

How a Hashtag Catalyzed PK-12 Open Educational Resources:

Reflections and
Recommendations

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Welcome to #GoOpen

In recent years, many PK-12 school districts across the United States have chosen to use open educational resources (OER) to improve student learning. OER are “teaching, learning and research resources that reside in the public domain or have been released under a license that permits their use, modification and sharing with others. [OER] may be full online courses or digital textbooks or more granular resources such as images, videos and assessment items” (USED, 2017b). Investments in OER enable school districts to reallocate significant funds from proprietary learning materials to resources and activities that accelerate the transition to digital learning, including professional learning programs for teachers, a robust technology infrastructure, and new leadership roles for educators who create or curate OER. However, the positive aspects of OER are not limited to cost savings. In OER-using districts, students can have more personalized learning opportunities, and teachers can benefit from flexibility to design and implement learning experiences that traditional learning materials cannot always support.

The United States Department of Education (ED) recognized the need to support school districts transitioning to OER through a coordinated national initiative. As the idea took shape, it was determined that the movement would be branded as “#GoOpen,” have a high-profile kickoff that included aspirational commitments from districts and partner organizations, and showcase known proof points about how some districts already implemented and scaled OER.

#GoOpen launched on Oct. 29, 2015, at the Open Education Symposium, a joint event between ED and the White House. #GoOpen extended former President Obama’s ConnectED Initiative, which focused on connectivity, professional learning and access to high-quality, affordable digital resources. The symposium brought together district and state leaders, nonprofits, foundations and private sector companies to outline three key components of #GoOpen: proof points, guidance and support, and infrastructure (USED, 2015).

At this launch event there were commitments from 10 #GoOpen Launch Districts that had just begun their OER adoption process. Six #GoOpen Ambassador Districts, which were more experienced in OER usage, agreed to mentor the Launch Districts (see “What Constituted Participation in the #GoOpen Movement?” for specific commitments from Launch and Ambassador Districts). There were also commitments from various platform providers. Amazon, Edmodo and Microsoft made commitments to integrate their platforms with the Learning Registry, an aggregator of metadata (data about the learning resources available online such as publisher, location, content area, standards alignment, ratings and reviews), so that OER would be discoverable regardless of platform. The Association for Supervision and Curriculum Development (ASCD) committed to publish professional learning resources for #GoOpen Districts and two case studies that highlight district level #GoOpen processes. Creative Commons (CC) committed to collaborate with education platforms to integrate CC licenses and other best practices for open education into their tools. CC additionally committed to lead workshops across the country to provide hands-on training that districts needed to scale their OER usage.

What Constituted District Participation in the #GoOpen Movement?

A #GoOpen District committed to providing high-quality OER for students and teachers. OET categorized participating districts based on where they were in their transition to OER. Some #GoOpen Launch Districts were just starting their OER journey; others had previous experience using OER. #GoOpen Ambassador Districts had already taken steps toward systematically implementing OER and committed to mentoring one or more #GoOpen Launch Districts. The differences between a Launch and Ambassador Districts' commitments are summarized as follows (USED, 2018a):

#GoOpen Launch Districts committed to:

1. Identify a #GoOpen district-level team that would apply best practices such as those described in the #GoOpen District Launch Packet (see "Following The #GoOpen District Launch Packet" for details) to develop an OER implementation strategy and a #GoOpen implementation team to execute that strategy.
2. Replace, not supplement, at least one proprietary textbook with OER.
3. Document and share their OER implementation process and experiences with others.

#GoOpen Ambassador Districts committed to:

1. Mentor one or more #GoOpen Launch District as it designed and implemented its strategy for OER transition.
2. Evolve their own districts' plans for continued scalability and sustainability of OER.
3. Openly license and share resources, information and insights about their #GoOpen process.

Once school districts agreed to become a #GoOpen Launch District, they often relied heavily on #GoOpen Ambassador Districts for suggestions on how to proceed. The realization that each district functioned differently and needed varying levels of support called for an official publication to help Launch Districts. In June 2016, OET released the #GoOpen District Launch Packet, the first guide for strategically adopting and maintaining OER as an integral part of the curriculum plan at the district level. This publication was structured around the five

phases – setting goals, organizing a team, determining necessary infrastructure, ensuring quality and designing professional learning – that #GoOpen districts typically experienced in their transition from traditional instructional materials to OER. The launch packet also included best practices and exemplars from several #GoOpen districts. Below are descriptions of how various districts implemented the five phases.

Five Phases of District-Level OER Implementation

Phase 1: Setting Goals and a Strategy

In phase 1, #GoOpen District leaders set clear goals for their OER use and formulated a strategic plan to achieve these goals. This process began with reviewing the existing curriculum adoption process and deciding which content areas and grade levels might be appropriate candidates for replacement with OER. The selection of one content area and one grade level was often a practical first step.

District leaders then developed a reasonable timeline. The decision about when to begin the OER transition was based on the goals, needs and strengths of their district. Most #GoOpen Districts chose one of three starting points: when textbooks were due for renewal (typically 12 months prior to the renewal date), when current curriculum was lacking or when teacher leaders had the skills and desire to use OER.

District leaders also decided whether to curate existing resources, create new ones or a combination of the two options. There have been cases where existing OER were not a complete match for a content area, a specific learning objective or state standards. In these cases, open licenses allowed districts to take learning materials that were nearly compatible and adapt and remix them for their needs. If no suitable starter materials were found, districts created and openly licensed the resources themselves.

