CADRE

Documenting the Implementation and Uses of Performance-based Assessments to Evaluate Postsecondary and Workforce Readiness

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Introduction

This second of paper focuses on understanding the environment supporting the implementation of performance-based assessments (PBA) to inform postsecondary and workforce readiness (PWR) evaluations by: 1) providing background information on the two sites and teachers participating in the multi-site case study; and, 2) providing a brief overview of the analytic approach taken to collect and analyze the data; and 3) highlighting key findings from the implementation work as shared from the perspectives of school leaders and teachers.

The findings in this second paper addresses the following research question: to what extent does the ecosystem connecting all stakeholders to this PBA effort support and reinforce one another to enable the successful implementation of this work? We extended this question to factor in the ongoing health pandemic on the implementation work and also addressed the following sub-question: To what extent did the changes brought about by COVID-19 present challenges and opportunities for implementing the PBAs.

Case Study Sites

Selecting Sites

We initially used criterion sampling (Patton, 2001) to narrow the selection of high schools that could serve as case study sites for this work. The first tier of criteria considered for site selection, is that participating schools have more than three years of experience implementing PBAs to inform the evaluation of students on PWR. As indicated earlier in the literature review, the use of PBAs in classrooms are not novel, but the use of PBAs that are intentionally designed with key content and skills-based competencies embedded to evaluate PWR usually require more innovative curriculum and instructional approaches such as project-based learning. Following this first criterion, we then further reduced the sample of schools to consider sites with contrasting demographics. We selected schools with varying student demographics (e.g., schools with higher and lower rates of poverty as roughly measured by the percentage of free and reduced lunch or FRL eligible students), have varying enrollment sizes, and are in different regions of the state (e.g., metro vs. rural). We wanted to select sites with contrasting demographic characteristics to determine whether these features may pose any added barriers for implementing the PBA work. After identifying and approaching several schools that met these conditions, we obtained consent from three high school sites in June 2021. One site dropped out of the study prior to the start of the 2020-21 school year due to challenges encountered in meeting the needs of their alternative high school student population during the ongoing pandemic. For the first year of this two-year study, we limited our work during the pandemic to documenting the activities from two teachers implementing the PBA work in a core content area at each site. We limited the number of teachers involved for year one of our study due to anticipated difficulties in coordinating study activities during this disruptive period. In fact, even with a small sample of four teachers involved at both sites, we experienced significant challenges in completing the study activities due to the constant disruptions experienced by the schools in determining class schedules for students using different learning modes (i.e., remote, hybrid, or in-person learning and managing COVID-19 outbreaks).

Site Descriptions

The first high school, Mulberry High[1] is one of several high schools located in a large metro school district. The high school serves approximately 2,000 students, with approximately half of all students at the school identifying as white. Roughly half of all students attending the school are FRL eligible and a small

[1]All names referenced in this paper reflect assigned pseudonyms to protect the identities of schools and individuals.

fraction of students receive English language development services. Project-based learning (PBL) forms the basis for using PBAs in the evaluation of PWR skills and academic content, and serves as one of the school's equity-centered strategies for fostering the engagement and interest of students. Two veteran English Language Arts (ELA) teachers with over 20 years of teaching experience participated in the case study. One teacher, Ms. Hamid, taught at Mulberry for seven years. The other teacher, Ms. Gonzalez, just completed her second year at the school. Ms. Hamid plays an instrumental role in implementing the PBLs and PBAs at Mulberry: she instructs Advanced Placement seminars, offers an inquiry-focused program to multiple grades (9-12), and serves as the professional development lead for implementing the PBL and PBA work at the school. Ms. Gonzalez instructs English language arts to juniors and seniors. The school principal and Ms. Hamid were participants in the first cohort of schools receiving professional learning sessions supported by the state to design PBAs to meet local graduation requirements. Although neither teacher consistently participated in the CDE-sponsored professional learning sessions held in the 2020-2021 school year, they were familiar with the state's approach for implementing this work.

