



# Transforming K–8 Teacher Practices Through Open Educational Resources: Unpacking Contextual Constraints

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# Transforming K–8 Teacher Practices Through Open Educational Resources: Unpacking Contextual Constraints

The adoption of open educational resources (OER) has grown rapidly over the past decade (Seaman & Seaman, 2020). OER refers to materials with an open license that allow teachers and their students to freely use and adapt the materials. Many OER programs seek to shift the practices of teachers and students to enable deeper learning and connection with the materials. Proponents of OER posit that instructional materials can play an important role in transforming classroom practices and outcomes that result from those practices. The ability of teachers to adapt and customize openly licensed materials to meet local contexts and student needs contribute to these transformations. Important questions remain, however, about the extent to which affordances of OER are leading to positive transformation in teaching practices, such as fostering student agency and ownership of learning, and about whether teachers are tailoring materials to reflect the backgrounds and interests of diverse students.

In this brief, we argue that instructional materials are insufficient to bring the type and scale of transformation needed in K–8 classrooms. We draw from the experiences of end users, specifically educators and students of three K–8 OER programs, to understand how other factors, including contextual factors such as school leadership and resources as well as student background, affect the adoption and adaptation of materials and the transformation of teachers' practices. We consider teachers' predispositions, beliefs, and knowledge to understand how they approach openly licensed materials. More importantly, we unpack the critical pairing of openly licensed materials and professional learning supports that make the difference in teachers not only mastering their understanding and execution of openly licensed materials but also lead to their eventual implementation of culturally responsive and sustaining practices. Culturally responsive and sustaining practices include components that were originally conceptualized by Ladson-Billings as culturally relevant pedagogy (1995) including a focus on providing access to rigorous content, affirmation of students' social and cultural backgrounds and experiences, and development of sociopolitical consciousness. These ideas were further developed in culturally responsive pedagogy to recognize and leverage the assets that students of color bring to the classroom (Gay, 2010), culturally sustaining pedagogy that includes centering community knowledge and sustaining rather than erasing culture (Paris & Alim, 2017) and anti-racist, abolitionist teaching that is centered around Black joy and genius (Love, 2019).

OER often encourages *open educational practices*, defined as instructional practices that use the affordances of OER to empower learners as co-producers of knowledge and to value and incorporate diverse learners' backgrounds, needs, and voices in their learning (Griffiths et al., 2022). These student-centered classrooms typically feature teaching strategies that require active participation from the learners, often in collaboration with peers, and may include peer discussion, problem-solving, writing, and reflection on learning (McConnell et al., 2017). Several OER programs are designed to provide rigorous, standards-aligned curriculum materials, which in combination with high-quality teaching practices can likely improve student learning (see Parker, Saucedo, Thomas & Griffiths (2022), Appendix A for a landscape analysis of openly licensed K-12 curricula). Student-centered teaching practices are a shift away from traditional practices in which teachers often teach the way they were taught, and which tend to focus on individualism and the teacher "holding" knowledge (Jensen & Kimmons, 2022). Student-centered practices are critical to support students' autonomy and foster intrinsic

motivation to learn across the lifespan (National Academies of Sciences, Engineering, and Medicine, 2018).

While openly licensed materials can embody these student-centered educational practices and provide guidance to teachers, changes in teacher practice generally are strengthened through high-quality professional learning opportunities (Short & Hirsh, 2020). The fastest way to facilitate professional learning relevant to teachers is to put their school’s curriculum and related evidence of student learning at its heart (Wiener & Pimentel, 2017). Curriculum-based professional learning uses curriculum as both a lever and a guide helping link teachers’ actions and ideas to new standards in a concrete, focused way. Curriculum-based learning is a shift from traditional teacher professional development models because not only is it aligned to the curriculum teachers are using, but instructional materials are paired with specific teaching practices and often involve repeated sessions, coaching, and feedback opportunities during teachers’ regular workdays (Short & Hirsh, 2020). Although schools and school districts make large investments in teachers’ and school leaders’ professional learning, multiple, often siloed structures and initiatives often mean that the professional learning is not curriculum-based. These structures and initiatives include school design, allocation of resources, selection and use of instructional materials, and how educators are hired and compensated. In a recent RAND AIRS study, almost a quarter of teacher participants reported receiving no professional learning related to instructional materials; more than a third reported only 1 to 5 hours during the 2019-2020 school year (Doan, et al., 2021).

