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AT THE HEART OF EDUCATION

Curriculum and Technology:

A TRANSLATION GUIDE FOR BETTER K–12 DISTRICT DECISION MAKING

Success in implementing district-wide initiatives like transitions to digital curriculum or learning management systems requires curriculum and IT leaders, people who come from very different backgrounds, to be on the same page. Here's a translation guide to help curriculum directors and IT directors speak the same language and work from the same playbook to improve learning outcomes.

Introduction

Getting curriculum directors and IT departments to work from the same playbook and use common terminologies isn't always easy. With one side focused on making sure the hardware, network (IT) infrastructure, security, firewalls, and application support work properly at all times, and the other focused on implementing effective educational plans that teachers can use to deliver high-quality education to K–12 students, IT and curriculum don't always speak the same language.

We're here to help. In this translation guide you'll hear about the challenges that this miscommunication can cause, learn some of the most important—and often misunderstood—terms, and discover a good "middle ground" that both entities can use successfully in the K–12 environment.

It's Kind of Like Trying to Align the Planets

Few would argue that IT teams and curriculum directors don't communicate adequately enough to make headway on a daily basis in their schools. A quick assessment of education's progress on the technology front—including the number of successful 1:1 implementations and large-scale software deployments that we're seeing nationwide—proves that these departments are communicating.

Dig a little deeper, however, and the alignment between IT and curriculum isn't always as harmonious as it seems. Because they're constantly having to decode one another's language, terms, and jargon, there's often confusion. When selecting software, for instance, those miscommunication can make for an expensive and time-consuming process that doesn't always produce great results. When software implementations don't align with or support curriculum, for example, challenges like low user adoption result.

"Teaching and curriculum are both embedded in a great deal of history, and in delivering education in a certain way," says Ruth Allen, instructional technology specialist at Forsyth (GA) County Schools. "Shifting that mindset can be difficult in a world where IT is focused on tech and doesn't always understand the meat and depth of the lessons that are being delivered with the help of the technology."

The good news is that when both entities are aligned and using the same dictionary, their districts can cut costs and save time. And a powerful curriculum-technology

affiliation can facilitate teaching, create rigorous learning environments where students can develop 21st-century skills, and leverage data to improve student outcomes.

"If both sides can come together and realize that they can take the innovative pieces of tech and use them to make learning more personal and effective," says Allen, "and involve students in the process, they can cover a lot more ground."

Getting Everyone on the Same Page

What do tourists visiting a foreign country for the first time, engineers starting work with new companies, and archivists who are arranging and preserving historical source collections all have in common? At some point, each of these people will turn to a translation guide or other reliable source to help decipher unfamiliar terms. Put simply, there's no shame in having to "look

something up" to make sure you're speaking the same language as the people with whom you interact on a daily basis!

"In our district, there was a realization a few years back that technology is really a part of instruction, and that it's not a separate entity," says Mike Mades, director of technology at Sun Prairie (WI) Area School District. To better align the two departments and get them speaking the same language, Mades says both take part in activities like textbook adoption. They also talk to one another about what they mean when they use common terms like instructional resources, standards, curriculum units, and accessibility (e.g., for IT accessibility refers to access to instructional materials and guides, whereas curriculum defines it as access to learning).

With this translation guide, you can address both sides of the table effectively and then find common, understandable ground between the two:

The term	How curriculum defines it	How IT defines it	To find common ground, use this definition instead
Adaptive Learning	An educational process where the teaching methods and materials adapt to each student's pace and level.	Software that changes exercises, questions, and content easily based on previous answers and actions by a student.	Using computers, devices, and online systems in ways that adapt and respond to a particular student's performance in real time.
Blended Learning	Also known as hybrid learning, this is a teaching practice that combines, or blends, classroom and online learning. Instruction occurs using both teacher interaction and computing devices.	An education program that requires the support of online digital media but that also includes traditional classroom methods.	A "blend" of online and offline learning, this tech-supported teaching practice involves a mix of face-to-face instruction and Web-based online learning.
Bring Your Own Device (BYOD)	Instead of handing out laptops or devices to students, pupils use their own mobile phones, tablets, and/or laptops in the classroom. Trying to keep all of the devices online can prove to be a distraction for teachers, but the consensus is generally that BYOD is a viable alternative to a school-funded 1:1 implementation.	Students bring their own mobile devices into the classroom for class purposes, as opposed to using school-issued devices. This is often seen as an alternative to 1:1 programs due to lower maintenance costs, though students without devices cannot participate.	An alternative to more expensive, school-issued 1:1 programs, the BYOD approach helps to bring technology into the classroom without the associated investment and/or liability that a school-run 1:1 program demands.