In contrast to Mulberry, Cottonwood High is the sole high school serving students in a remote rural district. At this small high school, the majority of students are FRL eligible, and more than a third of students are emergent English language learners. According to the school's principal, their PBAs were adopted more than six years ago to amplify the demonstration of necessary skills and content students needed to be successful following graduation. Like Mulberrry's approach to the PBAs, Cottonwood teachers embed the PBAs into PBLs to emphasize and deepen the content knowledge and skills that students would need to thrive in the world beyond high school. The two teachers who participated in the study this year, Ms. Strauss and Ms. Jean, teach different subjects, ELA and Science, for all high school grades. Both teachers are veterans in the profession with over 20 years of teaching experience. Ms. Strauss spent 25 years teaching ELA at Cottonwood and Ms. Jean instructed high school science classes for the past three years. In addition to her teaching responsibilities, Ms. Strauss leads the school's efforts to implement PBLs and PBAs as capstone projects for graduation. Teachers at this school did not participate in the PBA professional learning activities sponsored by the state, and they rely on the supports provided by the school through external grants to engage in this work.

During the 2020-2021 school year, both schools experienced numerous disruptions to the learning environment due to the Covid-19 pandemic. From the beginning of the fall semester through March 2021, both schools quarantined groups of students and pivoted between fully remote and hybrid learning environments. However, compared to Cottonwood, Mulberry experienced more disruptions to the schooling context due to the higher number of quarantines that impacted a larger number of students at the school.

Brief Overview of Analytic Approach

A concurrent nested strategy (Creswell & Plano Clark, 2017) was used to address our research questions, where the predominant approach for collecting, analyzing, and interpreting data depended on qualitative approaches. We then applied quantitative approaches in a supplementary or "nested" way. More specifically, we used quantitative approaches to transform observation data, and to examine the frequency of

coded data. The quantitative data generated were then used to aid our interpretations of the results.

We collected data using the following methods to help answer our research questions and gather perspectives from key stakeholders at each site: interviews with school leaders and teachers, think-alouds with teachers, classroom observations, and focus groups with students. We used a semi-structured protocol to conduct interviews with the four teachers at each school and their school's leaders to gain insights into how well this initiative aligned with the PWR work pursued by the state and the district, as well as to learn about the supports provided to teachers to implement the work. These interviews served as the primary data sources for addressing the first research question focused on learning about the PBA implementation work.

We carried out the other methods (teacher think-alouds, classroom observations, and student focus groups) to address the second research question examining the types of ambitious teaching practices taking place in the classrooms instructed by the four participating teachers. For the teacher think-alouds, we used a semi-structured protocol that asked teachers to share their qualitative insights on what students know and can do based on a review of selected student work samples. These insights provided one avenue to understand the processes teachers used to assemble evidence of student learning on the PBA tasks, and to learn about the range of instructional strategies they used to either challenge or improve student learning.

For the classroom observations, we constructed our tool using selected items from two observation tools that were developed and validated in different settings. Seven of the 18 items in our observation tool that focused on formative assessment practices came from items we selected and modified from an observation tool developed by Wylie and Lyon (2016) to support professional reflections on formative practices. We selected seven items that we expected to observe in any classroom using high impact formative assessment strategies with students. For example, we wanted to learn how observed teachers effectively employed questioning techniques, applied extended discourse, and created structures for peer feedback to gain important insights about what students know and can do. We adopted and modified the remaining 11 items from a project-based observation tool developed and used by colleagues at the University of Colorado Boulder focused on evaluating the implementation of similar essential skills and authentic activities and tasks in high schools located in two states. For both tools, the developers constructed descriptors to capture four distinct scoring levels. We tested and refined our tool in collaboration with project partners from the state department of education. We used the tools to rate and discuss video-taped sessions of project-based high school classes focused on authentic tasks and activities. We used these discussion sessions to establish common understandings for the performance descriptors used in each rating level for each item. We also used these sessions to reach consensus on refining or modifying some of the descriptors for several items to customize the items for this project. High-level descriptors of each item can be viewed in Attachment A. We gathered classroom observation data from each teacher by conducting two real-time observations of two separate classes per teacher. One observation was conducted in the late fall and we completed the second observation in February 2021. A total of three observers attended every classroom observation. Due to the ongoing pandemic, all observations took place in virtual classrooms.

Lastly, for the student focus groups, we used a semi-structured interview protocol to gather input from a total of seven students at each school. For the student focus groups, we wanted to learn whether this type of

project-based approach with embedded PBAs provided meaningful learning experiences for them even with the pandemic in the backdrop. A key conjecture highlighted in the student conjecture map is that if the PBAs were designed to tap into the interests of students and build valuable post-secondary workforce readiness skills while learning content, then students would likely gravitate and express support or enthusiasm for engaging with these project-based activities and assessments.

