# TRANSITIONING TO MASTERY LEARNING

## Mapping the Process, Supports and Challenges, and Considerations for Equitable Implementation Across Nine Public Schools

EDD CAPSTONE PROJECT
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In partnership with

MTC MASTERY TRANSCRIPT CONSORTIUM

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# Acknowledgments

An old adage tells us it takes a village to raise a child.  We posit that, likewise, it takes a village to cultivate a doctorate degree.

In one of our first courses of the Ed.D. program, Dr. Laird taught us about systems thinking and improvement science. There, he imbued us with an understanding that would add depth and complication to every subsequent course: *Every system is perfectly designed to get the results it gets*[1]. No entity works alone, and its impact is only fully understood when situated and seen in its system.

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[1] This adage is attributed to the work of W. Edwards Deming.

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# Executive Summary

Mastery learning (ML), also known as Personalized, Competency-Based Education (PCBE), holds great promise in transforming the education system by recognizing the skills, dispositions, competencies, and identity of every learner. The Mastery Transcript Consortium (MTC) aims to realign the secondary education path with the needs of the 21st century, focusing on the role of the high school transcript. Through this study, the MTC sought to deepen the understanding of schools' transition to the mastery model by addressing the following research questions:

### Research Area 1 → Mapping the Transition Process

What does the **transition process toward full-scale implementation of mastery learning** look like for individual school sites and districts, particularly from standards-based grading?

### Research Area 2 → Standards-Based Grading & PCBE

A) Are there **unique supports and challenges** for schools in the transitions from SBG to mastery learning?

B) Where and how have schools **effectively integrated SBG** with **teaching and learning** needed to help learners acquire skills in the **graduate profile**?

### Research Area 3 → Challenges & Supports

A) What **supports** are beneficial to schools throughout their transition toward mastery learning? What **steps/policies/practices** appear to be most essential in the transition?

B) What **challenges and barriers** do schools face during the transition?

### Research, Area 4 → Considerations for Equitable Implementation

Do districts with high-need and/or racially or socioeconomically **diverse student populations** face **particular challenges**? If so, what are they?

We used a mixed methods research approach consisting of interviews with leaders and teachers across nine schools and eight PCBE experts, document analysis, and a schoolwide survey.

Findings indicate that schools either require a transformation from their current programming or establish PCBE as part of their new school. Schools experience pre-launch, implementation, and sustaining phases as they transition and focus on particular elements of school redesign depending on where they are at in the transition. Schools practicing standards-based grading (SBG) demonstrated teaching and learning practices that may help learners build skills in the graduate profile through personalized learning plans, school structures, and learning experiences. Factors that can impede progress to a full-scale PCBE implementation from SBG include navigating policy, technology and internal systems, and community readiness.

Schools encounter barriers and develop supports for PCBE implementation. These interconnected themes can be seen in how schools build and share their PCBE vision through stakeholder engagement, support, and perception management as well as in the schools' capacity and culture to support that vision through school and state influences. Findings from our survey indicate supports for teachers as a desired and effective structure for the transition to PCBE and generating support and managing perceptions as a critical issue for schools in the transition. Particular challenges exist for schools and districts with high-need, racially and/or socioeconomically diverse student populations, namely supporting students in skill acquisition, timely graduation, and overcoming systemic issues.

We offer **four recommendations** to the MTC:

1. **Invest in People:**
   Support schools with communication, perception management, and community insight for schools at all phases of the transition.
2. **Instill Confidence with Guidance:**
   a. Provide guidance for schools with high-need, or racially and/or socioeconomically diverse student populations on navigating foreseeable challenges.
   b. Support schools that are combining standards and elements of PCBE, expediting their transition process and mitigating misconceptions about mastery learning.
3. **Iteration through Continuous Improvement:**
   Support schools in establishing principal and educator PLCs, and partnerships to sustain momentum, catalyze synergy among them, and create proof points for leadership.

These findings and recommendations stand to inform the systems-level change needed to evolve multiple entities in the ecosystem of education by providing guidance and actionable evidence, grounded in the lived experience of stakeholders. With the tools of design thinking and improvement science for iteration, the transition process can build momentum, resulting in a swifter arrival of the day when every learner receives the personalized, competency-based education that fosters their unique strengths, reflects their culture and identity, and equips them with skills to thrive in the 21st century.

# Introduction & Context

This report was prepared as the culminating Capstone requirement of the Doctor of Education in Education Policy and Leadership of Peabody College at Vanderbilt University. We worked under the guidance of our Capstone partner, The Mastery Transcript Consortium (MTC), to deepen their understanding of how to best support schools in their transition to mastery learning (ML), or personalized competency-based education (PCBE)[2]. Explanations of the partner organization, the problem of practice, and the field of ML follow. Terms used in this paper to describe ML can be referenced in Appendix A.

## Organizational Context:
### The Mastery Transcript Consortium

The MTC is a non-profit organization that seeks to realign the path from high school to college, ensuring all students graduate with the skills, dispositions, and knowledge to thrive in our evolving society. This entails reenvisioning traditional systems and structures that were built during the industrial era in favor of a system designed to serve the unique needs of every child. The MTC recognizes that transformational change requires an ecosystem of organizations and that they are one entity in a coalition of allies. They contribute by focusing on one key factor: the high school transcript.

