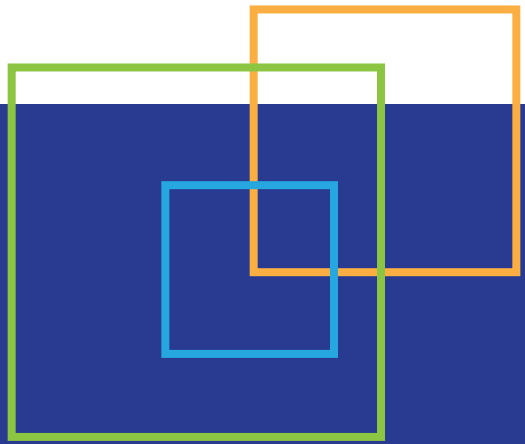


Educators personalize learning for every K-12 student using expertly curated and vetted Open Educational Resources

Executive Summary

Today's teachers are walking into the classroom without access to print or online textbooks. These teachers are turning to free resources to share with their students. However, simply using a Google search isn't enough. A teacher must sift through click-bait and bogus lessons, mislabeled resources, and lessons that may not align with district or state standards, including Common Core standards.

There are literally millions of free online resources for learning, commonly called Open Educational Resources or OER. These resources cover everything from simple ABC reading lessons to virtual tours of Shakespeare's Globe Theatre to cellular reproduction, and have been made available by organizations as varied as schools and school districts to Ivy League universities and the Kennedy Center's ARTSEDGE program.

A bridge is required to connect these resources to the students who need them. For almost 20 years the team behind CMX has been identifying, vetting, and sorting educational resources, matching them to standards, and providing educators with resources they know they can use and trust.

CMX is the educational platform for bringing education resources to students in an easy-to-access way, allowing teachers to easily identify applicable lessons and share them with students.

CMX has a companion product, CMX for Students, and together these products form a functional suite. Teachers can assign work online and track completion. Lesson plans can be individualized and activities can be given out individually or to classes or groups with a simple click.

CMX has identified thousands of free, online education resources and has aligned them to educational standards from all 50 U.S. states and countries around the world, including Common Core, TEKS, NGSS, NCSS, Canadian standards, and more. CMX also matches lessons in specific textbooks to OER that teach the same concepts so teachers can use those resources as complementary learning devices. CMX includes content in eight subject areas: Arts Education, Health and PE, Language Arts, Mathematics, Media Technology, Science, Social Studies, and World Languages.

While a simple online Google search can bring back tens of thousands of results, educators need a system where OERs have been verified, tested, aligned to standards, and tried by professionals. CMX provides the solution. It is the bridge between the internet abyss, teachers, students, and high quality OER.

CMX and the Open Educational Resources Renaissance

Freely-available education resources have changed the way that students can learn, and in response, the way educators teach continues to evolve. As the information age continues to burgeon, more online resources are becoming available, and they continue to become more accessible. This has created an environment where learning is encouraged, and where anyone, any time, can choose to expand their own education.

Open Educational Resources (OER) refers specifically to freely available digital resources, those that can be easily shared and accessed online. "Open Educational Resources" as a term was introduced at a UNESCO conference in 2000. OER now provides a blanket term for freely-available educational content, both digital and otherwise, including those in the public domain or those released under an open license.

Notably, universities around the world have started making educational resources widely available. Even in China, where the exchange of information is less free than elsewhere, the China Open Resources for Education (CORE) has championed uploading resources from hundreds of college courses. Centers of learning and culture, such as the Smithsonian, National Geographic, and many others, are also offering archives, articles, and other learning resources online, often for free.

The question must be asked: is OER effective? A 2014 study showed that students using OER materials performed better than students using non-OER materials. This study included over 4,000 high school students. Each OER student was matched with a student in a non-OER classroom who was similar in terms of demographics and previous academic achievement. Student performance was examined in three science areas: Biology, Chemistry, and Earth systems. Students in OER classrooms used open online textbooks (also available in printed format for $5 each) while students in non-OER classrooms used traditional fee-based print textbooks.

In all three subjects, students in the OER classroom performed better than the students in the non-OER classroom. In fact, the students who used the OER textbooks scored higher on end of year state-standardized tests.

Why did the students in the OER classrooms do better? It was suggested that perhaps the OER materials may not necessarily be better than the traditional textbooks; however, it's logical to believe that perhaps the educator-created structure of OER is more in tune with how teachers envision their lessons.