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Common Cartridge	A cartridge may be an assessment filled with test items, an entire set of supplementary digital content that comes along with a textbook, or an online course.	The cartridge is a specification that enables strict interoperability between content and systems. Cartridges also support great flexibility in the type of digital content supported (content can actually be applications) and where such content is located.	This interoperability standard provides a set of specifications that enable a wide variety of digital educational content to be accessed from a wide variety of learning platforms, including learning management systems, course management systems, virtual learning environments, portals, and Web applications.[i]
Content Management Services (CMS)	A centralized system that teachers and administrators use to create content like grades and progress reports.	A CMS has two components: a content management application (CMA) and a content delivery application (CDA). The CMA is a graphical user interface (GUI) that allows the user to control the creation, modification, and removal of content from a website without needing to know anything about HTML. The CDA component provides the back-end services that support management and delivery of the content once it has been created in the CMA.[ii]	A district-wide, centralized system where content like grades and progress reports are uploaded, stored, and then accessed by students, parents, teachers, and others.
Content Repository	A database of digital content where instructors and curriculum directors maintain lesson plans, collections, and tools that they use for instruction.	A database that includes an associated set of data management, search, and access methods allowing application-independent access to the content.	A digital library that teachers and curriculum directors can use to store and modify content in addition to searching and retrieving.[iii]
Differentiation	In differentiated instruction, the learning process is tailored to the learning preferences and abilities of individual students or groups of learners. Differentiated instruction is still considered teacher-centered.	Using technology to tailor instruction that meets the needs of individual students (i.e., the use of ongoing assessment and flexible grouping to ensure that all learners are engaging with the content at their own levels).	A pedagogy in which learning goals are the same for all students but the method or approach of instruction varies according to student preference or to what research has found works best for students like them.

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Student Engagement	The attentiveness and interest a student demonstrates regarding the lesson at hand.	If a student is highly engaged, it means the student is focused and maybe even enthusiastic about the topic. Multimedia, video streaming, and podcasting are some of the tech tools that teachers can use to engage students in learning.	The best learning occurs when there is high engagement, or when students are highly attentive and interested in the learning process.
Flipped Classroom	A form of blended learning. In a flipped classroom, students watch lecture material (usually in video form) at home, then practice what they've learned in an interactive environment in the classroom.	Using screencasting tools, audio recording, interactive whiteboards, and other pieces of educational technology to deliver learning outside of the four walls of the classroom.	The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Students view short video lectures at home before the class session, and in-class time is devoted to exercises, projects, or discussions.[iv]
Hybrid Learning	Synonymous with blended learning. See the blended learning definitions above.		
Individual Education Program (IEP)	A comprehensive and personalized plan that helps a child with disabilities achieve a specific set of educational goals.	IEPs are comprehensive learning program plans created for students with special learning needs. Each program guides how all the lessons and learning events will be designed to address the particular learning needs of the student.	Parents, teachers, and school specialists work together to construct and carry out this plan, which helps a child with disabilities achieve a specific set of educational goals.
Individual Learning Plan (ILP)	A student-specific program or learning strategy based on a student's strengths and weaknesses. The ILP presumes that the needs of individual students are different, and thus must be addressed differently, rather than the traditional one-size-fits-all approach.	Real individualization is achieved through technology tools that facilitate delivery of instruction aligned to an individual student's needs and learning style.	The cornerstone of a quality education for each child, the ILP serves as a foundation to guide instruction and learning aligned to a student's strengths and weaknesses. Research has also shown that a student's role in the learning experience is crucial.