As a consortium founded in 2017, the MTC is an international network of public and private schools and out-of-school time organizations. As of May 2023, it totals 381 members, including 198 private and 183 public entities (Mastery Transcript Consortium, 2021).

[2] Consistency in the vernacular is an issue in the movement toward mastery. The MTC uses the term mastery learning, though others use terms such as competency-based education, competency-based learning, personalized learning, and personalized competency-based learning. True mastery learning, by the MTC's definition, is both personalized and competency-based. We noted that PCBE was a commonly understood name for this learning in their interview process; for this reason, the terms personalized, competency-based education (PCBE) and mastery learning (ML) are used interchangeably in this paper. Notably, research questions use ML, honoring the MTC's phrasing, and findings primarily use PCBE. The terms personalized and competency-based education are used separately at points and refer to these separate elements of a full PCBE approach.

### The High School Transcript

The MTC views the traditional transcript as reductive and unable to demonstrate true student learning and identity. In addition to this ineptitude, the traditional transcript is viewed as a systemic barrier to transformational change in education due to its role in communicating a student's readiness for college and career. The transcript itself and what it communicates—GPA, test scores, grades by course—have a magnified influence on teaching and learning, as well as the structures that support them, in K-12 schools because it symbolically and pragmatically communicates what society validates as learning to higher education and employers (Casey & Sturgis, 2019). This influence can be seen in the ways that most schools organize teaching and learning into discrete subject areas; measure and rank student learning through summative marks including grades, GPA, and standardized test scores; and primarily focus on a narrow set of academic skills as opposed to including skill sets that are crucial to thriving in college, career, and life (Casey & Sturgis, 2019). The MTC notes three dire implications of the transcript that, collectively, result in an inequitable education system that does not adequately prepare students: 1) It contributes to inequity and opportunity gaps by narrowly and unfairly representing students' growth and potential; 2) It stands as an impediment to innovation in high schools; 3) It is a barrier to preparing students to excel in higher education, career, and life (Casey & Sturgis, 2019).

### Theory of Action

To operationalize its mission, the MTC focuses on three key levers: Facilitate a Powerful Peer Network for High School Redesign; Build a Mastery Transcript (MT); and Engage and Activate Higher Education (Casey & Sturgis, 2019). For descriptions of these levers and to see how they work in conjunction, see the MTC full theory of action in Appendix B. This project is nested in the second lever and goal: supporting school redesign.

## Project Purpose

The MTC's approach to assisting schools with the redesign process involves promoting peer-to-peer learning opportunities, providing support to member schools during the redesign process, and advocating for schools as they emerge as leaders and influencers in mastery learning (ML). (Casey & Sturgis, 2019). While each school's journey toward ML is unique, the role the MTC plays in the transition can generally be visualized in the following manner: school leadership explores the possibility of transitioning to ML through peer-to-peer learning experiences; the school commits to adopting an ML framework and

begins to gather resources to support their transition, including potential membership in the MTC; these schools then work through the process of transitioning their pedagogy and assessment model from traditional or standards-based-grading (SBG) to mastery with the support of school-site leadership and the MTC models and resources; the school community fully transitions to the ML model and uses a mastery transcript to communicate student learning; the school is then part of a broader movement toward ML (Mastery Transcript Consortium, 2021; Bell et al., 2019).

The MTC has noted that certain aspects of the transition to ML are challenging for many schools, particularly the transition from SBG to ML. While some aspects of SBG and ML look similar, there are core differences between them, and the transition entails a change in systems and structures as well as a pedagogical practice, and some schools appear to lose momentum at this juncture. The MTC hopes to more deeply understand challenges as well as supports and structures deemed beneficial through the transition and school design process, as well as whether schools with historically marginalized student populations may face unique challenges.  MTC's membership comprises both public and private schools; this study focuses on public schools noting their unique constraints to innovation.

Through this study, the MTC seeks to deepen its knowledge of various aspects of the transition and how to support schools as they undergo it by addressing the following research questions:

## Research Question, Area 1 → Mapping the Process

- A) What does the **transition process toward full-scale implementation of mastery learning** look like for individual school sites and districts, particularly from standards-based grading?

## Research Questions, Area 2 → SBG and PCBE

- A) Are there **unique supports and challenges** for schools in transitions from SBG to mastery learning?
- B) Where and how have schools **effectively integrated SBG** with **teaching and learning** needed to help learners acquire skills in the **graduate profile**?

### Research Questions, Area 3 ⟶ Challenges and Supports

- A) What **supports** are beneficial to schools throughout their transition toward mastery learning? What **steps/policies/practices** appear to be most essential in the transition?
- B) What **challenges and barriers** do schools face during the transition?

### Research Question, Area 4 ⟶ Considerations for Equitable Implementation

- Do districts with high-need and/or racially or socioeconomically **diverse student populations** face **particular challenges**? If so, what are they?