Following the data collection phase, we conducted retrospective analyses using a combination of deductive or pre-set codes aligned to our research questions and emergent codes to identify common themes and patterns in the data. In the following section, we move into sharing the results from our retrospective analyses beginning with documenting each school's experience with implementing its PBA initiative.

Implementation Findings from a Systemic Coherence Standpoint

We appraised the implementation of the PBA model from the perspective of systemic coherence (National Research Council, 2006). As indicated in the first paper, this perspective entails considering how the vision for assessment is supported by policies and/or resources vertically across levels within the education system (e.g., state, district, the broader community, and the school) and horizontally or across actors situated within each level. In this paper, we share insights about systemic coherence from the vantage point of school leaders and teachers charged with implementing the PBA work at each school. For each group (school leaders and teachers), we describe findings associated with common themes that surfaced from the data collected across schools, and also highlight distinctive information that contrasted one school from the other. We first share findings from interviews with school leaders before moving to feedback shared by the four teachers engaged in this work.

School Leaders

During our interviews with the two school leaders at Cottonwood and the principal at Mulberry, we asked them to share their vision for this PBA initiative and describe the supports and resources provided for this initiative relative to each level of the education ecosystem. Beginning at the state level, the school leaders describe tighter coherence for supporting this work across levels than at the school level.

State Supports. The information provided by the school leaders suggests that the vision for the PBL and PBA work at their schools connects directly with the state's vision for this work. As noted by the Cottonwood principal:

> *This work is two-fold. I feel like one…to help young people be post-secondary workforce ready, project-based learning [and PBAs] embeds those social-emotional skills that they need to be post-secondary workforce ready. So the [PBLs and PBAs] gives them that practice time…[for students] to practice it and engage in it…to build those neural pathways to make things stick.*

The intentional design articulated by the Cottonwood principal to embed these skills into the PBL and PBA activities speaks directly to the design elements advocated by the state to integrate both content and skills in tasks used to evaluate PWR. The below excerpt from the Mulberry principal also aligns with another key design principle for PBAs advocated by the state to structure relevant learning opportunities for high school students:

> *We started [classes] where students would present an initial project that they are working on or would present the beginning of their research or the conclusions depending on which semester their research project is [taking place]. So, what [this has] done is it opened up the eyes of a really entrenched staff into just how we can measure learning in different ways…That it doesn't necessarily have to be a multiple-choice test. It can be a project and something that's relevant to them… and that's been a lot of the emphasis of how we make learning relevant to kids.*

Within the context of these classes, the learning and assessment experiences are shaped around projects that connect with the personal interests of students and are grounded in real-world applications. The authentic design of the learning and assessment experiences provided to students participating in these classes also directly connect with the state's vision to advance this PBA work by drawing on student interests through tasks that have direct applications to real-world scenarios and settings.

In addition to articulating a vision for this PBA work that aligns with the state's vision, the school leaders also indicated strong support received from their state partners to encourage the work of developing PBAs as part of PBLs to assess post-secondary readiness. As noted by the Mulberry principal,

> *There was through CDE, the [work] with AP Capstone, and we've been on various networks with CDE and developing those relationships… [CDE] reached out last year and asked if we'd like to be part of the professional learning community. And then that's [when] we beta tested the capstone kind of idea with [struggling] kids.*

In their interview, the Mulberry principal discusses the school's collaboration with CDE on their AP Capstone work and other related initiatives that use PBAs as key assessments for evaluating PWR knowledge and skills. This collaboration also contributed to the school's ongoing efforts to test out the uses of PBAs outside of AP courses.

At Cottonwood, a school leader also highlighted the strength of the school's partnership with the state to undertake this PBA work:

> *[CDE has] been pretty involved the last couple of years because I was part of the Reimagining College Access and am also a regional trainer for the state's individual and career academic plan work. Because of the PBAs, we're looking at how to operationalize social-emotional skills [to support academic content addressed in the classrooms] because we have already embedded those in our rubric for capstone. But we're looking to refine that because CDE has done a lot of work [to guide] the operational work on those…they're available [to provide thought partnership] if I need that.*

The school leaders from both schools shared that the state's direction with the PBA work and the supports they received from CDE partners complemented the school-level efforts to help achieve this vision of using PBAs to inform the PWR determinations. This articulated alignment of learning and assessment work between these two levels (state and school) is important since, as noted by Shepard et al. (2018), this helps to strengthen the sense of vertical coherence in the direction taken and supported by the state and the direction taken by schools to fulfill state graduation expectations.