"The rapid growth of OER provides new opportunities for teaching and learning; at the same time, they challenge established views about teaching and learning practices..."" Li Yuan, et al, JISC CETIS

For teachers new to OER, knowing where to look for quality OER may appear to be a burdensome task. For self-starters, Google and an internet connection may be sufficient, but for educators and students who have to match a set of standards, where do you begin?

Individuals and companies have responded to this vacuum by creating clearing houses of links to resources on specific education topics, or by building "playlists" for accessing specific subjects or course material.

As it stands today, teachers can research material. Students can look up information on their own. But how do you bring them together? How can you bridge the gap?

"Open" and the Information Age

Rapid information exchange in the late 20th and early 21st centuries has led to a trend in open information that goes far beyond educational resources.

Open source software is available for free and users are encouraged to collaborate in helping refine operating systems, programs, and apps. The Open Source Initiative was founded in 1998 to help encourage this.

Creative Commons is an open source license for creative works, released in 2002, which actively encourages users and fans to share and utilize their works with proper attribution, free of penalties usually enforced under copyright law.

Teachers are saying:

"You mean I just select a grade and go? That's so easy."

"CMX allows me to easily search subjects for lessons and games to use with my students!"

CMX has proven to be an invaluable tool for educators around the world. Thanks to extensive work by the CMX team, teachers can share resources with confidence, knowing that every game, activity, and lesson has been vetted by professionals and aligned to standards. Entire school districts are utilizing CMX to streamline the educational experience, and build a bridge between resources and students. In fact, a significant partnership with HP is putting CMX-enabled devices in classrooms around the world.

Textbook Inventory:

CMX is pre-aligned to over 400 commonly-used textbooks for grades K-12. Teachers can search by subject, grade, and book title to identify OER within the CMX that teaches matching educational concepts and standards. Teachers may also access the textbooks directly if they are textbook subscription holders.

CMX for Teachers

How do you bring educational resources, educators, and students together?

That was exactly the question that CMX answered when it was created in 1997. On one side, there were educators, frequently under-budgeted, crying out for more resources. On the other side there were students, frequently web-enabled, certainly, tech savvy. In-between, there was a mountain of information: courses, videos, lesson plans, games, homework assignments, even entire curricula. The students, resources, and educators needed to be brought together. There needed to be a bridge.

CMX is that bridge. In fact, the company's tagline is "Connecting educators with what works." CMX indexes, collects, and matches thousands of free online resources to educational standards.

CMX grew out of a project to align standards and resources, and now for almost twenty years, CMX has matched educational standards (tapping into a repository of more than 3 million standards) with Open Educational Resources (OERs) and provided the gateway to allow teachers simple, straightforward access to online learning resources from around the world.

Teachers can search for lessons, worksheets, activities, and more, according to grade level, availability, and standards including Common Core, and then share those resources with students. Students with access to CMX for Students can receive assignments and complete them digitally. For students without CMX access, educators share links with parents or students and find new ways to express classroom ideas.

All content is vetted for quality by subject matter experts. The team of experts consists of former educators who have over 200 years of combined educational experience in the K-12 market. The team follows established criteria including adding only resources from well-respected, well-known organizations; avoiding resources that might have a short shelf life (i.e. resources that could be removed at any time); ensuring that no fees are associated; ensuring there are no (or minimal) advertisements; and minimizing the number of sites that may be free but require a login. CMX contains a variety of resource types in order to diversify the learning experience (i.e., lessons, videos, activities, labs, assessments, games, etc.). All URLs are checked constantly to ensure there are no broken links and new resources are continually being curated to keep the library current and fresh.

CMX at a glance

- Over 500,000 grade-specific resources
- Millions of alignments
- Content from 2,700 publishers
- Responsive design allows use from desktops, laptops, tablets and mobile devices
- CMX for Students uses an intuitive Pinterest-style design
- Build lessons, content libraries or packages for targeted learning groups
- Upload personal or district lessons and align them to standards and textbooks
- Share curriculum with students, substitutes, and other educators
- Access subscription content
- Add references to adopted textbooks
- Add metadata tags for easy sorting
- Comment, share, and rate content
- Integrate the CMX into third party applications via API

CMX Teacher Scenario

Next week Ms. Ruben's sixth grade class is starting a section on fractions. Her students have covered the basics of fractions in earlier grades, but she wants to start them with a review of the basics before she gets into greater depth.