## Literature Review: The Field of PCBE

Personalized, competency-based education (PCBE) harkens back to the apprenticeship model that stretches back centuries, though some liken it to the standards-based models that became popularized in the standards-based movement in the 1990s (reDesign, 2016). At this time, there are schools, public and independent, embracing elements of a competency-based approach, some in practice and others in ambition. Reasons for this change vary but two often cited are a response to the recognition that the current paradigm renders inequitable outcomes and it does not prepare students with skills, mindsets, and dispositions to thrive in the 21st century (Getting Smart, 2018; Sturgis & Casey, 2018a; Sturgis & Casey, 2018b). Some schools are starting in this model; by design, these are usually charter, magnet, or independent schools. In order for the majority of US students to yield the benefits of PCBE, public school systems need to transition away from their current model. Landscape studies of public schools indicate progress toward personalized approaches in K-12 education, as well as legislation that removes barriers to competency-based education across much of the United States (Patrick et al., 2018a; Patrick et al., 2018b).

### Transitioning to PCBE

The transition of existing schools is multifaceted. By definition, PCBE requires a systems-level change away from traditional schools, impacting systems, structures, pedagogy, assessment means, school conditions, and more (Levine & Patrick, 2019). Along with our Capstone partner, we adopt the definition of CBE from Aurora (see Appendix C).

Note that while Aurora uses the term CBE in their definition, "PCBE" is used here to honor the degree to which personalization is required in CBE (Levine & Patrick, 2019)[3]. As indicated in the definition, key elements include meaningful assessment, different pathways for students, varied pacing, and transferability.

## (Re)Designing for PCBE

Whether designing a new school from scratch or transitioning a school from a previous structure and model, certain design considerations are key. Aurora Institute offers 16 design principles, and MTC offers a framework (called the Journeys to Mastery Learning, or JML) for how design elements come together at different points of a design process (Sturgis & Casey, 2018; Bell et al., 2019). It's important to note that the transition to, or adoption of, PCBE is a unique process for every school; while these design elements are essential and intended to be a common thread of all PCBE schools, the path to (re)design is not linear and a blueprint for implementation does not exist (Bell et al., 2019). Since the design of PCBE is context specific and reflective of the people and place the school serves, a one-size-fits-all implementation process is not feasible.

Regardless of the process, precedent shows that there are dangers with initiating the change with grades alone; the transition to CBE requires a whole-systems shift, and changing one element (grades) without the others (school structures, learning model, etc.) results in misunderstanding and disinvestment in the movement (Getting Smart, 2018). Three aspects are key in designing the learning model: targets and competencies, the learning process, and the practice and process for student feedback (Getting Smart, 2018). A "paradox of competence" influences how competencies are assessed and feedback is provided: reductionist versus constructivist (Getting Smart, 2018, p.9). Whereas a reductionist approach values consistent external validation for assessments, a constructivist approach values authentic assessments and teacher judgment, which comes from the curated lens of an individual or set of teachers (Getting Smart, 2018). Each of these has different benefits, and the ideal is to find a balance of both. Whereas external validation can lead to consistency and scalable systems, focus on teacher judgment can

[3] Some places use elements of personalized learning such as flexible pacing in online software and it is misunderstood to represent competency-based education. Aurora's definition of CBE embeds their definition of Personalized Learning: "tailoring learning for each student's strengths, needs and interests – including enabling student voice and choice in what, how, when, and where they learn – to provide flexibility and supports to ensure mastery of the highest standards possible" (Gross et al., 2018, as cited in Levine & Patrick, 2019).

lead to learning experiences that allow for focused deep dives and individualized student pathways (Getting Smart, 2018).

## Standards-Based Grading and PCBE

There are some common elements of standards-based grading (SBG) and PCBE, namely that both call for student assessment to be centered on the proficiency of targeted learning indicators (Getting Smart, 2018; reDesign, 2016). However, key differences set them apart; understanding how they are different is essential to embracing PCBE and avoiding pitfalls, such as the inequitable practice of tracking (reDesign, 2016; Levine & Patrick, 2019). In both SBG and PCBE, teaching and learning are organized around predetermined criteria; learning reports reflect mastery of the predetermined criteria; and assessment plays a primarily formative role (Townsley, 2014). Differences include the focus and granularity of the criteria; gradation and pacing of learning; and how learning is assessed (Townsley, 2014; reDesign, 2016).

## Challenges to Implementation and Adoption

A landscape analysis of PCBE published in 2018 by Getting Smart identified and cataloged six challenges to implementing PCBE: defining competencies; transition challenges; tools and resources; technical challenges; reporting, as in how learning is communicated; and accountability systems (Getting Smart, 2018). See Appendix D for a summary with subthemes.

## Equity at the Forefront

Embedded in Aurora's definition of CBE is the belief that "Communities that aspire to achieve equity must work toward implementing all elements of a competency-based education system," (Levine & Patrick, 2019). In short, equity is both the motivator for, and an essential design element of, PCBE[4]. Despite the alignment of motivation between equity in education and CBE movements, many are concerned about moving away from the

[4] Aurora uses the National Equity Project's definition for equity in education: "Educational equity means that each child receives what they need to develop to their full academic and social potential. Working towards equity in schools involves: Ensuring equally high outcomes for all participants in our educational system; removing the predictability of success or failures that currently correlates with any social or cultural factor; Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children; and Discovering and cultivating the unique gifts, talents and interests that every human possesses." (Educational Equity Definition, n.d).