District Supports. At the district level, the school leaders also point to strengthened vertical coherence taking place between the district and their schools. At Cottonwood, a school leader noted:

I think it's interesting because we're a smaller district…so the district and the schools are so integrated…the [principal] and I both work at the [high] school level and I do some work at the middle school…I also do district work across the district in terms of grant writing. I'll say that our district action plan has PBL/PBA written into it as part of engagement strategies…we also have professional development time dedicated to it… In fact our next four professional development days have elements of PBL involved…the [district] leadership team…communicate often about what our needs are and then I look for resources to try to support that.

Due to the size of this small rural district, the Cottonwood school leader illuminated that the dividing line separating the district from the school is thin. Conversations between this high school and district staff take place regularly since the district's central office is located in the same building as the high school. This characterization of the district and school as "integrated" has the added benefit of bolstering vertical coherence, since both district and school coordinate the work to meet a similar or the same vision for learning and assessment.

At Mulberry, although the school functions more autonomously from the district, the principal indicated general support from the district to implement a broader version of the PBL and PBA work connected to capstones prior to the 2020-21 school year. In 2020-21, due to the pandemic, the district requested the school to place a hold on scaling up the implementation of using this approach across more classes. Although this delayed efforts to scale up the PBA work at Mulberry, the principal generally characterized the district as supportive of the school's efforts to implement authentic approaches to evaluate PWR.

School. In reference to how school leaders view how teachers implement PBLs and PBAs, the Cottonwood principal characterized the spread of this work within the school as slowly developing over time:

We have a long way to go…I don't know what a fully embedded PBL school looks like. [When I] review the lesson plans, I'm not seeing it on a consistent basis…. As a leader, that's the hardest piece is to get people to change out of their norm. Believe me, we've been working with [a PBL organization] for at least six years and it's taken some time…I wouldn't sit here and say that we are a PBL school!

Another school leader at Cottonwood also confirmed the developing stages of building a shared vision for this work across all teachers. According to that school leader:

We have a lot of work to go to get there, which is why we're trying to learn more. That's why we're trying to get at least a couple of our teachers involved in this work so that, we can maybe get good at it in a few places…Some [teachers] really say they like it, but it takes a lot of time and effort and planning and preparation.

Although both Cottonwood school leaders expressed a commitment to continue implementing this work, and the school adopted the PBL approach for more than six years, they recognize that this work takes significant and sustained training to do well. The Cottonwood principal also noted that the school has encountered challenges with teacher turnover, which has created some disruptions to the implementation work over the years.

In contrast, the Mulberry principal suggested that the school was further along than Cottonwood in achieving horizontal coherence, though school-wide buy-in was

characterized by the principal as a work in progress:

> *Ms. Hamid was the teacher that I hired to do Capstone and got her trained…so I had my kindred spirit… She believed in the work and was ready to go. She's kind of grown that program since. Teachers could opt in…and we've had great success over the past few years. Engineering people are demonstrating their learning. I've got poetry kids collaborating with English Language Arts teachers…we basically open up the building and projects are in the hallway…and they get evaluated by the community. Teaching can look different in a lot of different ways, but current state, it's not [where I'd like it to be]. I've seen our teachers bringing in more relevance [to lessons and assessments]. I'm big on telling them – we're going to fail, but that's okay. Fail forward. You know it's part of that design thinking process. Just prototype and if [you fail], that's all right…let's work on it…see where it went wrong and then try it again…and I'm starting to see a lot more innovation out of my staff.*

Although the Mulberry principal acknowledges that the Capstone or PBL-based approach encapsulating the use of PBAs have been taken up by different teachers, the actual instructional practices taking place as they relate to the uses of this approach and these assessments appear to be falling short of his expectations. Yet despite these shortcomings, the fact that teachers are being encouraged to use a short-cycle design-thinking framework for testing out this work points to the promise that PBAs can potentially be sustained at Mulberry through this continuous improvement process.

Community Supports. The input received from the school leaders at both schools indicate that the community and families have a varying degree of involvement with the PBL and PBA work. At Mulberry, the principal noted that the school directly engages and solicits input about the projects from community members. Each semester, the school invites community members to attend the presentations of learning connected to the PBLs and PBAs. Teachers request community members and families to ask questions and provide feedback to the students as part of the expectations set for attending these presentations. The Mulberry principal characterized these interactions as a large selling point for facilitating family and community appreciation for providing more authentic and project-based approaches to evaluating PWR for high school students.