Embracing a systemic approach that would ‘un-silo’ the school experience presents a significant challenge in a public education context. For teachers to teach with high quality and fidelity, the entire system must focus on facilitating the time, resources, support, and collaborative inquiry process that will in turn facilitate powerful learning for students. One of the advantages of using openly licensed materials is that they are free and openly accessible, which theoretically allows schools and school districts additional funds to support professional learning. Moreover, many OER programs provide fee-based professional learning supports that are aligned to the curriculum of schools and school districts. K–8 OER users place a high value on these types of professional learning opportunities to complement instructional materials, but it is not clear that all teachers are able to access professional learning opportunities aligned with openly licensed curricula or that the available opportunities meet their needs (Seaman & Seaman, 2020).

## Theoretical Background

We draw from and adapt Campbell et al. (2014) to provide a reconceptualized model to illustrate how the school and teaching context undergirds teacher professional learning and subsequent student achievement. In our reconceptualized model, the school and teaching context *and* access to professional learning serve as the foundation to professional learning systems and transformation in teacher practices. This context can include, but is not limited to, curriculum resources, school demographics, school leadership, and school policy. In turn, these factors relate to access to professional learning. Within the school and teaching context, teachers come to the classroom with their own individual capacities—content knowledge, attitudes, beliefs, and professional experiences—that influence their instructional practices and subsequently student achievement (Smith & Esch, 2012). In addition to their pedagogical and content knowledge, teachers also draw on their beliefs and who they serve in their classrooms (Campbell et al., 2014). These individual factors are influenced by the school and teaching context and access to professional learning. In Figure 1, we provide an illustration of our reconceptualized model.