hard-won protections of the current system based on traditional accountability metrics and disaggregated data (Getting Smart, 2018). Without integrity in implementation, systems and schools intending to adopt PCBE could instead compound or create new mediums for inequity (Getting Smart, 2018). Getting Smart offers the following recommendation for mitigating such: "building in equity on the front end of these efforts, smartly implementing tools for educators, and expanding guidance systems to help students navigate effectively through a system with more choices" as well as weighted funding (Getting Smart, 2018). Note that Getting Smart also indicates a dire need to become clearer on the "foundational requirements and guard rails for moving forward" to truly ensure equitable implementation, serve every young person, and instill confidence and collective support in communities. Additionally, the Aurora Institute has done significant work on the challenges to equitable implementation as well as mapping what it looks like for equity to live in PCBE districts and schools (Patrick et al., 2017; Sturgis & Casey, 2018a; Sturgis & Casey, 2018b). They offer nine equity principles to honor through design and implementation (Sturgis & Casey, 2018a) See Appendix E for the equity principles.

## Conceptual Framework

This project utilizes two frameworks that the MTC has developed: The Journeys to Mastery Learning (JML) framework and the MTC's grading system progression.

The JML framework is a tool schools use that guides them in redesigning for mastery. The JML framework is rooted in both learning sciences and school redesign literature and is designed to guide schools in transforming their teaching, culture, and strategies toward PCBE practices. The JML features five elements: Purpose and Vision, Graduate Profile, Learning Model, Alignment, and Sustainability. Each of these elements contains a driving question and multiple design elements to help schools reflect on their implementation strategy. While the JML does not serve as a blueprint for the transition and is not to be interpreted as a linear progression, the elements serve as a beacon in school design (Mastery Transcript Consortium, 2021). The MTC provides guidance and resources to member schools on the design elements in a member-facing platform called Grow. In this study, the JML serves as a conceptual framework to map each school's current programming, guiding our understanding of where they are in the transition process, and framing our understanding of teaching and learning, culture, structures, and equity work in schools. It comprises five main pillars, with multiple guiding elements for schools transitioning. We used these pillars and elements to create a single-point rubric and marked schools against it. See Appendix F for the full framework.

The grading system progression is an internal MTC infographic that communicates grading systems, their strengths, and potential next steps for member schools adopting or transitioning to ML. Taken as a framework, the grade system progression provides a guide for understanding how grading practices align with and progress toward ML. The starting point for the transition is not fixed, and progress toward ML does not necessarily flow incrementally along the progression. Some schools transitioning toward ML are not yet practicing SBG and have, theoretically, a larger transition, whereas other schools were founded on a competency-based model; nonetheless, each school's process and pace toward ML is unique. In this project, we created a rubric based on the reporting practices and their components. The reporting structures were identified as traditional, SBG, and PCBE. Schools were marked against the rubric to determine how a school reports its grades. See Appendix G for the grading system continuum.

# Design & Methods

## Approach

A mixed methods approach is used in this study, although it heavily relies on qualitative methods to capture a deep understanding of each school's context and perspectives, as well as clarity around where schools fall along the transition to PCBE. This adopts Merriam and Tisdell principles: "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (5). This allowed us to more deeply understand each school's context, and how the supports and challenges impacted their experience towards PCBE. A quantitative approach was used to measure the perception and magnitude of themes among schools based on the findings from our interviews.

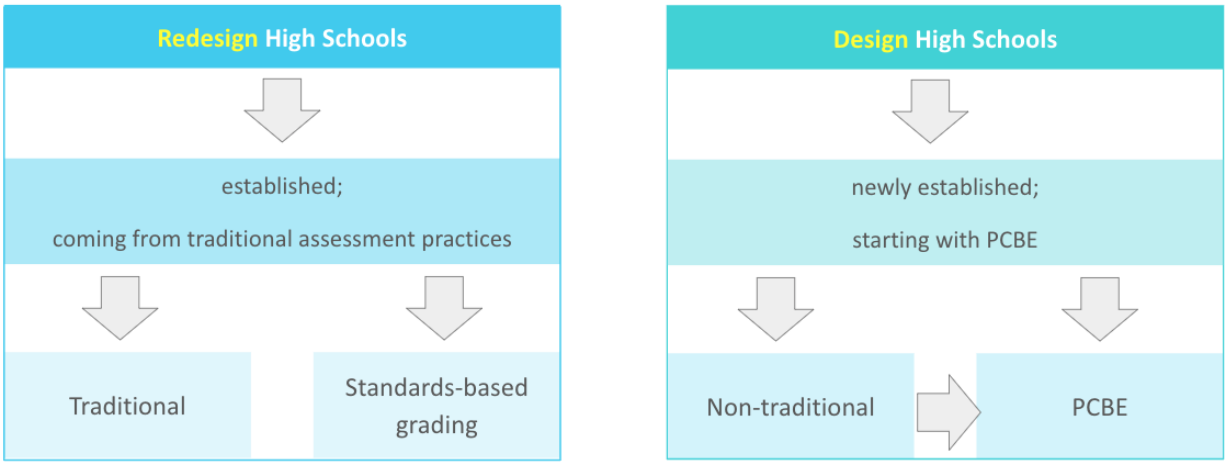
In designing our study, we used two different approaches. First, we used a case study approach. Since each school is in a different place in the transition, we used the JML framework and the MTC's grade system progression as a consistent way to map each school's trajectory. This framework was a critical piece in guiding our work, as it provided us a clear understanding of where schools were in the transition based on the MTC's identifiers. Then, we used grounded theory. This allowed us the opportunity to speak with practitioners and field experts, synthesize and derive themes from our interviews, and build a general theory about the common challenges faced and common supports deemed

beneficial to schools transitioning to mastery. Purposive sampling was used as it allowed us to target participants efficiently and find those that are best suited for our analysis.

