Eval for actual evaluations done)
Process: Budget Purchase	Interactions and processes that influence and or describe the actual paying for and gaining access to the educational technology

Efficacy: Pilot testing	Actual utilization of pilot testing as a way to gain insight into "does it work" (for us at least)
Efficacy: Studies and other	Utilization (i.e., review) of studies on efficacy or similar
Logic Model: Inputs	Logic Model concept of inputs (what we invested)
Logic Model: Outputs and Activities	Logic Model concept of outputs (activities: what we do, who we reach)
Logic Model: Outcomes	Logic Model concept of outcomes (short, medium and long-term)
Logic Model: Evaluation	Logic Model concept of evaluation: Interactions or processes that occurred about "how it is working" after it was acquired for use in the school or district. Potential double-code with Efficacy.

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