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Learning Management System (LMS)	A piece of software that serves as a centralized content repository, assessment platform, student data hub, and professional development platform.	A software application for the administration, documentation, tracking, reporting, and delivery of educational courses or training programs.	An LMS gives teachers, administrators, parents, and students an online component alongside their traditional instruction. Not only can teachers post classroom content and create standards-aligned content, but they can also have students participate in online discussions, submit assignments, and complete assessments.
Learning Object	Any digital resource that can be reused to support learning (e.g., a lesson, an assessment, a unit of study).	A modular resource, usually digital and Web-based, that can be used and reused to support learning activities.[v]	A collection of content items, practice items, and assessment items—from publishers or open resources collections—that are based on a single learning objective.
Learning Tools Interoperability (LTI)	The teacher who has an interactive assessment application or virtual chemistry lab, for example, can securely connect that lab to an educational platform in a standard way without having to develop and maintain custom integrations for each platform.	A standard way of integrating rich learning applications (often remotely hosted and provided through third-party services) with platforms like learning management systems, portals, learning object repositories, or other educational environments.	A standard that allows for seamless connection of Web-based, externally-hosted applications and content or tools.[vi]
Managed Learning Environment	A managed learning environment can contain student contact information and details about courses and modules in which the student has enrolled. Here teachers can easily access and assess student achievement and outcomes.	A managed learning environment combines all of the aspects of a virtual learning environment with a management system to hold extended information about participants and e-moderators.	A virtual workspace in which curriculum, resources, and online activities are supported, monitored, and facilitated.[vii]
Metadata	Information that provides context and/or additional information about other data, and that helps teachers classify and categorize their classroom data more effectively.	A data set that describes and gives information about other data.	Metadata summarizes information about data, such as the type of asset, date created, file size, and usage.

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OneRoster	This is a standard that helps teachers and curriculum directors automatically organize their digital resources, such as formative and summative assessment scores. With OneRoster teachers don't have to re-enter student data into every single program that they're using, and thus it saves valuable instructional time.	OneRoster is the standard specification for securely sharing class rosters and related data between a student information system (SIS) and any other system, typically a content application or learning management system (LMS).	By eliminating the need for manual creation of unique class roster data, OneRoster helps teachers and IT personnel set up and manage their districts' tools and technologies.[viii]
One-to-One (1:1)	A learning environment where every student has his or her own laptop or tablet to use in the classroom. Using the technology, teachers can make assignments, interact with students, provide feedback, and allow pupils to interact with one another both in and outside of the classroom.	Most commonly refers to a program where a school provides one device (e.g., laptop, tablet, etc.) per student.	Every student in a classroom is associated with one device or laptop.
Open Educational Resource (OER)	Freely accessible online courses, lectures, homework assignments, exercises, quizzes, interactive simulations, and games. Unlike paid learning resources, OER can be accessed online and used for instruction without the need for licensing or subscriptions.	Any online educational material that is freely accessible and openly licensed for public consumption.	OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and repurposing by others.[ix]
Personalized Learning	Instruction that is paced to learning needs and tailored to the learning preferences and specific interests of different learners.	Facilitated by tech and digital tools, personalized learning refers to a way of teaching that is tailored to students' individual needs. Often, students in the same classroom may be working on different content at their own pace, depending on their levels of ability.[x]	In an environment that is fully personalized, the learning objectives and content, as well as the method and pace, may all vary according to the individual student's own needs and pace of learning.

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Personal Learning Network (PLN)	Since teaching in a classroom doesn't lend itself to a lot of peer interaction, teachers create PLNs to meet other teachers for advice and support.	An informal network of people that is professional in nature and meant to aid an educator in furthering his/her pedagogical craft. The technology that supports PLNs includes the Web, good bandwidth, video, and social media.	When educators form groups of like-minded peers with whom they interact and share knowledge.
Project Based Learning (PBL)	A teaching method based on the idea of "learning by doing" that tends to encourage high levels of student engagement. Students "show" what they learn as they make their way through curriculum units while also interacting with its lessons, collaborating with each other, and assessing themselves and each other (instead of taking a "test").	Using tech and digital tools, students work on a hands-on, real-world activity that demonstrates the concepts they are learning. From the IT perspective, supporting PBL requires good bandwidth, streaming capabilities, and student-centric devices (laptops, tablets, mobile phones).	A teaching method that enables students to gain knowledge and skills as they work for an extended period of time investigating and responding to an authentic, engaging, and complex question, problem, or challenge.[xi]
Single Sign-On (SSO)	With SSO, teachers and students can use a single set of log-in credentials across numerous educational technology applications, rather than having to log in and out within the same session.	A session and user authentication service that permits a user to use one set of log-in credentials (e.g., name and password) to access multiple applications.	By authenticating the end user for all the applications the user has been given rights to use, SSO eliminates further prompts when the user switches applications during the same session.
Student Assessment	The tests, essays, projects, presentations, and other items that teachers use to measure a student's competency and progress.	Software that can be used to measure a student's competency in a particular topic. For IT, bandwidth is a high priority, as is the hardware required to administer the assessments. The amount and quality of the fiber optics between buildings—and the quality of licenses to support those access points—are also important. Simultaneous online testing, for instance, requires high bandwidth and effective management of that bandwidth.	The wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.[xii]