## Setting

Initially, we sought to conduct a landscape analysis for public high schools transitioning from SBG practices to PCBE, or redesign schools. However, due to sampling challenges, we opened our study to two types of schools: redesign and design schools. Redesign schools are those that have an established program and are redesigning to achieve a PCBE program. In our sample, these were traditional schools in public school districts. Design schools are newly established entities that have started with a PCBE program, or early on changed from a non-traditional model. In our sample, these were magnet and charter schools. These can be seen in Table 1.

**Table 1.** Differences in Redesign and Design Schools




Additionally, we sought a diverse set of school contexts geographically and demographically. There was intentionality in ensuring we included schools that had high-need and/or racially or socioeconomically diverse student populations, as it provided more depth into our fourth area of inquiry, Considerations for Equitable Implementation. Table 2 represents the schools participating in our sample. State names have been removed to keep schools confidential. Regional categories are based on the US Census Bureau.

**Table 2** Characteristics of Public School Sample

| School | Profile | School Type | Locale[5] | Region | Demographics[6] | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | SPED | FRPL | Total Population | % non-white |
| Horizon High | Design | Magnet | Suburban | Pacific Coastal | 19% | ? | 35 | 40% |
| Odyssey High School | | Charter | Suburban | Midwest | 28% | 33% | 100 | 21% |
| Kelsey High | | | Suburban | Midwest | 11% | 8% | 104 | 13% |
| Pedstone High | | | City | Midwest | 22% | 66% | 135 | 72% |
| Jester High | Redesign | Traditional Public | Rural | The Rocky Mountains | 13% | 10% | 1,948 | 7% |
| Chesterland School District | | | Rural | Midwest | 11% | 13% | 183 | 2% |
| Legacy High School | | | Suburban | Midwest | 10% | 20% | 2,301 | 28% |
| Mountain High | | | City | Southwest | N/A | 66% | 2,286 | 70% |
| South Central High School | | | City | Southwest | N/A | 69% | 3,355 | 79% |

[5] Data collected from www.localelookup.com

[6] Demographic information can from the school's district page or www.publicschoolreview.com

Nine schools participated in our study. In total, there were 41 participants interviewed. This included 13 school leaders, 20 teachers, and 8 experts. School leaders consisted of superintendents, principals, vice principals, and curriculum directors. Only four schools allowed us access to teachers; the remaining five declined due to scheduling constraints. Half of our experts were working for organizations leading PCBE work in the United States. Three were independent consultants working with schools, and one works at the state level as identified in Table 3. A further breakdown of PCBE experts and their roles can be seen in Table 4. Pseudonyms for schools and participants can be found in Table 5.

**Table 3** Overview of Participants

| **School Participants** | | **Field Expert Participants** | |
|---|---|---|---|
| Total Schools | 9 | Consultants | 3 |
| Teachers | 20 | Organizations | 4 |
| Leaders | 13 | State Department of Education | 1 |
| **Total Participants** | **33** | **Total Participants** | **8** |
| **Total Number of Participant (School Participants + Field Experts)** | | | **41** |

**Table 4** PCBE Experts

| **Name** | **Role and Affiliation** |
|---|---|
| David Ruff | Executive Director,<br>Great Schools Partnership |
| Michael Hakkarinen | Educational Specialist,<br>Digital Teaching and Learning, &<br>Personalized, Competency-Based Learning<br>Utah State Board of Education |
| Virgel Hammonds | Chief Learning Officer,<br>Knowledgeworks |
| Eliot Levine | Research Director, |

| | |
|---|---|
| | Aurora Institute |
| Eric Hudson | Chief Program Officer,<br>Global Online Academy |
| Rose Colby | Author & Consultant |
| Emily Rinkema | Author & Consultant |
| Bill Rich | Consultant,<br>Red House Learning |

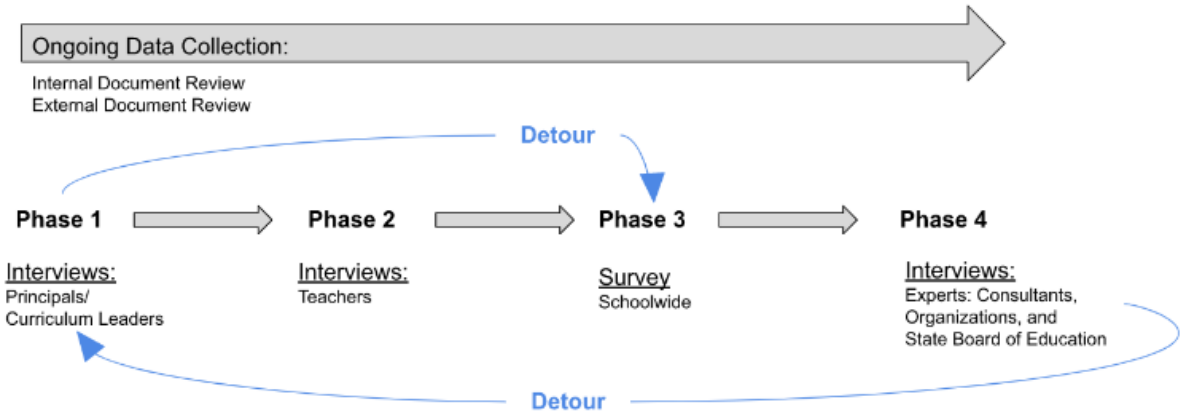
**Table 5** Schools and Staff Participants, Pseudonyms