Ms. Ruben knows that many of her students struggle with math. Some complain that it is boring; others never seem to quite engage, so she wants to find a fun way to introduce the topic.

She knows that CMX offers a wealth of resources in many different subjects, and she liked the vocabulary worksheets she found there last month, so she goes to the website and logs in. There, in her saved folder, are the math vocabulary activities she found the last time. She also sees that she saved a worksheet on fractions for another math section next quarter. She notes that both are from Math Drills and she decides to start there.

She goes to search CMX's resources and she knows she can be very specific. She identifies her grade and the topic, and then selects "On Target" level so she is getting basic resources, not advanced ones. She is also careful to make sure the resources match Common Core standards, and she selects Math Drills to focus on resources from that particular education company. Satisfied with her choices, she clicks search.

The first few activities she finds are not exactly what she is looking for, but one is a good activity for her class once they are up to speed with fractions, so she saves it for later. The sixth option looks like a good one, and after opening it and reading it carefully, she decides that it matches what she is looking for. It is engaging and fun, not too daunting, and it covers the basics. She saves this lesson.

Then she goes to My Classes and clicks on her class. This lesson will be distributed to all her students, but she has previously divided the class into several small groups, one of which often needs a bit more help (Skill Builder items), and one of which likes a challenge (Challenging items). She will go back and find more activities for both of these groups before the fraction lessons begin. In the meantime, she assigns this first activity to all the students in her class. Her students all have logins to CMX for Students, so when they log in tomorrow, they will see they have an assignment to complete. That will hopefully prepare them for class work on fractions.

Ms. Ruben decides to upload one of her own lessons—it's an old standby that she has used for several years and it always makes an impact on her students. She uploads it and then quickly aligns it to her state's standards. She'll decide later if she should print it out for her students as a take-home assignment or use it as an in-class activity.

Before she calls it a night, Ms Ruben sees that one of her students has already clicked through to the fraction assignment. Someone is up late, but immediate results do mean the system is working.

THE CMX DIFFERENCE

In a Gates Foundation open letter it was reported that despite teacher's best efforts identifying Common-Core aligned materials is a challenge and thus "teachers spend their time adapting or creating curriculum, developing lessons, and searching for supplemental materials" in order to provide those Common Core aligned materials to their students.

All the resources accessible through CMX are specifically aligned to a multitude of standards sets, not just Common Core, NGSS, or NCSS, etc. Competing products and product suites that may be otherwise comparable are aligned to core standards only.

With CMX, content is correlated to standards via patented technology developed by parent company EdGate in 2015. This exclusive process takes educational concepts, applies them to OERs, and then aligns those concepts with educational standards.

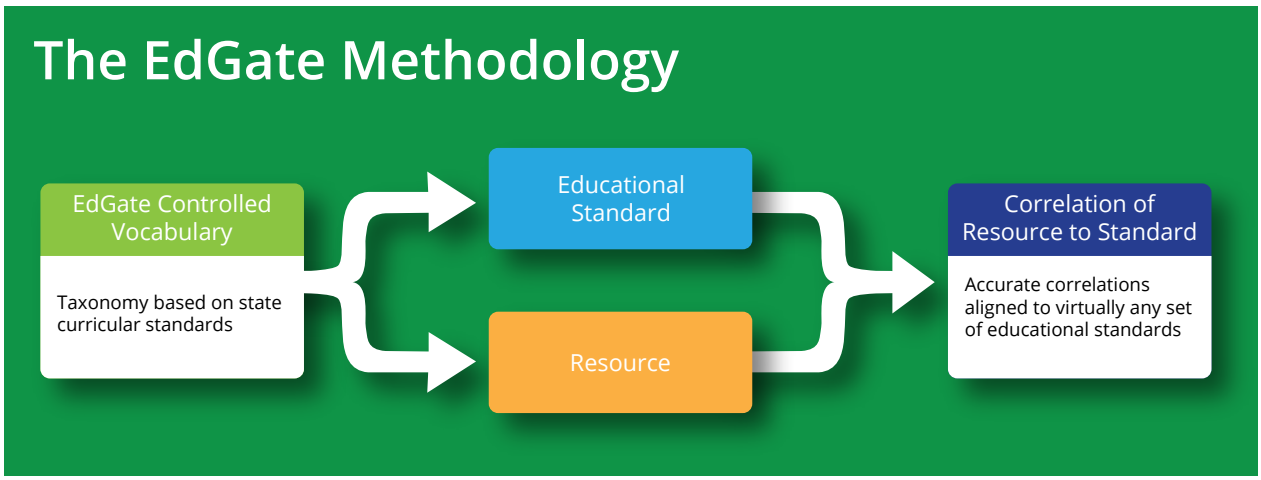
The difference at a glance:

CMX doesn't simply collect resources and put them under headings.