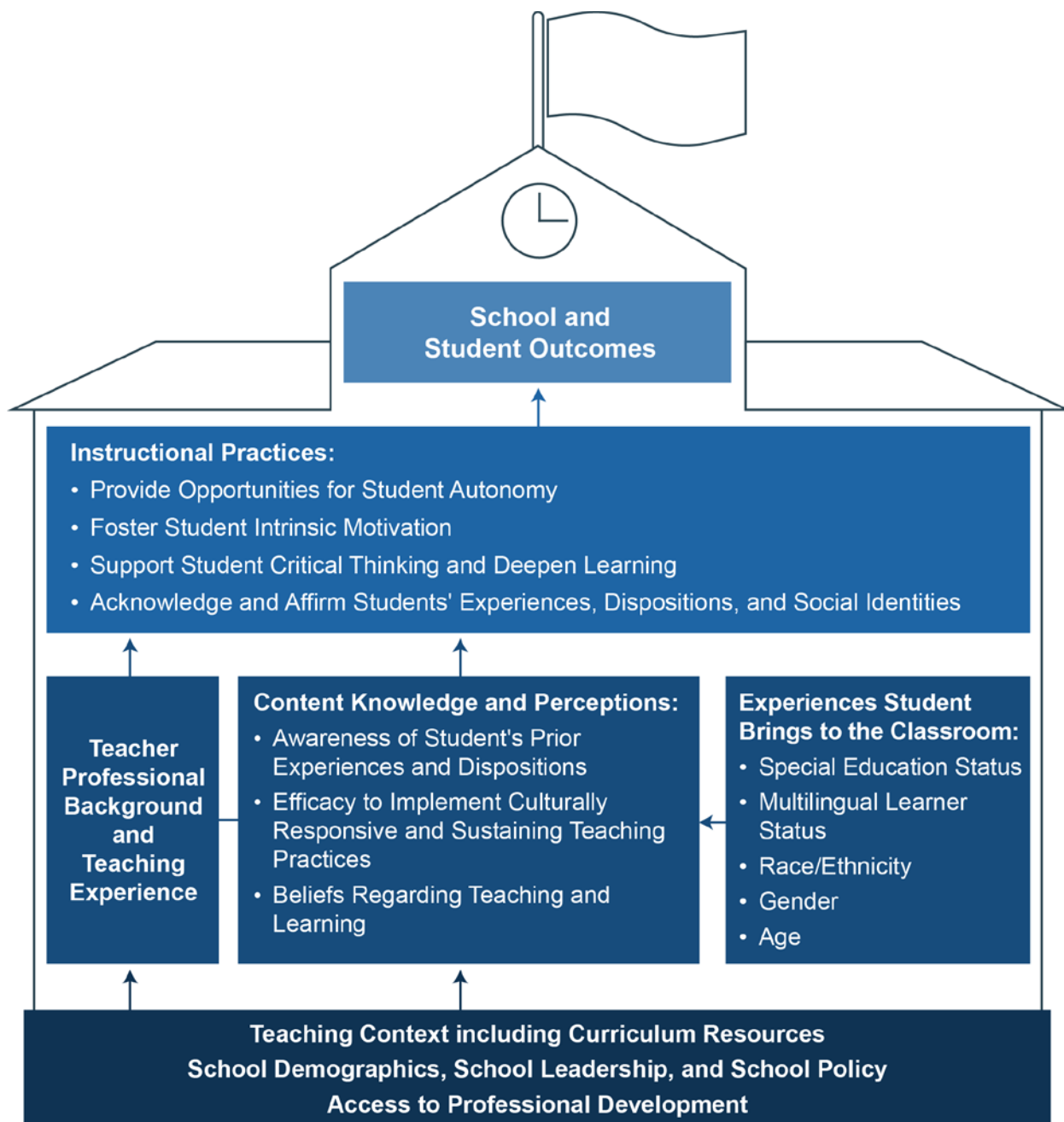


Figure 1. Conceptual model positioning school and teaching context and access to professional learning as the foundation to teachers' content knowledge and perceptions that subsequently affect teachers' instructional practices and eventual school and student outcomes. This model also accounts for experiences students bring to the classroom and how they shape teacher perceptions.

This brief describes findings from an evaluation of K–8 OER programs that sought to explore the connections between open educational practices and culturally responsive and sustaining practices, specifically in K–8 online, openly accessible curriculum programs that each provide full-course materials for either English language arts, mathematics, or science. It draws from the experiences of teachers and administrators using three different OER programs to understand how the school and teaching context, such as allocation of resources, access to professional

learning, and student background, affect the adoption and adaptation of openly licensed materials. Specifically, we look at how teachers describe implementing the OER curriculum and changing and deepening their teacher practice, and how they describe their experiences of professional learning in facilitating those changes.

## Curriculum Adoption and Adaptation

*“I know what I would say [to teach the content] from 20 years of experience, but I want to do my job with the curriculum. That stresses me.”*

*—Science teacher from urban, small city school district*

Across the focus groups from the three OER programs, teachers described needing time to build confidence and comfort with the curricula. In each focus group, teachers commonly noted tensions between their existing knowledge and expertise and how they integrated that with implementing openly licensed materials. The openly licensed materials from each of the three programs encourage students to discover for themselves rather than teachers telling students what to know, which can take longer and lead teachers to worry that students are not learning sufficient content. Many teachers noted it takes 2 or more years of teaching with an OER curriculum to feel comfortable about adapting the curriculum and integrating their knowledge to teach their students. Teachers’ remarks about the time to get comfortable with the new curriculum is supported by prior studies that note it can take three to five years to gain confidence with a curriculum (Goldsmith, Mark & Kantrov, 2000). However, building confidence and skill with implementing the openly licensed programs varies by the support teachers receive. The different experience of three districts with OER program implementation demonstrate that support and available resources often made the difference in teachers’ command of the new curriculum and their ability to make adaptations (Figure 2).