Phase 2: Selecting and Organizing a Team

In phase 2, #GoOpen Districts identified their stakeholders to play important roles in creating, curating and leading the classroom use of OER. In many #GoOpen Districts, these implementation teams included the assistant superintendent, curriculum director, librarians, instructional technology specialists and teacher leaders. Each team member carried out specific responsibilities to help support the overall transition. For example, librarians focused on discovering and tagging resources, content experts and teacher leaders assessed resources for quality according to district-approved rubrics, and instructional technology facilitators led professional learning sessions. Many districts also established standing meetings to track progress and means of regular online communication to serve as touchpoints on each other's work.

The degree to which districts curated versus created learning materials greatly affected the amount of time each implementation team needed. The more creation of materials, the more time team members required to properly author, edit, format and review the materials. Therefore, some district teams put their plans into motion 12 months before a textbook renewal date, while others accomplished the work over the course of a "summer sprint." Summer sprints are one to two intensive work weeks where the implementation team uses its curricular scope and sequence to curate, vet, and organize all OER into a comprehensive order for teachers and students to use.

Phase 3: Putting in Place a Robust Infrastructure for Learning

#GoOpen Districts that implemented OER benefited from a comprehensive technical infrastructure with high-speed connectivity, reliable devices, an online resource repository, and technical support that enabled students and teachers to access resources at both school and home. However, the majority of #GoOpen Districts were not in this position when they started their process. In the early stages of planning, #GoOpen Districts conducted device inventories and assessments of acceptable/responsible use policies, accessibility for all students, professional learning for teachers and digital citizenship skills. They then

leveraged the available technology or reinvested the funds typically spent on proprietary textbooks into the district's infrastructure.

Once OER had been curated and/or created by their implementation teams, districts organized and incorporated the new learning materials into their digital learning infrastructure through a variety of methods. For example, some #GoOpen Districts chose to use their district repository or Learning Management System (LMS) to aggregate all resources and create full courses that could be easily distributed to teachers and students. Others chose to assemble the resources into flexible digital books or playlists that could be updated and accessed on various devices. A third group of districts chose the lowest barrier of entry and leveraged tools or platforms that teachers were already familiar with, such as Google Drive, to ensure that the materials were accessible and easy to implement. About half of the #GoOpen Districts chose to print their resources, either because the #GoOpen team preferred print or the district did not have the necessary technology to provide digital access for all students and teachers.

Phase 4: Ensuring High Quality Learning Resources

Most districts have traditionally relied on publishers or third-party evaluators to ensure that instructional materials are high quality and aligned with rigorous standards that prepare students for post-secondary learning and future careers. In contrast, when districts transitioned to OER, in some cases the onus transferred to the district to ensure that the resources were high quality and provided the experiences necessary to meet learning goals for all students. This was a serious new responsibility for a district that was accustomed to purchasing proprietary resources. Therefore, most districts reviewed or improved the checklists or rubrics used for evaluating instructional materials. For continuity, some #GoOpen Districts used the same evaluative measures for OER as they did for proprietary materials. If a district did not already have such measures, educational nonprofits, such as EdReports and Achieve, and other #GoOpen Districts provided several quality rubrics, which could be used as is or customized for the district's specific needs.

One of the benefits of OER is the ability to update and refresh instructional materials on an ongoing basis (Wiley, 2014). Typically, #GoOpen Districts refreshed their materials on a yearly basis as part of their overall strategic plan and implementation timeline. Districts aggregated feedback from #GoOpen team members and teachers who used the resources throughout the year. Many districts collected comments and suggestions through a dedicated email address.

Phase 5: Designing Professional Learning Opportunities

#GoOpen Districts leveraged teacher in-service time and professional learning community meetings to provide targeted OER professional learning. School librarians led teachers through the curation process of discovering and tagging resources, subject matter experts modeled how to evaluate found resources and instructional technology facilitators demonstrated how to upload resources onto a central repository. #GoOpen Districts also often integrated OER professional learning approaches to accelerate and enhance pedagogical shifts they were already undertaking. For example, many districts implementing project-based learning, competency-based models, or the Future Ready Schools Framework – a robust structure for personalized learning supported by technology – also chose to become a #GoOpen District. These districts believed that OER supported these types of pedagogical changes because openly licensed materials afforded students and teachers more flexibility than traditional materials. Thus, successful #GoOpen Districts reported that their commitment to the movement was rooted in the perception that it did not feel like another initiative.

Support from Ongoing District Check-Ins with OET

#GoOpen Districts were originally placed into six cohorts based on time zone and ratio of Ambassador district to Launch districts. However, this cohort model became unsustainable due to the growing number of Launch districts compared to the limited number of Ambassador districts. Therefore, the #GoOpen District Launch Packet was critical in empowering Launch Districts to

independently work out initial phases of their OER transition. Launch and Ambassador districts subsequently connected through email, Slack and phone calls on an as-needed basis. Monthly webinars were also established for districts to check in with OET regarding their commitment to #GoOpen, answer questions, build community and grow the movement.

Support from #GoOpen States

In 2016, it became evident that the #GoOpen initiative required state-level support to build awareness, develop professional learning and provide ongoing technical assistance for districts making the transition to OER. The Office of Educational Technology (OET) at ED first looked to understand how instructional materials were defined and procured by each state education agency to provide technical assistance to school districts. OET and the Council of Chief State School Officers (CCSSO) conducted a nationwide scan using the State Educational Technology Directors Association (SETDA) Digital Instructional Materials Acquisition Policies for States website to determine that nine states had a state definition of OER and five states had a state policy about OER. With this information in mind, OET developed the following five commitment areas for a #GoOpen State (USED, 2018b).

1. Adopt and implement a statewide technology strategy that includes the use of OER as a central component.
2. Develop and maintain a statewide repository solution for OER.
3. Develop the technical capability to publish OER to the Learning Registry.
4. Participate in a community of practice with other #GoOpen states and districts to share learning resources and professional development resources.
5. Create a webpage to share the commitment to #GoOpen and document the state's progress. Thus, #GoOpen States were born from the need to scale and sustain #GoOpen Districts.