The libraries of educational concepts and standards are "married" and intrinsically connected. Therefore, whenever any new educational resource is added to CMX, the resource is tagged with applicable concepts immediately linking that material with the standards it aligns to, from PARCC to IB standards, to England's National Curriculum.

The methodology used in this patented technology is a key component of all of EdGate's offerings and products. EdGate has a team of subject matter experts who align content to standards using EdGate's Controlled Vocabulary®. The EdGate Controlled Vocabulary is a taxonomy based on state curricular standards. The EdGate Controlled Vocabulary has been applied to the thousands of educational standards in the EdGate repository by subject matter experts. These same subject matter experts review and assign the EdGate Controlled Vocabulary to new content to create the alignment of the content to the appropriate standards. The most efficient component of the EdGate Controlled Vocabulary is its dynamic and immediate re-alignment. Once a standard or a piece of content is reviewed and entered into the system by one of the subject team experts, the technology takes over and any new alignment is immediately available for review by the customer.

This has been proven time and time again over years of testing and success. The Controlled Vocabulary System helps CMX provide accurate correlations and align to virtually any set of educational standards and sets it apart from any competitors in the space. Also, unlike competitors, all materials are reviewed by subject matter experts to identify the concepts, rather than rely on "natural language" standards to do so, which often results in misalignment.



Standards Alignments

The content in CMX covers all subjects in grades K-12 and consists of many content types and formats such as video, interactive exercises, lessons, assessment questions, quizzes and more. As an example, the CMX resources cover 95% of the Common Core (ELA and Math) and Next Generation Science standards with the majority of these standards having 25 or more aligned resources from the CMX.

The charts below include resource counts and alignments of these resources to national and state standard sets.

Subject Areas

Arts Education	37,271
Career and Technical	35,298
Health and PE	21,693
Language Arts	75,236
Mathematics	88,885
Media / Technology	17,963
Science	181,234
Social Studies	122,798
World Language	4,471

STEM Alignments

Career and Technical	34,511
Mathematics	148,500
Media / Technology	235,868
Science	247,286

Language Arts Alignments

Common Core	219,148
Texas	267,377

Mathematics Alignments

Common Core	105,049
Texas	99,412

Science Alignments

California	244,345
Texas	265,104
NGSS	170,357

Mathematics Alignments

Common Core	293,226
Texas	280,832

Grade Levels

Elementary	252,066
Middle School	245,756
High School	87,027

CMX Demo Version

CMX is available free of charge HERE by clicking on "Try it Free." This is considered the demo version of the project, as it provides full functionality, but has fewer features than the licensed version, and only the first 25 results for any search are available. However, all the free OER identified by CMX are indexed and searchable.

CMX for Students

CMX for Students works in tandem with CMX for Teachers as an access point for a shared educational experience.

CMX offers access and links to thousands of student-focused educational resources for grades K-12. These resources have not just been collected, they have also been evaluated and collated by leaders in education and administration, so that teachers have the reassurance that any assignment they share will be useful and valid.

CMX for Students as Standalone

The CMX Suite can be purchased along with the Teacher edition of the program. CMX for Students is available to students as a standalone resource, with a free demo version available. Although the licensed product allows access to many more resources and features, the free version of CMX can be used by any student to discover lessons and activities within the four core subjects identified nationally by U.S. school districts: Language Arts, Math, Social Studies, and Science. The fully licensed version expands to an additional three subjects, covering an even wider array of knowledge, including Arts Education, Health and PE, and World Languages

Within CMX for Students, users are able to search for topics of interest, share resources with their friends, and populate a virtual binder with their favorite lessons, folders for sub-topics, and bookmarked entries.

The CMX Suite

Teachers with CMX can create playlists of assignments for students and track completion. This creates a green, paper-free form of study, particularly streamlined for modern, tablet-based and online-enabled classroom environments.

When students log in, they will see they have new assignments immediately (located under a tab), and by clicking through those assignments they can complete homework, read lessons, and engage in activities. The teacher is able to track who has completed this work. Assignments can be given to an entire class, smaller study groups, or individual students, and these groups can be saved for easy distribution of future lessons.