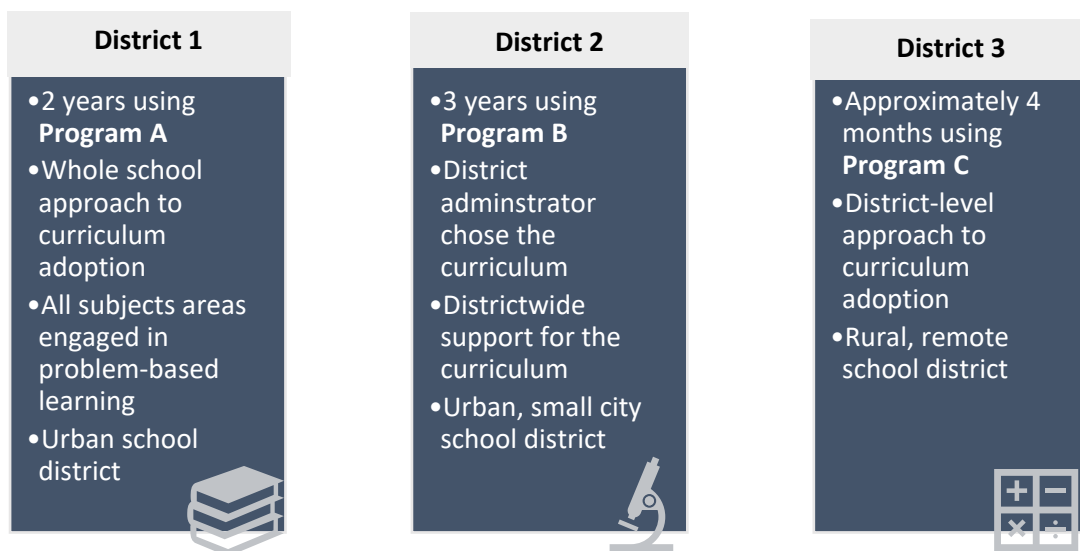


Figure 2. Background information of three distinct districts across three different OER programs.

**Program A** illustrates a whole-school approach to OER curriculum adoption. Students in every subject area across the grades within an urban middle school were engaged in problem-based

learning related to an issue such as water pollution. School staff participated in piloting the program 3 years ago and have been using the curriculum for 2 years. A variety of professional learning and other supports are available to the staff. For example, all teachers participate in a summer professional learning workshop before the school year. The school also works with two developers from the OER program who visit classrooms each month during the school year.

Teacher and student focus groups highlighted the promise of this approach. One teacher shared that “at [the] beginning [of adoption] we tried to stick tightly to the curriculum, and now we know how to figure out what to cut. We feel more confident in our decisions.” Teachers in this school are able to comfortably adapt the curriculum, such as modifying texts, knowing that they are not compromising the assessments or rigor. Another teacher said that the curriculum “takes away our stress over planning; we can take what is in front of us and figure out what our kids need. We can do more differentiation. Gives us the resources of time to do that.” Importantly, these shifts in student-centered practices were reflected in student focus groups. One student shared that her class has an environment where “no one is going to judge my opinion ... we have guidelines of what’s expected, if you find out you’re in a group with someone, you’re not allowed to go ‘aw dang it,’ the expectation is that you accept everyone’s opinion and give everyone a chance to speak.” More notably, the school provides an advisory structured space to support students’ social emotional learning. The advisory structure is a student-led space for students to discuss “how these topics, texts, and tasks connect to their own lives,” but also where students can incorporate their own perspectives into assignments.

**Program B** illustrates a district approach to OER curriculum adoption. In contrast to the school using Program A, which adopted school-wide problem-based learning across all content areas, the district using Program B adopted the OER program for one content area only, but with full district support for the changes in teaching practices. Teachers piloted the program in the district 3 years ago. When the program was first introduced, teachers participated in a summer professional learning session. They then had weekly planning meetings built into their schedules to discuss the curriculum and professional learning. One of the teachers participated in additional in-person training with the program provider so that they could train their colleagues using a “train the trainer” model. Now, that teacher often checks in with the program’s professional learning provider, who “helps steer us back to the philosophy [of the program].”

In the focus group, teachers, including those with decades of experience, described how their teaching practices have changed as a result of the curriculum. For example, they now pay more attention to students and what they say, encourage student collaboration (which used to be considered “cheating”) and prompt students to think critically and engage in exploration. Students in focus groups described similar benefits in their own learning. They described being encouraged to collaborate with one another and noted how collaboration has promoted their own learning. They described seeing themselves as producers of knowledge rather than receivers of knowledge from the teacher.

Additionally, teachers said they find themselves shifting from delivering content at the front of the room to coaching the students, circling the classroom and engaging with different student groups. The same teachers also said that the curriculum is the most challenging curriculum they have ever used because of the changes in practice it requires. The openly licensed materials focus on the process of student learning and critical thinking rather than the accumulation of knowledge. Teachers described seeing many positive changes in how students see themselves as learners, while also being concerned with the disconnect between the focus on students as learners versus the state assessment focus on content breadth.

**Program C** illustrates a district approach to OER curriculum adoption within a small rural, remote school district. The study participant from this district had many fewer supports and

teacher buy-in for the new curriculum, compared to participants from Districts 1 and 2. The school district is using the openly licensed materials for the first time this year. The district had switched to the new curriculum because it was standards-aligned and had the rigor that the district’s previous textbooks were missing.