At Cottonwood, family and community involvement with the PBL and PBA work was characterized by the principal as largely absent or "not there" in the past, but the school leaders are gradually finding ways to strengthen involvement. According to a school leader at Cottonwood, "We are trying to have students work on projects that would directly benefit or help the community." Although this approach taken by Cottonwood may help strengthen support for the projects with the broader community, this does not necessarily foster direct communication with families about the implications of this work for evaluating a student's PWR knowledge and skills.

Pandemic Effects on Implementation. During the interviews, the school leaders at both schools acknowledged the adverse and disruptive effects of the pandemic generally on the schooling context, and on the roll-out of this PBL and PBA initiative. At Mulberry, the principal indicated that the pandemic essentially stopped the capstone pilot initiated in Spring 2020. This resulted in lost funding from the district for the pilot work during the 2020-21 school year. Although the school continued with the PBL and PBA work and Ms. Hamid sustained professional learning opportunities for

interested teachers, they did not have the financial and staffing resources to scale this up across more students and classes as envisioned.

At Cottonwood, the principal pointed to challenges in the hybrid configuration that the school adopted for most of the school year:

> *In my opinion, that's what we're missing is just time with our students. [We're on an in-person schedule for] just two days a week…I wish we would dive in. I wish we had more training. I wish we did have more confidence just because we are a two-day school, and I think that Monday and Tuesday would be better if we had projects to work on Monday and Tuesday instead of worksheets or guided reading or, you know, different outside and inside resources, those type of things.*

Although we cannot gauge the extent to which all projects were directly impacted by this hybrid situation based on the Cottonwood principal's feedback, the input implies that project execution proved challenging with this schedule. Further, his reference to using "worksheets" and "guided reading" during the in-person days suggests that these two days supported more traditional activities that likely did not align with the type of activities required from the PBAs and PBLs.

Teachers

We asked each of the four teachers at Mulberry and Cottonwood to provide feedback on supports received from the district, their school leader, the broader community and from other classroom teachers that facilitated implementation of this work in their classrooms. Based on the interview data, the teachers largely corroborated the perspectives shared by their school leaders about the ecosystem surrounding their classrooms (district, school, and community). Additionally, the four teachers emphasized the difficulty of implementing the PBL and PBA work in a health pandemic since this work centers largely on teachers cultivating relationships with and among students. One key area where teachers from the two schools diverged is around their characterization of intentional teacher collaborations set up to engage in the PBL and PBA implementation work. We highlight this discrepant data point in relation to the first theme concerning ecosystem supports since this has implications for results shared in the third paper focused on teaching practices. We first attend to the perspectives shared by teachers at each level of the ecosystem to highlight data that suggest that vertical coherence for this assessment work appears stronger than the horizontal coherence achieved for this work across classrooms.

District supports. Ms. Hamid and Ms. Gonzalez highlighted that although district support for scaling up the Capstone work at Mulberry High was not provided during this pandemic year, the district in general is moving in the direction of fulfilling this vision. Ms. Hamid added:

> *You know, we've always gotten the approval to do really innovative projects, especially when we're partnering with CDE…we also have a new superintendent who came on board [recently], and he is all about equity. He's all about best practices for students. He is really into inquiry-based learning and relevance and things like that. And so we've got this at the top, right, like this belief and mindset there. And then you still have remnants of what we call the old regimen [who are] still very traditionally minded, and so there's a little bit of this disconnect, I think.*

Despite having some "traditionally minded" individuals at the district, Ms. Hamid acknowledges that the district

in general has supported the work taken up by the school to enact PBLs and PBAs as part of the school's vision for implementing PWR opportunities for students. Further, having a district superintendent that shares the same PBL and PBA vision for this work at the school will only strengthen vertical coherence between the district and school over time as district policies are shaped to support this work at Mulberry and other schools in the district.