At the #GoOpen Exchange in February 2016, the first cohort of states announced their commitment

to launch state-level #GoOpen initiatives. By this time, the district-level movement had also expanded to 30 #GoOpen Launch Districts and 10 #GoOpen Ambassador Districts. This event included over 20 OER workshops for school district instructional leaders, teachers, librarians, administrators and technology specialists. The exchange even featured a digital playground, where attendees could interact with OER platforms and educators from other districts.

In March 2017, OET and SETDA hosted the second #GoOpen Exchange. This national convening brought together more than 100 district and state leaders, researchers, nonprofits and educational technology companies to discuss three key areas: developing intersectional collaborative working relationships, designing regional models for long-term sustainability, and sharing of best practices and implementation strategies among districts and states.

Support from Regional Summits

As #GoOpen grew, states and districts expressed an interest in convening more regularly than the annual #GoOpen Exchanges to share best OER implementation strategies and practices within their respective regions of the country. To support this request, OET developed the #GoOpen Regional Summit in a Box toolkit, a guide for those planning a regional summit. Districts voluntarily organized and hosted these daylong events to build the OER community within their regions, drawing many educators new to OER. Over half of the host districts also partnered with educational services agencies and state departments of education to build awareness, discuss how districts could share the workload through collaboration and determine ways all parties could support OER sustainability. Since the first regional summit in July 2016, there have been 15 self-organized events across the country, reaching approximately 2,500 educators who represent almost 500 districts and state educational agencies.

A Growing Movement

As #GoOpen continued to grow, there were several inspiring stories from dedicated educators in the movement. District leaders shared that they were re-evaluating uses of instructional materials, determining how they could best transition to OER to meet district-specific needs and preparing teachers with professional learning opportunities built into initiatives already happening within the district. Educators were unpacking standards to determine what students needed to know in a given grade level and content area, searching and discovering resources to match standard indicators, and tagging and curating resources that offered students and teachers personalized learning opportunities. #GoOpen developed a thriving community of practice seeking to disrupt traditional models of teaching and learning.

#GoOpen Today and Moving Forward

What Did It Achieve?

#GoOpen has been called “a hashtag that launched a movement.” It gained momentum due to a groundswell of OER champions in over 100 school districts and 20 states, as well as support from nonprofits, foundations and private sector companies. In the three years since its inception, the movement achieved three major accomplishments, all of which would have been much more challenging without #GoOpen’s broad network of expertise.

1. #GoOpen fostered a collaborative environment for OER adoption.

Upon examination of existing learning materials and curricula, teachers and school district leaders from vastly different regions of the country began asking themselves similar questions. For example, Williamsfield Community School District in rural Illinois and Lewis Central Community Schools in suburban Iowa sought to update outdated materials with new digital tools. Lawrence Public Schools in urban Kansas and Broken Arrow Public Schools in suburban Oklahoma needed to allocate digital resources to meet the unique needs of students and teachers of their districts (USED, 2016).

The U.S. public education system is an immense network composed of 98,200 schools in 13,600 districts (NCES, 2017). Without a central convener, districts innovating with OER and many others would only have access to limited expertise in addressing their questions. #GoOpen, acting as that central convener, provided an environment where the districts could instead come together for a collaborative dialogue around OER.

Two of #GoOpen’s unique characteristics enabled districts to easily find others at similar points in

their transition to OER. First, because #GoOpen was a federal initiative that assembled school district and state leaders, nonprofits, foundations and private sector companies, it garnered national press attention, making all OER commitments public (Herold, 2016; Wilhelm, 2017). Second, #GoOpen embraced online engagement. Through its presence on an ED webpage (USED, 2018a; USED, 2018b), district and state leaders could read details about the OER movement, view other participants, access related resources and discover upcoming summits. The hashtag additionally enabled #GoOpen participants to regularly engage in ongoing social media conversations around OER.

2. #GoOpen identified and amplified best OER adoption practices.

The 2016 and 2017 #GoOpen Exchanges and their subsequent phone calls and Slack channel, hosted by OET, provided an initial forum where best OER adoption practices could be identified and amplified. Moreover, #GoOpen provided several means for districts to continue the OER discourse independent of the federal government. For example, the #GoOpen District Launch Packet greatly empowered novice districts, such as Carlsbad Unified School District, by demonstrating how #GoOpen Districts can begin their transition.¹ The Regional Summit in a Box toolkit, used by OER champions in Tullahoma City Schools² and Lewis Central Community School District³, among others, encouraged districts to meet more frequently than the annual #GoOpen Exchange. National organizations such as SETDA, which housed the launch packet and toolkit on its Guide to Quality Instructional Materials page, further propagated these resources (SETDA, 2018).

¹See Appendix A to read how Carlsbad Unified School District used the #GoOpen District Launch Packet.

²See Appendix A to read how Tullahoma City Schools used the #GoOpen Regional Summit in a Box toolkit.

³See Appendix A to read how Lewis Central Community School District used the #GoOpen Regional Summit in a Box toolkit.

3. #GoOpen reset the framing for how schools and districts should approach OER.

Before #GoOpen, OER adoption simply meant that a teacher independently searched for digital, openly licensed resources that he or she could remix and incorporate into daily lesson plans. The #GoOpen District Launch Packet instead pushed educators to think about OER in a much more comprehensive and systematic manner, involving district and school leaders who set timely goals, organized diverse teams, determined the necessary infrastructure, ensured material quality and designed related professional learning. For each of these five phases of OER transition, the launch packet also shared concrete resources that districts new to OER could adopt for their own purposes. For example, in phase 2 (“Selecting and Organizing a Team”), the packet provided Colorado Unified School District’s outline of personnel and responsibilities in a well-functioning OER team. For phase 4 (“Ensure Quality”), the packet included Lawrence Public Schools’ OER quality assessment rubric (USED, 2017a).