| Profile | School | School Administration | Teachers |
|---|---|---|---|
| A | Horizon High | John | Holly |
| | Odyssey High School | Jane | Rachel<br>Anna<br>Oliver<br>Madeline<br>Jerry<br>Bailey<br>Maddy<br>Hannah<br>Ryan |
| | Pedstone High | Foster<br>Lindsay<br>Stephanie | Josephine<br>Charles<br>Scott<br>Marissa |
| B | Jester High | Courtney | *no access given to teachers* |
| | Kelsey High | Kyle | |
| | Chesterland School District | Ted<br>Robert<br>Diana | Sarah<br>Karen<br>Denis<br>Meredith<br>Julia<br>Karisa |
| C | Legacy High | Jane | *no access given to teachers* |
| | South Central High School | Carter | |
| | Mountain High | Grace | |

## Data Collection & Analysis Plan

Our data collection consisted of ongoing document analysis, interviews with school staff, a schoolwide survey, and interviews with experts currently practicing in the field as seen in Figure 1. Interviews and the survey occurred over the course of four chronological phases. Each phase is described below.

**Figure 1.** Data Collection Map




### Document Analysis

Our ongoing analysis of internal and external documents included documents related to the schools, experts, and organizations that were interviewed. This included items such as the review of school reporting structures and curriculum artifacts. Additionally, we focused on literature pertaining to PCBE, standards-based grading, school redesign, and change management.

### Phase One and Two: Interviews with School Staff

Outside of document analysis, we conducted four phases of data collection, as seen in Figure 1. Phase One and Two were interviews with school staff. They served two purposes: first, they were designed to illuminate where schools are in the Journey to Mastery Learning Framework (JML), and second, to gain more knowledge about the challenges and supports experienced at each site.

In Phase One, interviews were held with school leaders in order to better understand the school's context, vision for and experiences in transitioning to PCBE, and current teaching, learning, and assessment practices. The information gathered in Phase One informed our Phase Two, where we were able to focus more on the school's learning model and classroom issues related to the PCBE transition.

Interviews were all conducted similarly: All were held virtually through the video conferencing platform Zoom. Interviews with school administrators and teachers were each designated for one-hour. Interviews with leaders were held separately from teachers focus groups to help create a more open environment for staff to share freely. Schools and school participants were given pseudonyms to provide a safe environment to speak candidly.

We developed interview protocols using the JML Framework and grade system progression (see more about this in the Conceptual Framework section). This guided our language, methods of analysis, understanding of where schools are in the process, and how they are faring in each domain. We also used *Show What you Know, a 2018 landscape analysis* conducted by Getting Smart, to corroborate their findings (Getting Smart, 2018). See interview protocols for School Leaders in Appendix H, Educators in Appendix I, and Experts in Appendix J for interview protocols.

**Phase Three: Schoolwide Survey**

Phase Three utilized the themes that emerged from our Phase One and Phase Two interviews regarding challenges and supports helpful in the transition process to create a schoolwide survey. Its purpose served to measure the perceived magnitude of each supportive structure or condition and challenge using descriptive statistics. Respondents were given the ability to share clarifications in an open-response question and given anonymity. This allowed dissenting voices to be heard. We distributed this among the schools we interviewed.

**Phase Four: Interviews with Experts**

In Phase Four, we spoke with experts across the nation leading change in PCBE. This allowed us to gain the perspective of those working within schools and their districts as consultants, and those working at a state and national level in policy reform.

Interviews with experts provided a different perspective on PCBE which allowed us to compare the information we learned at each school site with those of field experts to bring validity to our findings.

Expert interviews lasted 45 minutes. All expert participants were given the chance to be named in the study if they desired.

**Detour**

However, after completing Phase Four, we secured three more schools for our sample. As

we were only allowed to speak with the principal of each school, we circled back to Phase 1, then distributed the survey to those schools.

## Analyzing Data

After each interview, we reflected on our notes and discussed salient themes that emerged. Once Phase Two of our data collection was complete, we conducted multiple listening tours and independently wrote analytical memos. After Phase Four, to further help mitigate any bias. Individual matrices were generated, and later combined into four comprehensive matrices: JML elements, supports and structures, challenges, and equity. Unique challenges that involved the transition from SBG to ML were denoted with an asterisk in the chart. No codes were changed as part of our detour.

The schoolwide survey was distributed through Qualtrics. The survey had 51 respondents from nine public schools (including 2 districts). Our analysis focused on the perceptions of those experiencing a transition to PCBE in the school, and the magnitude to which it was felt across contexts.

To reduce bias, we set weekly meetings to share knowledge, norm, and clarify our understanding throughout the research process. In addition, we met monthly with the MTC to ensure understanding. Nearly all interviews were conducted with both researchers present.