However, the district did not seem to have invested in sufficient professional learning before implementation. First, teachers attended a 2-day summer professional learning session before the school year, led by the curriculum professional learning providers. However, the professional learning primarily focused on the structure of the curriculum, and the teachers did not have the curriculum materials to reference during the training. Teachers did not receive the curriculum materials until a few days before the school year started. Many of the teachers in the district were expecting a few lessons to be demonstrated all the way through to see how the curriculum should be used, but that did not happen. Demonstrations were particularly critical in this school because many teachers had little to no teaching experience. Like many school districts across the nation, especially rural school districts, District 3 is experiencing a teacher shortage, such that any individual with a degree can teach in the schools. Additionally, teachers decided to reorder the sequence of concepts and lessons to align with how they were used to teaching concepts, not realizing that the curriculum is intentionally designed to have each unit build on the previous one. By reordering, they were losing some of the curriculum’s intended value. Lastly, many teachers were used to providing students with large amounts of content, so it was difficult for many of them to let students discover for themselves. Although this district is in the early stages of using these OER curriculum materials, and despite minimal professional learning opportunities, teachers described making notable shifts in how they share “power” and learn with their students to help them be better problem-solvers.

*Teachers deserve both materials and professional learning experiences that address the decisions they are making with their students in the context of the actual materials they are using.*

We learned some key takeaways from end users regarding OER curriculum adoption and adaptation. Successful implementation, including changes in teacher practice, require continuous professional learning supports aligned to the curriculum. Unsurprisingly, in districts that could allocate more resources for multiple opportunities for professional learning throughout the school year, teachers described gaining confidence with the curriculum such that they could make it their own after a few years of teaching with the materials. When teachers are able to make these student-centered shifts and share the learning with their students by creating a space for discovery and problem-solving, students described feeling agency and ownership of their learning and participating in a classroom culture of care.

## Openly Licensed Materials to Support *All* Students

While teachers contend with understanding the openly licensed curriculum and integrating their knowledge and prior experience, they are also faced with understanding how the curriculum can meet the diverse needs of their students. Developers take a number of steps to provide supports in the materials for students with disabilities and multilingual learners, but teachers did not always describe using those supports to meet the challenges they face. For example, one OER program highlights suggestions to differentiate for students with disabilities, such as using multiple representations (such as both color-coding and numbering different parts of a model), providing physical objects, and providing both audio and written versions of materials. However, in our focus groups we learned from teachers that they found the curriculum



challenging to implement in classrooms when there are a high number of students with individualized education programs and 504 plans. While one teacher used a recommended strategy to require fewer, but not less rigorous, items on student exit tickets for their students with disabilities, another teacher identified a gap with differentiation, saying that the curriculum has the right level of rigor but “not enough for remediation and enrichment; otherwise it’s pretty good for standards.”

Across the focus groups for the three OER programs, teachers noted challenges with using the materials to support multilingual learners, which may reflect the need for more professional learning about instructional strategies for multilingual learners. A number of teachers perceived support for multilingual learners as simply providing translated materials, rather than seeing language learning embedded in content instruction. One teacher shared, “For me, so many students with language barriers. Discussion element is difficult. They don’t really get the story line; students don’t know what a hailstorm is.” This teacher did not appear to have incorporated curriculum supports to directly address the language issues they identified. For example, the OER curriculum has callout boxes to support multilingual students, such as “*Provide opportunities for emerging multilingual students to break down the meaning of words that are central to the lesson. Highlighting how words can have different meanings in different contexts can provide emerging multilingual students the chance and space in which to discuss any preconceptions about the meaning of the word(s) and to draw upon their personal experiences.*” Additionally, despite some OER programs integrating reading materials with diverse authors, teachers still struggle to connect materials to the diversity of students’ lived experiences, as when they use weather examples (e.g., hailstorm) that students have not experienced. While developers of these openly licensed materials seek to deepen students’ learning experiences through connection and exploration of the materials, teachers need further guidance and support to make the materials accessible for multilingual students.

*“Equity is one of the training themes. But perhaps it should be later on because teachers need time. It was presented early and teachers couldn’t absorb [it].”*

*—District administrator from small city school district*

Lastly, the topic of racial equity was almost absent from the focus groups across the three OER programs. Teachers rarely brought up teaching in culturally responsive ways that center students’ race or ethnicity or having conversations related to equity, unless the interviewer directly asked such a question. Teachers often reflected on understanding and teaching the curriculum, but when directly asked “To what extent do the program materials address equity topics?” one math teacher reflected, “The materials don’t speak [to] or include equity. [There is] diversity in how [the program] presents math, not many equity [topics].” English language arts teachers noted they had to “build equity in” by letting students “free-write and share their stories and own experiences.”