What Contributed to These Achievements?

While OET provided concrete, manageable steps that districts and states could take to transition away from traditional textbooks, three categories of underlying factors – a thoughtful policy approach, a reexamination of state and district systems, and teachers and students redefining their individual roles – fueled the continuing growth of the #GoOpen movement.

Policy Approach

#GoOpen was not a federal mandate. It was not something that states and districts were required to implement. OET instead catalyzed and built up the innovation beginning to take shape organically across the country by spotlighting the OER movement, sharing its results to a larger audience, and to a degree, legitimizing OER as a district priority. States and districts who chose to participate in #GoOpen did so without financial incentives from the federal government.

Support from the federal government was nevertheless critical. OET coordinated the annual #GoOpen Exchanges, published resources like the #GoOpen District Launch Packet and offered continued support through online communication. However, all of these efforts were led largely by a single OER fellow at OET. Because OER involves many dynamic and interconnected areas of expertise, a one-person team became unsustainable as the OER movement continued to grow through awareness and community building, professional learning, and research. In the future, if federal support is to be sustained, a larger team is needed. That said, the intention of OET’s involvement was to galvanize the K-12 OER community using a federal platform and, over time, hand off coordination to non-federal entities with the necessary capacity for leading the movement.

Systemic Factors

The PK-12 OER community offered additional support to states and districts by sharing resources, lessons learned and best practices.

These community members – including teachers, state and district leaders, researchers, and nonprofits – were and continue to be enthusiastic about reaching out to those new to OER implementation. This lateral support and sharing was a critical component for the success of #GoOpen. Had OET remained a central dependency, the movement would not have flourished. OET was intentional about bridging various districts and states in order to build the external resilience of the movement.

OER provided districts with an opportunity to reassess existing systems. To support districts considering new types of instructional materials, OET intentionally formulated #GoOpen Launch Districts’ commitments around the replacement of a proprietary textbook. In doing so, districts approached OER implementation systematically, making changes to multiple processes, from budgeting and learning materials creation to in-classroom practices. However, some districts

⁴See Appendix A to read how Williamsfield Community School District is leveraging OER to introduce deeper learning principles in its STEM programs.

thought beyond textbook replacement and leveraged OER's flexibility as a medium for pedagogical innovation. For example, some districts used OER to introduce deeper learning principles⁴ by prioritizing the integration of project-based learning, group work and long-term assessments such as portfolios and exhibitions. Unlike traditional instructional models that are largely driven by proprietary textbooks, OER allows teachers the flexibility in leveraging academic standards to develop nontraditional learning opportunities customized specifically for their students. There needs to be more robust efforts to embolden districts to fully embrace these new opportunities afforded through OER.

Role Redefinition

Conversations regarding OER became about much more than just the new learning materials.

OER opened opportunities for a redefinition of educational practice by empowering teachers and students to collaborate in content creation, curation and sharing. For example, at Broken Arrow Public Schools, teachers increase engagement in science courses by incorporating topics students find interesting. This kind of practice fundamentally changes the way they relate to each other and the idea of school, pioneering the path toward an educational ecosystem that is more open and participatory.

district leaders, researchers, nonprofits, and other stakeholders to continue the work. Currently, several educational nonprofit organizations, including the International Society for Technology in Education (ISTE) and New America, are collaborating to consider the next steps for expanding PK-12 OER. This learning network, informed by the past achievements and lessons of #GoOpen, will discuss how to improve upon previous OER initiatives and make plans to strengthen key elements that provide momentum and sustainability to this shift in practice. The following section outlines four focus areas around which the learning network will align its efforts to ensure the longevity of OER.

Where Is #GoOpen Now?

ED continues to support #GoOpen Districts and states through check-in calls, Twitter chats and a Facebook group. In March 2018, OET partnered with the Institute for the Study of Knowledge Management in Education (ISKME) "to engage education leaders across a network of states and districts to form communities of practice, facilitate the sharing of implementation strategies and [OER], and integrate evidence of the efficacy of OER into the broader education policy dialogue" (USED, 2018c). However, as the OER movement evolves and continues to grow largely on its own, it is the responsibility of the nationwide PK-12 OER community, comprised of teachers, state and

Ensuring the Longevity of OER: Four Focus Areas

Regardless of license type, any educational resource that serves classrooms for an extensive period of time, from textbooks and software to entire curricula, needs to meet three distinct criteria. First and foremost, the resource must be credible. Its quality should be properly vetted through state standards alignment, rigorous examination by subject matter experts and outcomes research. Second, that high-quality resource needs to be readily available. Proper federal, state, and local funding channels are established to maintain the total cost of ownership, and district leaders are able to easily discover and curate the highest quality resources appropriate for their students. Third, once inside the classroom, the resource must be reliable. At all times, teachers and administrators need to be equipped with enough knowledge to ensure that they can make principled adaptations that enhance the intended curriculum design.

OER is no different. Unless credibility, availability and reliability can be guaranteed, OER will not move beyond something districts simply “try out” for one or two school years. For OER to meet such criteria, the PK-12 OER community must turn its attention to four focus areas – mentoring and support structures, sustainability models, enabling policies and impact research – to ensure that future classrooms continue to implement OER. Furthermore, OER implementation is a complex effort that requires multi-faceted levels of support. No single group of stakeholders can ensure that schools continue to use OER in the future. For each of the four focus areas, the following section provides several action step recommendations for various PK-12 OER stakeholders.