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Student Information System (SIS)	A piece of software that manages student data. This includes grades, attendance, background information, discipline records, health records, etc.	A portal where student records and information are uploaded, stored, and retrieved. The technology requirements to support an SIS implementation include the decision to support the platform on local servers (or move it to the cloud) as well as the data security and firewalls needed to protect the associated data.	Not to be confused with an LMS, an SIS gives teachers and administrative staff a tool for automating tasks such as running enrollment reports and recording grades.
Technological Pedagogical Content Knowledge (TPACK)	A model for how pedagogy, technology, and content can interact and work together.	TPACK requires an understanding of how content and technology influence each other. Specifically, this refers to the representation of concepts using technology and using technology in constructive ways to teach content.	TPACK attempts to identify the nature of the knowledge teachers require to integrate technology in their teaching while addressing the complex, multifaceted, and situated nature of teacher knowledge.[xiii]
Thin Common Cartridge	A zip file that contains a learning tools interoperability (LTI) link for authentication, a standard Web link to targeted content on a publisher's servers, and two different types of metadata.	Enables evolution to digital curriculum because the digital curriculum is hosted on a secure Web server while being searchable and accessible at a granular level by a learning platform.	An index of learning objects or other direct entry points to a district's Web-hosted content. Each index entry in the Thin CC consists of a link to a specific entry point to the Web-hosted content (a learning object) with associated curriculum standards and other descriptive metadata.[xiv]

Breaking Down the Barriers

As this translation guide demonstrates, IT professionals and curriculum directors can look at educational technology very differently. Though there are challenges, the rewards that come when curriculum and IT are working from the same playbook are plentiful and well worth the effort.

"You get better buy-in from your teachers," says Allen. "With everyone using the

same playbook when making decisions, technology becomes much more than just a 'passing phase' and teachers are more willing to dive in and make things happen."

Mades concurs and says that giving these two important—yet often very different—sides of the educational technology spectrum a common place to work from can pay off handsomely. "When everyone speaks the same language and knows what instructional resources, standards, and curriculum units are supposed to look like," he says, "students, teachers, and parents all have better access to relevant materials so that they can learn. It really breaks down the barriers."

## How itslearning Gets Curriculum and IT on the Same Page

Teachers need good communication tools to be able to build courses and projects, to communicate with their students (and with one another), and to work with their IT departments. By providing a central location to store content created by teachers, schools, districts, and publishers, the itslearning LMS creates an integrated resource where curriculum directors and IT teams can share and collaborate.

In addition to its LMS, itslearning gives K–12 districts the critical tools and implementation expertise they need to facilitate successful teaching and learning. With implementation team specialists who understand pedagogy, technology, change management, and project management, itslearning brings curriculum and IT together by ensuring that all content, courses, and student information populate the platform automatically.

Because the itslearning LMS is a curriculum-driven platform developed with teaching and learning in mind, it's uniquely positioned to facilitate transformative instruction. When they use the platform's assignment and test tools; content tools such as folders, files, and notes; communication tools such as discussion and conference; and import tools (that allow teachers to import content packages and content from libraries), both curriculum and IT are well equipped to manage communications in a seamless manner.

If you choose an LMS provider who will be a full partner in the initiative, and if you look for a company that has a wealth of experience in successful LMS integration, then you'll have a team of professionals at your side to guide you through every step of the implementation process.