At Cottonwood, the seamless interactions described by school leaders between the district and the school, are also highlighted by one teacher, Ms. Strauss:

> *I started serving on district leader teams and building leader teams, and I take pride in that since I serve on both…especially with the [PBL and PBA] work because when you start working behind the scenes and see how [PBL and PBAs] fit in the district action plan, I know how these [initiatives] fit into the bigger picture for the district.*

According to Ms. Strauss, she continuously moves between district and school leader teams, and can see how the goals around the PBL and PBA work at both levels are aligned. That is, she understands how this initiative fits at the school and within the larger strategic direction that the district holds for authentic learning and assessment experiences for students. However, despite highlighting the close alignment between district and school around the vision for this work, her description of the implementation work taking place at the school and shared in the following section, points to a more fragmented rather than cohesive picture for implementation.

School supports. A common theme found in both schools is that although school leaders support the PBL and PBA work, the culture of using this approach school-wide is limited to a subset of teachers. At Mulberry, Ms. Hamid indicated that about "a third" of all teachers have integrated PBLs and PBAs in their classrooms. According to her:

> *Our building is really slow, and the way that things operate in our building is that we kind of work by a majority rules, if that makes sense. We do a lot of polling. Like, are we going to go in this direction? It's not a heavy-handed top-down leadership whatsoever. So, it's more being in the trenches and being open to criticism and hoping that the things that are good – that kids will talk about it, other teachers will see it, that there's an inquisitive spirit that surrounds it.*

Despite the slow uptake of this initiative, Ms. Hamid frames the gradual spread of this work in a positive light, in that she believes this work will continue to move into other classrooms as more students and teachers are exposed to the PBL-based teaching and assessment model. To support teachers interested in the PBL and PBA approaches, Ms. Hamid provides mentoring and supports for this work using a professional learning community (PLC) model. As noted by her colleague Ms. Gonzalez, "I would not advise anybody to go into [this PBA and PBL work] as a loner. I think that would be really hard…. I needed to read a lot…[and] to hear different voices… because I was so traditional for so long…. I didn't know that there was another way [of instructing and assessing]." According to Ms. Gonzalez, a PLC serves as a critical support network for teachers doing this type of complex learning and assessment work in the classrooms. Ms. Hamid also notes that, "[Ms. Gonzalez] and I have certainly done a lot of collaborating together…it's been helpful to kick around these things even in the midst of a pandemic…" At Mulberry, the supports and encouragement provided by the principal to maintain a PLC focused on the PBLs and PBAs appears to strengthen the implementation work for interested teachers at the school.

At Cottonwood, despite the district and school leaders' support for using PBLs and PBAs, the uptake of this work appears isolated to individual teachers. Ms. Jean, a Cottonwood Science teacher, highlights this challenge:

> *Here's the biggest problem I've had coming into this, and it's a problem I face year after year after year because so few people [throughout the district] do [PBLs and PBAs] and so few people have trained their students in doing projects and…not just "we're going to do another activity." There's a huge difference, and these kids don't get it. So this year has really been a struggle because I've been focused on PBLs.*

According to Ms. Jean, students in the high school, including incoming students from the district's middle school, do not commonly engage in PBLs and PBAs. She also noted that she is largely operating "on [her] own" to implement this type of work in her classes. A similar impression of working in isolation was shared by Ms. Strauss. However, in her case, Ms. Strauss framed this problem more in terms of "not knowing how to include other teachers in this work." For the ELA Capstone work, Ms. Strauss could potentially collaborate with other teachers to help inform the project development work, but noted, "I'm not sure what questions to ask… what kind of supports I need to do this work." Ms. Strauss added that the school has a subscription service to access PBLs and PBAs through an external organization, but she did not think those resources were particularly helpful. However, she did note that if she wanted to invest in additional resources or wanted to attend a training focused on this work, the school would "help her with that." In her case, the lack of a clear organizing structure for implementing the Capstone work through PBLs and PBAs has made it challenging for her to know what resources she needs or how best to implement the work.

An unfortunate outcome of not having a dedicated PLC structured around this initiative is that Cottonwood cannot fulfill a basic requirement for meeting the vision for this or any other instructional reform, which is organizing collaborative learning communities for teachers (Penuel et al., 2020; Spillane, 2002). In the below excerpt, Ms. Jean highlights the importance of using an interdisciplinary model that was originally envisioned for the Capstones to allow students to engage in PBLs and PBAs:

> *[When they hired me], they said, "Oh yes, we're doing PBL"…here we are three years later… nobody wants to say "this is a requirement"…we need to have people working together because if you have this one student that has a big, old project in language arts, a big project in history and in science and in math, we're going to squelch our kids.*