1. Mentoring and Support Structures

A successful transition to OER is challenging for a single district to accomplish without access to external wisdom of practice. OER configured the ini-

tial stage for mentoring and support structures by establishing partnerships between Ambassador and Launch districts, building the regional rummit in a Box toolkit, and providing several means for regular communication (e.g. monthly webinars and #GoOpen Facebook page). However, additional methods for OER mentoring and support would be beneficial. Possibilities include:

1. Recognized online professional learning courses that synthesize extensive learning from school districts that have transitioned to OER at scale. For example, ISTE, in partnership with iLearn Collaborative, has announced an online course, eligible for graduate-level credit, intended to build capacity among PK-12 educators in “[identifying] when to use OER, locating quality OER materials and remixing to create new materials based on student needs” (ISTE, 2018).
2. District collaboration with local universities and other organizations who design and develop personalized professional learning supports. For example, Fallbrook Unified Elementary School District’s teachers work closely with University of California Irvine and University of San Diego to curate OER and integrate them into classrooms.⁵
3. Customized support for districts building the necessary internal capacity to integrate OER into learning models based on deeper learning principles. Kristina Ishmael, public interest technology and education policy fellow at New America, has observed an increased demand for customized professional learning for school districts, service agencies and state departments of education.

⁵See Appendix A for a description of the partnerships between Fallbrook Unified Elementary School District and its local universities.

Action Steps for Mentoring and Support Structures

Keep the Spirit of #GoOpen Alive

- Districts and states with more OER experience can continue to partner with and mentor novice districts and states, making sure to frame OER as a method of empowering teachers, not just as a cost-savings tool.
- Districts and states with more OER experience can continue to share their resources (e.g. repositories of curated learning materials, budgeting guides, outlines of OER team structure) with the public in accordance with existing privacy laws and guidelines.
- Districts with more OER experience can continue to host regional OER summits to share their knowledge with other educators and grow regional models of OER transition.
- Districts, states and other OER-supporting organizations can host a nationwide OER summit, providing a forum similar to the 2016 and 2017 #GoOpen Exchanges.

Develop Additional Professional Learning Opportunities

- Funders can incentivize universities, education service agencies and other professional learning providers to develop customized courses to help teachers reinforce their content knowledge, understand and recognize different licenses, align OER with existing standards, use rubrics to properly vet quality and remix OER.
- Districts can partner with universities and other professional learning providers to enroll teachers in these OER courses.

2. Sustainability Models

A hallmark of the #GoOpen movement was a systemic, coordinated team approach, involving the intersection of curriculum design, curation, licensing, infrastructure, material maintenance, student privacy, and funding. From the observation of dozens of #GoOpen teams, it was clear that those who took this team approach were much more likely to

craft a sustainable model and achieve the cultural change necessary for long-term engagement and expansion than those who did not.

For example, at Coronado Unified School District, the OER implementation team consists of: the district technology officer, who oversees learning material curation and integration of new digital tools; the district learning officer, who ensures that newly selected materials are aligned with state standards; and principals or assistant principals, who work with department or grade-level lead teachers to properly implement selected materials to fit the needs of their specific school (USED, 2017a). Liberty School District also noted that by taking a coordinated team approach to OER, teachers became more knowledgeable in their subjects and pedagogical methods.⁶

Action Steps for Sustainability Models

Maintain Funding Channels

- Districts, states and advocacy groups can encourage Congress to fully fund the Title IV-A block grant of the Every Student Succeeds Act, which explicitly includes OER as an acceptable use.
- Districts and advocacy groups can encourage state legislatures to appropriate funds explicitly dedicated to OER implementation.

Ensure Discoverability

- Districts and advocacy groups can encourage state departments of education to develop accessible repositories of state-approved OER.
- State departments of education that already own OER repositories can continuously update them to include new learning materials.

Piloting and Scaling

- Districts new to OER should consider beginning the transition process with a small, focused pilot OER initiative (e.g. supplementing an existing proprietary textbook in a single course with OER before moving to more intensive measures, such as full textbook replacements).

⁶See Appendix A for a description of how Liberty Public Schools ensures OER sustainability through its team approach.

- When scaling OER implementation initiatives, **districts** should form a solid OER implementation team by recruiting the necessary expertise and identifying critical partners in curriculum design, curation, licensing, infrastructure, material maintenance, student privacy, funding and professional learning.

Provide Incentives

- **Districts** can offer teachers release time and financial compensation to incentivize participation in the OER curation and updating process.
- **State departments of education** can offer teachers continuing education units (CEUs) to incentivize participation in the OER curation and updating process.
- **Districts and states** can provide OER implementation teams with additional professional recognition by spotlighting ongoing initiatives on their websites or issuing letters of commendation.
- **Districts and states** can raise the profiles of other school personnel by bringing them onto OER implementation teams (e.g. librarians who curate OER) and offering financial compensation and professional recognition.
- **Districts and states** can create incentive pathways to provide OER implementation teams with greater recognition as the district or state reaches major milestones in OER implementation.

cycles, allowable fund usage, teacher flexibility to deviate from traditional materials, compensation or recognition for professional learning, and protecting student data are crucial. Below are a few examples of policy actions from around the nation that enable OER adoption, hinder it or include ambiguous language.

Action Steps for Enabling Policies

- **Policy organizations** can maintain a database of ongoing federal, state, and local legislative and regulatory actions pertaining to OER.
- **Advocacy groups** can encourage policymakers at state legislatures and departments of education to clarify any ambiguous language around acquisition or use of digital learning materials that does not explicitly reference OER.
- **Advocacy groups** can encourage policymakers at state legislatures and departments of education to remove policy barriers to OER implementation, such as lengthy textbook and curriculum replacement cycles, restrictive fund usage, lack of teacher flexibility to deviate from traditional learning materials, lack of compensation or recognition for professional learning, and inadequate safeguards for student privacy.
- **Advocacy groups** can strategically loop OER into other nationally recognized policy conversations such as equitable education funding.