With a single, integrated platform and a single login for content, curriculum, professional development, instruction, communication, collaboration, and assessment, districts can more easily personalize instruction for 21st-century learners, engage pupils, and improve student outcomes.
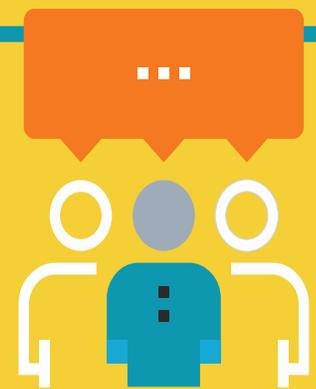
The 8 Golden Rules for Making the Curriculum-IT Relationship Work

Teachers need good communication tools Making any team run like a well-oiled machine is a challenge, but the curriculum-IT relationship in K–12 can present some particularly difficult challenges. In many cases, simply understanding one another—on both the technical and education sides of the conversation—is a fundamental first step for creating a student-centric district that's focused on improving outcomes.

In addition to establishing a basic level of trust and understanding between the two departments, keeping the student at the center of these conversations can go a long way towards eliminating curriculum-IT communication gaps.

Here are eight golden rules for making these relationships work:

1. Don't buy technology for technology's sake. Before undertaking any new tech implementation, establish a clear and compelling vision and a plan to execute it. Then communicate the vision and build support for the plan among stakeholders and create the right environment for success. "You have to clearly define your mission and your focus, first and foremost," says Lenny Schad, chief technology information officer for the Houston Independent School District (HISD) in Texas. "Then, you have to communicate your mission to stakeholders and articulate what their role is in achieving your goals. That's where you start to gain buy-in among teachers. But that buy-in will only continue if you have the right systems in place to support them."

2. Accept that there will be generational gaps on your teams. As Millennials continue to make their way into the workforce, and as veteran IT professionals continue to have a significant impact in K–12, there are sure to be generational gaps to overcome. Instead of letting those issues interfere, embrace those differences and make the most of them.

3. Make a big move and tear down the walls. Rather than taking staunch positions on either side of the fence, try to create an environment of mutual respect. A curriculum director, for example, may be able to help a CTO investigate upgrades for a district's wireless network (to support an online learning initiative). And a CTO might get involved with initiating new pedagogies in the classroom. With mutual respect, both sides can help bring new solutions and answers to the table.

4. Use a centralized learning management system (LMS) that enables instruction and improves student outcomes. By bringing together several different systems within a single digital ecosystem, an enterprise LMS provides a conduit that enables holistic, district-wide transformation to occur—empowering educators to teach more effectively, "Our network manager and interim data manager are working with itslearning's integration specialist to make sure the system integrates seamlessly with our student information system, Infinite Campus," says Anne Larson, digital learning manager at Sun Prairie Area School District. "It has definitely been a team effort. We have a weekly status meeting with itslearning representatives, and they help keep us on the right path."

5. Know that if it doesn't start at the top, it probably won't work. For a district's IT team and curriculum department to truly gel, there has to be buy-in from the top. In other words, sifting through to find the best choices isn't just an IT or curriculum decision; the process also involves the district's purchasing department, principals, superintendent, and other stakeholders. There has to be an expectation set at the superintendent level, with key leaders getting involved from the start.

**6. Step into the sandbox and start brainstorming together.** As educational technology continues to evolve, there's no right or wrong answer to the question "What applications or solutions will work best for our teachers and students?" To get to the best possible answers, both IT and curriculum departments should constantly bounce ideas off of one another, brainstorm, and explore their options.

7. Adopt the "same team" mindset. Curriculum directors and IT professionals may be focused on their individual goals ultimately, but that doesn't mean they can't work together as a team and from the same playbook. Where curriculum may dive right in and decide a certain device will be the end-all solution and purchase enough for the entire school, for example, the end result may be a lot of money spent on a solution that doesn't pan out. In many cases, these kinds of pitfalls can be avoided through early, engaging conversations between curriculum and IT.
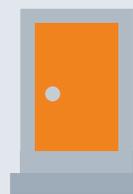
8. Finally, leave your ego at the door. Conversations are bound to get heated, and misunderstandings will happen, but if everyone leaves their ego at the door and puts the students at the center of the conversation, many of those problems will dissipate. Focus on the students, and not on where one person's job ends and the other's begins. When you get your own ego out of the way and focus on the student, the magic happens.