Ms. Jean expresses the need for collaboration, but seems unaware that her ELA colleague, Ms. Strauss, is attempting to do exactly what Ms. Jean advocates should be implemented at the school. In other words, although both teachers are striving to achieve the same vision for the PBA and PBL work, the lack of a PLC structure built on strengthening and leveraging the knowledge of teachers at the school appears to result in isolated and fragmented approaches for implementation. Darling-Hammond (2020) highlights the importance of establishing professional learning communities in schools, since these communities can provide a space for teachers to reflect upon how their current practices align with equity-oriented deeper learning goals. Without establishing collaborative spaces for teachers focused on equity-centered approaches to teaching and learning, schools and teachers can end up reinforcing traditional approaches and viewpoints (de Jong, et al., 2019).

Community supports. Teachers described the role of families and the community to support and engage with the PBL and PBA work at their schools in ways that corroborated the perspectives shared by their school leaders. For Mulberry High, Ms. Hamid and Ms. Gonzalez described family and community involvement both in virtual presentations of learning as well as in family-teacher conferences in highly positive terms. Ms. Hamid shared that the failure of a neighboring school district to continue doing this type of PBL and PBA work at their schools was largely due to "communication failures" with families. Recognizing the importance of helping to signal the shift from traditional ways of evaluating students for PWR, Ms. Hamid noted:

> *I think families tend to align with the type of education that they received…but when you have those deep conversations with them about… why we are doing things this way, they get it and they're supportive. It's hard for them to shift from the old system to the new system so that's something that I've worked very hard on is that communication with families and constantly letting them know what's the purpose behind what we're doing and what they can expect to see from their student.*

In contrast, at Cottonwood, this work has yet to effectively involve the larger community and students' families. Ms. Strauss described recent efforts (i.e., during the 2020-21 school year) taken to strengthen ties to the community by connecting student projects with a community service orientation, but this example did not directly involve families or community members in students' projects. Ms. Jean shared that families are not directly involved or engaged with the PBL work taking place in her classrooms, and voiced frustration with the lack of interest from families to support or learn more about this work. While teachers and school leaders at Cottonwood do not currently view the lack of family involvement as negatively impacting the implementation work, not establishing strong communications with families to help them understand the connections between this non-traditional assessment with PWR evaluations may potentially backfire. That is, as noted by Ms. Hamid at Mulberry, by not actively communicating with families about this different approach to evaluating PWR, Cottonwood risks facing push-back from families who are more familiar with traditional assessment and grading practices. As Dwyer & Hecht (2001) suggest "without the ability to talk with families, school programs cannot succeed" (p. 286).

Pandemic Impacts on PBL/PBA work. All four teachers interviewed for this study highlighted key struggles they experienced in implementing the PBLs and PBAs, due largely to how pandemic-related challenges adversely impacted their ability to build strong relationships with their students:

> *Ms. Hamid: For me, because I've done this work for so long…there's almost this metaphysical pulse in my classroom when my kids are learning and they're engaged and they're excited. And…I literally feed off of that. It is so necessary [for the students' energy] to feed me and make me feel like my work is worthwhile…that's what I look for. That's what I wait for. You know what I'm saying? And it doesn't happen online. And it's so disheartening and literally almost crushing.*

> *Ms. Gonzalez: I've learned a lot this year. I think it's made – not seeing the kids face to face, not even seeing their faces most days has made [teaching] really difficult. The connections [and] I think relationship is really at the core for that, and it's just been so hard to build the relationships to nurture… where there's that trust that goes, you know, back and forth where they can trust me in the midst of [a pandemic] that feels kind of messy or a little bit scary.*

Ms. Strauss: In order to build a relationship and to build expectations… it takes time and honestly for the first six weeks we were in such a crunch… Even though we could zoom with them on Wednesday and Thursday…without having time to meet…I didn't even meet them until the spring. You get to know who needs what because they need different types of support, but you couldn't do that this year.

Ms. Jean: I hate this…I don't feel like I'm doing my job. I feel like I'm lying to the kids almost because I'm supposed to be teaching them these things. The content is a pathway to the real things, which are ability to communicate, ability to problem solve, you know, those things, those learning – those skills that we need across the board. And…I just feel like I wasn't doing it. There's no time to do justice to [the PBLs and PBAs]…I mean, [the week is] so chopped up, and I'm looking at what I've gotten through…I can only imagine what the kids are feeling…they come in for two days, and they have five days off.