3. Enabling Policies

Federal, state and district policies can directly or indirectly impact how efficiently schools adopt OER. Clear legislative or regulatory language with explicit reference to OER empowers schools to adopt OER unobstructed. However, ambiguous language authorizing the acquisition or use of digital tools without explicit reference to OER creates confusion about whether or not the policies apply to OER and may even hinder OER adoption. Thus, strong advocacy for OER-enabling policies around textbook and curriculum replacement

Examples of Enabling Policies

Federal: Section 4012(3)(A) of the 2015 Every Student Succeeds Act (ESSA) includes “openly licensed content” within the definition of digital learning.

Federal: Section 4104(b)(3)(C)(vi) of ESSA lists “making instructional content widely available through open educational resources” as an acceptable use of Student Support and Academic Enrichment formula grant, otherwise known as the Title IV-A block grant.

State: HB 2337 (2012) passed by the Washington State Legislature lays out a state-led OER curation plan by directing the Office of Superintendent of Public Instruction (OSPI) to identify and develop “a library of openly licensed courseware...placed under an attribution license... that allows others to use, distribute, and create derivative works based upon the digital material, while still allowing the authors or creators to retain the copyright and to receive credit for their efforts.”

State: HB 1561 (2018) passed by the Washington State Legislature reauthorizes funding for the state’s OER curation plan by removing the June 30th, 2018 expiration date of the abovementioned HB 2337.

District: Coronado Unified School District provides financial incentives for teacher leaders who volunteer to curate, revise and update OER.

District: Local educational agencies in Missouri control their textbook adoption cycles. Liberty Public Schools reduced their digital textbook adoption cycles from 6 years, suggested by publishers of proprietary learning materials, to 1-3 years, creating more frequent opportunities for OER adoption.

District: In the past, Chesterfield County Public Schools conducted an internal legal review of a vendor’s student privacy policies before implementing their instructional materials. To accelerate this lengthy process, the district developed its own terms of service and data privacy contract, which ensures that any vendor’s web-based OER are compliant with FERPA (Federal Educational Rights and Privacy Act).⁷

Examples of Hindering Policies

State: Many state departments of education, including Kentucky, California and West Virginia, use six-year or eight-year adoption cycles for instructional materials. This lengthy time period favors business models that profit from infrequent updates of instructional materials and provides little opportunity for OER adoption.

State: HP 825 (2015) of the Maine State Legislature would require that the Maine Department of Education research and implement an online professional learning platform with links to open-source educational resources. In May 2015, the state’s department of education opposed the platform, citing alternate search engines for educators, such as Google and YouTube. The department also cited iLearn Ohio, a professional learning clearinghouse run by Ohio State University, which discontinued its operations in 2016. Thus, the bill did not move out of committee.

District: Without a central repository of state-curated OER aligned with Missouri Learning Standards, Missouri school districts, like Liberty Public Schools, must curate learning materials themselves without state-level support.

⁷See Appendix A to read how Chesterfield County Public Schools is protecting student data privacy while using OER.

Examples of Ambiguous Policies

State: Florida, Oklahoma and New Jersey Departments of Education provide districts with a definition for digital-format materials. However, these definitions do not explicitly include OER, making it unclear whether districts may choose to use openly licensed resources in place of proprietary ones.

State: SB2606 (2016) passed by the Hawaii State Legislature permits funds appropriated to purchase printed curricular materials to also be used to purchase digital formats. However, it is not explicitly mentioned within the legislation whether OER falls within the definition of digital format materials, making it unclear whether Hawaii's school districts may leverage this flexibility to purchase openly licensed content.

District: Tennessee school districts may submit a waiver to the Tennessee Department of Education if they wish to use materials outside of the state's approved list. However, the waiver form and associated guide does not make an explicit reference to OER, making it unclear whether openly licensed materials may be submitted for consideration.

4. Impact Research

Much of the existing OER research examines its use in higher education settings (Hilton, 2018), including details regarding postsecondary implementation (Seaman & Seaman, 2017), cost-savings (Boyd, 2016), and impact on student achievement (Fischer et al., 2015). On the other hand, PK-12 OER research to date has been minimal, comprised of case studies looking at limited samples (Beck, 2016) and OER awareness surveys (CoSN, 2017). This shortage calls for the need for much more in-depth, peer-reviewed PK-12 OER research as well as dedicated funding supports for OER researchers. In June 2016, the National Science Foundation (NSF) convened members of ED, the Institute for Museum and Library Services (IMLS), OER practitioners, and education researchers to develop major PK-12 OER research themes and discuss grants that could support research projects. OER researchers should thus strongly consider exploring the following questions informed by the NSF's convening report (NSF, 2016).

1. Which OER professional learning approaches lead to best understanding and implementation of OER among educators?
2. What are model structures and characteristics of an exemplary district or teacher OER leadership?
3. Which federal, state and district policies facilitate unobstructed, accessible and equitable OER adoption?
4. How do all of the abovementioned factors contribute to student growth and achievement?
5. What are the budget implications of OER adoption? How much money can districts expect to save by adopting OER? What other expenses are possible with the resulting financial flexibility?

Conclusions drawn from research are only as usable as the extent to which the information is made available. To overcome this potential silo effect, any published article or collected data should be openly shared, in accordance with existing privacy laws and guidelines, for other researchers to analyze. The PK-12 OER community could additionally benefit from future research through the

formation of networked improvement communities committed to developing research-informed OER implementation solutions.