## Limitations

There are a few limitations to this study. As this work was done in partnership with the MTC, participant answers could be impacted based on their relationship with their organization. Additionally, research participants were recruited by the school leadership which could have led to selection bias.

This study sought to speak with teachers, school leaders, and field experts. However, due to challenges in obtaining permission to speak with school staff, many of the participants sampled were school leaders. Out of the nine schools in the sample, only four schools had teacher voices included in interviews. While we heard from a great number of teachers in our study, they were concentrated at four schools and do not evenly represent the full breadth of our sample. This could have led to over-representations of those schools in our findings.

The survey was open to leaders and teachers at all sample schools. Some schools have larger faculty sizes than others. This could lead to an overrepresentation of one school team's experience in the survey findings.

One of the researchers in this study has worked at two member schools of the MTC. This is noteworthy as it allowed us to conduct our research and analysis with a foundational understanding built on first-hand experience. This connection to the MTC was shared for transparency with interview participants and could have impacted their responses, either causing them to share more readily given a shared experience or causing them to be concerned with the perception of their responses by someone with a similar history.

**Generalizability**

While findings can be generalized to other school settings, not all can be uniformly applied to every context. One should be cautioned to use these findings based on a school's context, location, culture, climate, phase of implementation, and other factors that could contribute to differences in application such as school size, demographics, and state policy. This study is not intended to act as a playbook, but instead to show themes among schools across the United States moving towards PCBE learning and grading practices.

# Key Findings

Findings are organized under research areas and set against the two conceptual frameworks (the JML and grading system progression) where appropriate.

## Research Area 1 → Mapping the Transition Process

The schools we worked with were at various points of the grade system progression (see Appendix K). This meant that the faculty perspective shed light not only on the transition from SBG to PCBE, but on the entire process of transitioning, regardless of their starting point. Salient findings about the transition arose from this process. These findings are represented here. The second research area draws attention to the findings that solely or particularly apply to the SBG to PCBE transition.

## A) What does the transition process toward **full-scale implementation of mastery learning** look like for individual school sites and districts, particularly from a standards-based grading approach?

### School Types & Profiles

For the purpose of our next analysis, three profiles have been created to best illustrate the types of schools in our sample. Briefly described, they are:

- ➔ **Redesign** Schools
  - ◆ *Profile C*: Traditional district schools just beginning their transition to PCBE.
  - ◆ *Profile B*: Schools that started with a traditional assessment model but have evolved and are currently practicing a SBG approach. These schools are well into their transition toward a PCBE model. Their transition entails aligning elements of their teaching and learning to PCBE and their graduate profile.
- ➔ **Design** Schools
  - ◆ *Profile A*: Schools that are newly established that started as PCBE, or transitioned from an earlier, non-traditional model with elements similar to PCBE. These are charter or magnet schools.

### The School Transition Process

Regardless of the implementation strategy employed, all schools were found to undergo three distinct implementation phases: pre-launch, implementation, and sustaining. The following sections describe the common elements identified in each phase.

**Pre-launch Phase**

During the pre-launch phase, senior-level administrators within the school or district plan and discuss the transition. Schools establish a clear vision for the necessity of change and actively seek support from the community. For instance, the district overseeing Mountain High and South Central High School knew change was necessary after reviewing their student data, and held multiple meetings with community leaders and families to generate support. Pedstone had a different approach. They were established by a group of parents who wanted a different learning experience for their children.

Schools in the pre-launch phase undergo discussions among senior-level management to determine the programs and structures necessary for the transition. This can be seen in Legacy High as they articulated their teaching and learning practices and how they will pace themselves in the beginning stages to support staff in the transition. Meanwhile, Odyssey, as a pioneer in PCBE implementation, created its initial vision for PCBE due to the poor engagement of students in traditional programming being offered.

**Implementation Phase**

In the implementation phase, schools begin installing their PCBE program at their school site. They work towards standardizing processes and pedagogy while working on vision alignment. For instance, the Chesterland School District organized purposeful sessions where their school staff could share concerns and collaborate on the conditions needed for the transition. To better support teachers, Jester implemented mentorship programs and provided professional development opportunities.

Schools in this phase continuously seek support from stakeholders by actively listening to their community and communicating their vision, values, and progress. For instance, Kelsey High monitors the school, community, and political climate closely and uses this information to pace their transition. Chesterland School District takes a similar approach, yet spoke to addressing these concerns swiftly and directly, through measures such as creating a parent committee and providing evidence to address community concerns.

**Sustaining Phase**

In the sustaining phase, schools focus on maintaining and refining their PCBE programming. These schools have successfully phased in programs for grades 9-12 and utilize some form of a PCBE, gradeless transcript. They have established a learning program, assessment practices, and permanent structures to support continuous improvement. Schools like Pedstone and Odyssey actively promote and support other schools in implementing PCBE practices.

## Differences in PCBE Transition

In addition to the commonalities for all schools in the transition process, designing and redesigning schools exhibits distinct characteristics. In this section, we will discuss the differences in design and redesign schools.