In the case of Ms. Hamid and Ms. Gonzalez, there were still several fully remote students whom they have not met in person and, "have no idea what they look like because we never [see] their faces." As conveyed by each teacher in the above excerpts, relationship building plays a critical role in their instructional practice, particularly when engaging in this type of authentic learning and assessment work. When considering the important role that formative assessment strategies connected to using PBLs and PBAs play, such as engaging students in extended discourse and using questioning techniques to uncover student reasoning, soliciting full engagement from all students becomes particularly challenging when teachers have not established strong relationships with all students.

Implementation Takeaways

As highlighted by Shepard et al. (2018), achieving both vertical and horizontal coherence is critical for implementing, reinforcing, and supporting a clear vision on classroom assessment taking place at schools. Overall, based on the interview data, both school leaders and teachers point to greater success achieved to establish vertical coherence around this initiative. Though to tighten vertical coherence, Cottonwood will likely need to find ways to garner family and community based supports for this initiative.

The interviews with school leaders and teachers also uncovered clear challenges experienced at both sites in building horizontal coherence through teacher buy-in for this vision for authentic instruction and assessment. At both schools, the bigger challenge is to find ways to increase capacity and buy-in for this PBA and PBL approach across teachers since the long-term vision for this work is to eventually use the results from the PBAs for meeting graduation requirements. At Mulberry, the case study teachers and principal appear to suggest that although uptake for this initiative has been gradual, the school is making slow but gradual progress to spark the interest of other teachers. At Cottonwood, the school will need to consider establishing strategies such as implementing PLCs to break the isolated work taking place between the teachers engaged in this initiative. Going back to the teacher conjecture map presented in the first paper, the finding of weak horizontal coherence at Cottonwood points to the possibility that the instructional and assessment practices connected to the PBL and PBA work at the school may not meet the conjectures envisioned for this project. That is, because, as indicated by teachers at Mulberry, doing this work is difficult and should not be done "by yourself," Cottonwood teachers may not be pushed to

continuously improve upon the learning activities and tasks to ensure that these can foster deeper learning opportunities for their students. Having focused on how the different levels within the ecosystem reinforce and support the vision and implementation of this work, we shift to the second topic in the third paper of this series focused on describing the teaching practices taking place in classrooms at the two schools.

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About CADRE

The Center for Assessment, Design, Research and Evaluation (CADRE) is housed in the School of Education at the University of Colorado Boulder. The mission of CADRE is to produce generalizable knowledge that improves the ability to assess student learning and to evaluate programs and methods that may have an effect on this learning. Projects undertaken by CADRE staff represent a collaboration with the ongoing activities in the School of Education, the University, and the broader national and international community of scholars and stakeholders involved in educational assessment and evaluation.

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Attachment A

Note: The below items represent general descriptors of “look-fors” in the observation protocol and does not reflect the actual rubric used.

Formative Practices to Strengthen Student Learning

- Activities are connected to larger goals or lessons beyond the day’s class period.
- Criteria for success to support learning
- Questioning strategies to elicit evidence of student learning
- Teacher provides opportunity for students to take action based on feedback.
- Peer feedback and assessment
- Extended thinking during discourse
- Self-assessment as a means to engage in metacognitive skills

Authentic-making to Design Performance-based Tasks and Activities

- Activities include tools that are used outside of school (e.g., terminology, technology, resources).
- Students plan for, make, design, create, or share a product or performance.
- Teacher provides opportunities for students to learn skills to create/revise a product or performance, or prepare something that they will continue with in future activities (evidence of iterative production over time).
- Students provided with opportunities to express themselves through multiple modes (writing, image, sound, video, movement, live performance).
- Teacher provides instruction in learning ‘how’ to use/develop literary or writing skills or strategies or processes or provides scaffolds and supports to develop these.
- Teacher uses different representations (modes and media) to teach content (learning about).

Integrating Essential Skills to Foster a Strong Classroom Culture

- Activities designed or materials provided and used promote focal essential skills.
- Classroom environment appears comfortable and safe for learning and risk-taking.
- Students show respect for each other’s ideas, opinions, and backgrounds.
- Teacher provides opportunity for students to reflect on progress, goals, feedback, and/or suggested actions, and feelings - processes and product.
- Students drive choices to engage interests via choice of product /content / mode of expression/process.

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