Action Steps for Impact Research

- **Research institutions** can maintain a dedicated database of PK-12 OER studies.
- **Funders** should clarify whether ongoing research grant opportunities encompass OER research.
- **Funders and research institutions** can incentivize education researchers to conduct meta-analyses reviewing the current landscape of PK-12 OER adoption in the United States.
- **Funders and research institutions** can incentivize education researchers to conduct studies on PK-12 OER research themes outlined by the NSF (2016): professional learning, impact on teaching and learning, policy and procurement, curation and quality, and accessibility.
- **Funders and research institutions** can incentivize education researchers to make their data and publications open in accordance with existing privacy laws and guidelines.

Making OER a Classroom Norm

Until about two to three decades ago, digital communication (i.e. internet) was an electronic tool only used by a few select institutions. Now digital communication is a household norm, integrated into a large part of many people's daily lives from instant messaging to shopping and travel. The "finish line" that the PK-12 OER community aims for should be similar. OER should become the expected classroom norm among educators, residing side-by-side with proprietary and free learning resources, and not a specialized tool that only select school districts can properly introduce to their schools. By reorienting the conversation around the four focus points—mentoring and support structures, sustainability models, enabling policies, and impact research—OER is one step closer to becoming an expected classroom norm.

Final Thoughts

#GoOpen began shifting OER into mainstream curriculum and professional learning conversations across the United States and reflected the changes brought by technology-enhanced learning and development of digital pedagogy. Consequently, in the last two years, PK-12 education in the United States experienced a movement away from the legacy system of static, proprietary educational resources. However, while the number of OER-using districts has certainly grown, there are still thousands that have yet to hear about OER or recognize it as an option when considering new instructional materials. This is where the emerging PK-12 OER community of teachers, state and district leaders, researchers, nonprofits, and other stakeholders must step in to drive critical conversations that carry OER beyond the tipping point.

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Appendix A

OER Implementation Insights from District Leaders

ISTE and New America spoke with several school district leaders from around the country who shared aspects of PK-12 OER implementation that they believe deserve critical attention. Although each approached OER through different entry points, the consensus from the district leaders is clear: Ensuring the longevity of OER cannot be achieved by simply examining which proprietary textbooks can be substituted with openly licensed ones. This effort requires developing systemic reform strategies and supporting teachers through networked collaboration.

1. Initiating Change Through the #GoOpen District Launch Packet: Carlsbad Unified School District

In 2016, Superintendent Benjamin Churchill of Carlsbad Unified School District learned that many other Southern California districts, such as Vista Unified School District, had chosen to use OER as a solution to static, proprietary textbooks that could not be regularly updated to match rapidly changing teaching strategies and student expectations. Therefore, his district joined the #GoOpen movement in late 2016. Churchill describes the #GoOpen District Launch Packet as “literally a perfect place to launch from” as the resource “provided a good roadmap” of how to begin implementing OER. Churchill especially benefited from two specific sections of the launch packet. First, in an introductory section of the launch packet, he discovered exactly how to assess whether his district is prepared to #GoOpen. With this information in mind, he realized that Carlsbad was approaching the end of an ELA curriculum cycle and already had some internal capacity for OER adoption, as many teachers were independently using openly licensed learning materials in their classrooms. This observation solidified his decision to invest in OER. Phase 2 of the launch packet helped Churchill build an OER implementation team and delegate specific responsibilities. He took a step further from the steps outlined in the

launch packet by hiring a “Teacher on Special Assignment” (TOSA), who spent a year curating OER appropriate for Carlsbad’s needs and worked with schools to implement the new materials. Churchill recognizes how the launch packet enabled him to make #GoOpen a sustainable initiative in his district and hopes to replicate the process in the future as additional opportunities to use OER present themselves.

2. Mentoring Other Educators by Hosting a Regional Summit: Tullahoma City Schools

When Tennessee renewed its social studies standards in 2012, district leaders at Tullahoma City Schools had an opportunity to pilot the use of openly licensed learning materials through nine courses in the subject. After observing much success from this pilot, scaling the OER initiative to several other courses and mentoring other districts about OER on a one-on-one basis, Superintendent Dan Lawson of Tullahoma City Schools led the June 2017 #GoOpen Regional Summit in Tullahoma, Tennessee. Attended by approximately 230 teachers, school administrators, and district leaders from Alabama, Mississippi, and Tennessee, the regional summit featured sessions that defined OER, demonstrated uses of existing OER platforms and guided OER team formation for those new to openly licensed materials. Susan Sudberry, Tullahoma’s instructional technology specialist, found great value in the #GoOpen Regional Summit in a Box toolkit during the planning phase of the June summit. She stated that, “Two essential resources contained within the toolkit were the invitation template and links to Google Sites created by other districts who...previously held #GoOpen Summits.” Such resources enabled Tullahoma’s development of a dedicated regional summit

website and registration process. The toolkit also provided a structure for the day to facilitate specialized conversations for each type of attendee.

3. Suggestions for Regional Summit in a Box Toolkit 2.0: Lewis Central Community School District

Josh Allen, technology integration specialist at Lewis Central Community School District in Iowa, remarked that after his district joined the #GoOpen movement in October 2016 to enhance its elementary math curricula with OER, he grew to enjoy opportunities to share his knowledge of OER with other educators. This joy factor led Lewis Central to host #GoOpen Regional Summits on two separate occasions. In preparation for these events, he found the toolkit's notes about keeping the sessions educator-centered and sponsor-neutral, as opposed to vendor- or OET-centered, especially helpful, as it fostered a comfortable environment for genuine dialogue among participants about OER. However, he believes that a second iteration of the guide, developed by an entity independent of the federal government, which includes contact information for established OER content providers, would support districts planning future regional summits. Including content providers, he noted, would help districts new to OER browse what resources are already available.