Specific subject areas and standards may be added to fill the needs of any school district or classroom. Remember that thousands of educational standards from around the globe are already loaded into CMX.

THE CMX for Students EXPERIENCE

Evan is the student who is staying up late. He's a bit of a night owl, and he actually likes to study, so he occasionally logs in to CMX and pokes around on his own to see what he might find.

He found a series of spelling exercises he liked, so he did two and saved a couple to My Binder. He creates a folder called "Spelling" to save these particular exercises. That gets him thinking about words, so he backs out to the landing page and clicks on Arts Education. Evan notices that there are more than 800 activities on art, and he knows he's made a good choice. There should be lots to explore!

Concept Map for Educators

Every resource available in CMX for Educators is linked to the Concept Map. This is a visual representation of a larger concept (e.g., fractions) and sub-topics, related lessons, and so on. With a simple double-click, teachers can connect lessons to other relevant lessons quickly and efficiently.

Immediately, his eye is caught by the Acrostic Poems activity, and after crafting a poem of his own, he hits Favorite so he can return and do another one. Then he hits the Share button to send an email to his friend Paolo, who likes to play with words. Evan thinks Paolo will get a kick out of the acrostic poem activity, and since everyone in his class has CMX, Paolo will be able to get there with just one click.

Evan is about to click My Binder to sort some of his Favorites, or maybe revisit another activity he likes, when he sees a notification. Next to My Binder, he has an assignment! He clicks My Assignments, and he sees that Ms Ruben has given the class an activity on fractions.

Evan frowns. Math isn't exactly his favorite, but he might as well get it out of the way. He isn't sleepy yet, after all. So he clicks on the assignment, and soon realizes that the activity isn't too bad at all: it's a fraction lesson that involves measuring out ingredients for a recipe. It even makes fractions a little bit interesting.

In 2014, the Technology Enabled Personalized Learning Summit (TEPLS) identified the need for "Tools and standards to align, index, store, and compare contextualized data," which is exactly what CMX provides.

Education leaders were also asked to identify the most challenging resource issue in the implementation of personalized learning in their school/district. Educators resoundingly responded that their biggest challenges include curriculum and lesson plans aligned to standards at a sufficiently granular level." Once again, CMX rises to the challenge.

HP Partnership

The 2016-2017 school-year will see thousands of HP computers placed in the hands of students around the world. Each of these devices comes pre-loaded with HP SchoolPack 2.0 and a direct link to CMX.

This gives students and teachers alike access to thousands of carefully chosen educational resources.

Teachers can assign lessons with just a few clicks, track student interactions, build lesson plans, explore concept maps, and always be certain that the lessons meet school district standards, no matter the location.

Students are free to explore educational resources on their own, as well as use CMX to fulfill assignments and keep up with class work, including individual assignments.

Global Education

CMX is built to meet and fulfill educational standards around the world. While most of the client base is presently in North America, more than 3 million global educational standards are available, allowing teachers anywhere in the world to dive in with confidence right away. Examples of available international standards alignments include standards from Australia, Brazil, Canada, India, Mexico, Singapore, South Africa, United Arab Emirates, the United Kingdom, and more.

As part of its goal to serve educators and students around the world, CMX is available in five languages: English, Spanish, French, German, and Portuguese.

EdGate was founded in 1997 by a team of educators, parents, and administrators. Their goal was to find a way to harness and simplify the vast educational resources of the internet and make them simply available to educators and students. This goal was fulfilled with the creation of CMX, which aligns education standards with openly available online resources. EdGate is known as “the standards expert,” and is a subsidiary of EDmin.com, Incorporated.

CONCLUSION

As information exchange continues to become simpler and faster, the Open Educational Resources renaissance will continue to expand, shrinking the global educational community, and generating more access to more information at more points.

That means the need for a bridge between resources and students is and will continue to be vital. Just because resources are freely available online, does not mean they are valuable. Just because they're easy to find, does not mean they are useful. Just because they're under the right heading, does not mean they meet community standards. CMX has done all the work to identify OER, match content with concepts and standards, and add links to that information, all in one place.

The creators of CMX continue to partner with companies like HP and education districts around the country to advance education via OER. They work with educators every day to ensure the products meet the needs of the end user. They continue to add and refine OERs, how to use them, and how to access them. The goal is simple: Streamline the connection between educator, student, and information.

CMX: Connecting Educators With What Works.

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