Across OER programs and subject areas, teachers would invite students to make personal meanings and connections to deepen their understanding. However, they would not “deep dive” to unpack students’ experiences or incorporate other aspects of culturally responsive and sustaining practices. For example, in addition to inviting and affirming students’ social and cultural backgrounds, culturally responsive and sustaining practices should provide a space for students to develop critical thinking that helps them identify interpersonal challenges and recognize systemic contributions to social issues that affect their lives and communities at large. In one focus group, English language arts students were asked “In class, what have you learned about current events happening in the news or in politics/society?” Students had varied responses about how they perceived current issues and what was addressed in their school. One

student shared, “[We] don’t talk about current issues, only issues of the past or in the last 2–3 years.” Another student noted, “We went to a lake to see in our community and learned from an expert about how much water is used.” Similarly, one science student said, “Most of what we do is in the science unit, we don’t discuss other stuff.”

Although teachers did not provide examples of how the materials encourage them to deeply engage in topics or activities that encourage students to think critically about current or social justice issues, some of them have attended fee-based professional learning workshops related to equity and culturally responsive and sustaining practices. A district administrator reflected on how teachers applied their training after a 2-day equity workshop: “Teachers couldn’t connect in terms of how it’s applied to the curriculum. Teachers could not absorb it. They need time to teach the curriculum, deepen high-quality content and project-based learning then differentiate for student background and equity.” Focus group responses indicate a perception that teaching and understanding OER curriculum materials and utilizing culturally responsive and sustaining practices can and do happen independently of each other. This perception may be due in part to what is emphasized in the early introductions of the curriculum, such as how the curriculum is structured or paced. But how do the OER programs emphasize the curriculum as a resource to center equity and implement culturally responsive and sustaining practices? More importantly, how do they address teacher beliefs and knowledge around implementing culturally responsive and sustaining practices and attention to social justice issues, and their skills in facilitating discussions among their students?

## Conclusion

There is promise and potential in openly licensed materials to transform teacher practices and strengthen their culturally responsive and sustaining practices. The three OER programs we examined in this study intentionally form their developer and curriculum writing teams with individuals that bring diverse expertise and perspectives, with the aim of designing curricula that include constructs of culturally responsive and sustaining practices such as classroom culture of care, high and equitable standards, inclusive content, and student agency and ownership. These OER programs provide accessible, rigorous, and standards-aligned materials while also challenging educators to break from traditional to more student-centered teaching practices and to embed culturally responsive and sustaining practices.

Much of the support that teachers need to enact these practices to benefit students with varying backgrounds, experiences, and assets relies on access to professional learning that can tap into teachers’ beliefs and intention to facilitate culturally responsive, anti-racist teaching practices as they understand and implement openly licensed materials. The developers of these OER programs possess deep knowledge of centering equity and culturally responsive and sustaining practices and can build on the affordances of open educational practices that value student and teacher agency to support teachers on this journey. They can provide teachers with the tools to be great educators: “A great educator can take the least culturally responsive curriculum and still manage to create a culturally responsive learning environment with the right type of preparation and pedagogy, while a less skillful educator can take the most culturally responsive curriculum and still fail to create a culturally responsive instructional experience” (Rubalcaba & Westerhold, 2021, p.12).

Currently, the OER-designed professional learning opportunities are not necessarily designed with sufficient attention to the needs of end users and the many constraints they face, from time demands to accountability requirements. Their implementation relies on districts’ and schools’ ability to provide financial support and their willingness to address barriers and break down

siloes. The OER business model that relies on fee-based professional learning means that the teachers, schools and districts who can most benefit from it may not have access to the professional learning. As the example of Program C shows, teachers are using the curriculum for the first time with a very light touch of the program’s professional learning supports, due to how the district is able to allocate and use limited district resources. Yet these teachers are most in need of intensive and ongoing professional learning because they are new to adopting a curriculum that is different from their teacher-centered approach and because many teachers in the school have little to no teaching experience or knowledge of the content area. More access to curriculum-aligned professional learning throughout the school year would likely lead to greater teacher efficacy with the curriculum and implementation of student-centered teaching practices. Schools creating a community of learning among teachers and administrators would facilitate joint learning and application of strategies relevant to the student population. As OER program developers continue to refine their materials and professional learning, they will need to continuously address the challenge of how to provide professional learning in the midst of financial and structural constraints.

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