4. Leveraging OER for Deeper Learning in STEM: Williamsfield Community School District

In 2015, Arne Duncan, the former secretary of education, and Andy Marcinek, former chief open education adviser at the U.S. Department of Education, visited Williamsfield Community School District in central Illinois. Despite its small size, comprised of roughly 100 students, the district was making a big impact through its OER initiatives. Tim Farquer, Williamsfield's superintendent and curriculum director, chose not to purchase outdated mathematics textbooks that were not well-aligned with the state's new standards. He and the district's teachers instead curated OER through a number of online platforms, such as OER Commons, and even created a few of their own. Consequently, Williamsfield's students now demonstrate their mathematics knowledge by

engaging in project-based learning and solving real-world problems. For example, students enrolled in an integrated mathematics course can demonstrate their knowledge of correlation coefficients by building a scatterplot that shows the relationship between exercise levels and HDL cholesterol. Farquer has also reinvested the thousands of dollars saved by curating and creating OER to reinforce the technology infrastructure in his district. With new devices in hand, students enrolled in science courses can access open learning materials provided by prestigious postsecondary institutions around the country that integrate deeper learning principles. In OET's #GoOpen Story Engine, Zack Binder, Williamsfield's PK-12 principal and director of student services, stated that through such experiences, students are "no longer in Williamsfield, Illinois. [They] have the same access to this information that anyone in the world does."

5. Partnerships with Local Universities to Provide Professional Learning Opportunities: Fallbrook Union Elementary School District

Superintendent Candace Singh of Fallbrook Unified Elementary School District in Southern California stated that, "One of the most overlooked aspects of OER is professional learning. Although we compensate them for their additional work, our teachers also give up so much time to curate [OER]. If you're not supporting their efforts by providing [professional learning] in combination with the dynamic materials, OER will soon be dead in the water." Therefore, when the district chose to support its science, mathematics and ELA curricula with openly licensed learning materials, Singh made it a district priority to create a collaborative culture with nearby institutions of higher education. For example, after California adopted the Common Core State Standards, Singh noticed that the way teachers were asked to teach mathematics concepts differed from traditional methods. In turn, her district partnered with faculty from the University of California, Irvine, Math Project to reinforce teachers' content and pedagogical

knowledge and supplement curricula with OER. Furthermore, by partnering with the University of San Diego Mobile Technology Learning Center, Fallbrook's teachers have learned best OER curation practices. After three years of participating in such partnerships and observing increases in student achievement, Singh is now making sure that OER adoption can be scaled to every school in the district. "You can't have little pockets of excellence," she noted.

6. Taking a Coordinated Team Approach to Ensure OER Sustainability: Liberty Public Schools

Liberty Public Schools in Missouri continues to be a pioneer in the OER movement. OET recognized Liberty's coordinated team approach by featuring the district on both the #GoOpen Story Engine and #GoOpen District Launch Packet. Under guidance from OET and a #GoOpen Ambassador District, Columbus Municipal School District, Liberty began its OER journey in 2015 by forming teams of diverse expertise, featuring executive district leaders, departmental directors, school administrators, and teacher leaders. As more courses chose to adopt OER each school year, additional teacher leaders were brought onboard. These teacher leaders were then responsible for reviewing existing materials, determining the necessary OER and submitting a budget proposal.

Dr. Jeanette Westfall, the director of curriculum, instruction, and professional development, finds that this team approach keeps the district's OER efforts sustainable in two major ways. First, by investing in OER, Liberty creates room in its budget to fund teacher professional learning opportunities and financially compensate teacher leaders for their additional roles. Second, because teacher leaders carry out genuine conversations about content and pedagogy, they become more knowledgeable about how to teach each subject. Consequently, Liberty's student achievement measures have been on the rise.

7. Student Privacy Considerations: Chesterfield County Public Schools

Chesterfield County Public Schools in Virginia joined the #GoOpen movement as part of its Design for Excellence 2020 initiative, a districtwide plan to build students' 21st century skills such as problem-solving, technology proficiency and global citizenship. Although this comprehensive vision led to the implementation of several classroom digital tools, Chesterfield's teachers and district leaders found their internal legal review of OER providers' privacy policies too time-consuming and ultimately unusable. Therefore, to accelerate this process, district leaders developed a new standard terms of service and data privacy contract, which ensures that any vendor's web-based OER are FERPA-compliant. Gillian Wilson, technology integrator for Chesterfield County Public Schools, explained that "teachers find this [new process] invaluable. It keeps our students safe and has streamlined our [OER] application approval process." Chesterfield is currently assisting other Virginia districts adopt a version of its terms of service and data privacy contract. In doing so, the district hopes to influence OER providers' student privacy considerations and that other educators benefit from a quicker OER approval process.

Appendix B

Acknowledgments

This white paper was written under the guidance of **Joseph South**, chief learning officer at the International Society for Technology in Education (ISTE). **Kristina Ishmael**, public interest technology and education policy fellow at New America, was the lead writer with support from **Ji Soo Song**, policy and advocacy associate at ISTE. ISTE and New America would also like to thank the following individuals for providing their insights about OER implementation at their respective school districts.

Jeanette Westfall, Ed.D., director of curriculum, instruction and professional development at Liberty Public Schools

Erin English, Ed.D., executive director of innovation at San Diego County Office of Education

Dan Lawson, Ph.D., superintendent of Tullahoma City Schools

Susan Sudberry, instructional technology specialist at Tullahoma City Schools

Benjamin Churchill, Ed.D., superintendent of Carlsbad Unified School District

Candace Singh, Ed.D., superintendent of Fallbrook Union Elementary School District

Josh Allen, technology integration specialist at Lewis Central Community School District

Gillian Wilson, technology integrator at Chesterfield County Public Schools

Tim Farquer, superintendent and curriculum director at Williamsfield Community School District

Lastly, ISTE and New America would like to thank the **William and Flora Hewlett Foundation** for funding ISTE and New America in this project.