**Design Schools**

Design schools are unique in comparison to redesign schools. During their Pre-launch Phase, they often have a compelling genesis story that explains the purpose behind establishing their new school program. This story plays a crucial role in attracting dedicated faculty members who strongly believe in the vision of the school. Additionally, designing schools face the unique responsibility of student recruitment during this phase.
During Implementation, designing schools focus on refining and aligning their school structures and learning programs. This involves streamlining processes, optimizing pedagogical approaches, and establishing a cohesive educational framework. These schools invest significant effort into ensuring that their practices and systems support their overarching vision.

Once fully phased in, designing schools continuously strive to iterate on the conditions, systems, and structures within their campus. They proactively seek opportunities for improvement and adapt their approaches based on feedback and experience.

**Redesign Schools**
Redesign schools also have defining features in their transition. These schools must establish a vision for change and bring their stakeholders into alignment with attention to how existing structures will need to change to support teaching, learning, and assessment. During implementation, the school chooses an area or areas in which to begin making changes, like teaching and learning or assessment practices. For some schools, this looks like moving to SBG and focusing on power standards. At this time, we do not have data to better understand what this looks like in a redesigning school that has a fully phased-in PCBE program.

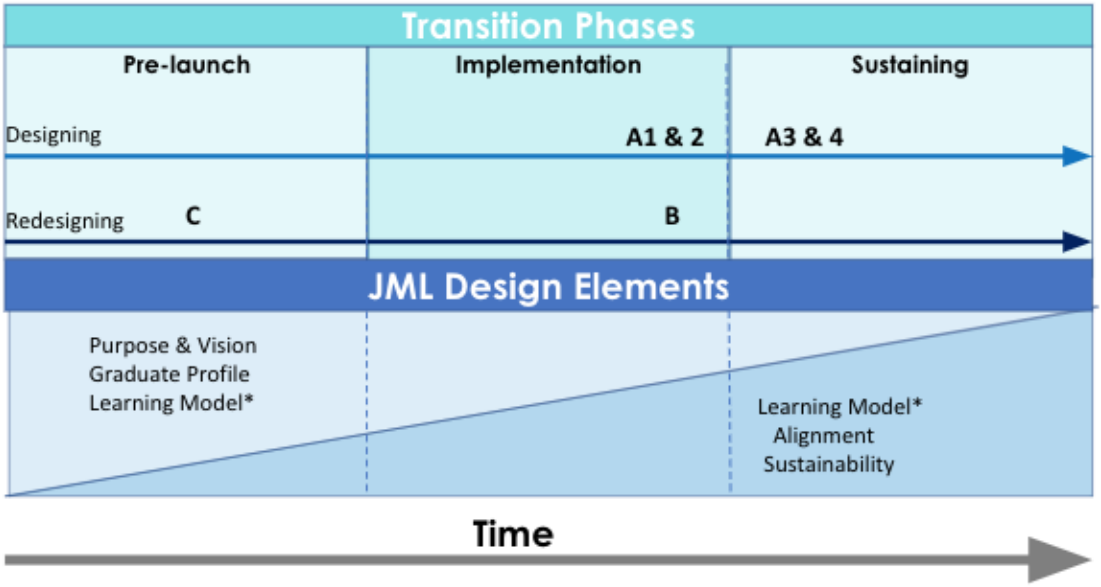
## The Transition and the JML Framework

To analyze the transition process across different school types and profiles, we utilized the JML framework as a guiding tool. We found that certain elements within the framework held greater significance during specific transitional phases as shown in Figure 2.

During the launch and implementation of their PCBE program, schools placed particular emphasis on three key elements: Purpose & Vision, Graduate Profile, and the Learning Model. These elements, as outlined by the framework established by the MTC, assisted schools in establishing connections with stakeholders, shaping the foundational structure of their PCBE program, and determining the frameworks for learning and assessment practices.

As schools progressed into the implementation and sustaining transitional phases, schools shifted more of their focus toward the elements of the JML framework relating to the Learning Model, Alignment, and Sustainability. This shift indicates a change in schools' priorities, moving from gaining support and cultivating a shift in mindsets to continuous iteration and improvement of their work. It's important to note that while their focus changed, schools demonstrated some degree of engagement with most or all elements during each of the three phases.

**Figure 2.** The Transitional Phases of Design and Redesign Schools Marked Against the JML Design Framework




## Research Area 2 → SBG & PCBE

This research area features two research questions. Each of these questions focuses on SBG and PCBE, though they do so differently. The first question seeks to understand more about the transition of teaching and learning models of SBG to the full implementation of PCBE, which focuses on the differences between them and what it takes to progress from one to the next. The second question seeks to understand where and how a crossover in SBG and elements of PCBE exists. Specifically, it seeks to identify where and how learning experiences in an SBG school can guide students in acquiring the skills outlined in a school's graduate profile, which is a core feature of PCBE.

## A) Are there **unique supports and challenges** for schools in transitions from SBG to ML/PCBE?

Whereas the first research area explored the transition process in general, this research question focuses on one specific aspect of the transition process: when schools are transitioning from a SBG model to a ML, or PCBE, model. This aspect of the transition is unique because while there are similarities between SBG and PCBE, there are also fundamental differences that require structural changes at the school level. This question seeks to understand what unique challenges schools encounter at this point of the transition as well as what supports are beneficial. Note that both design and redesign schools can experience this transition.

A subset of schools in the sample were able to speak to the transition from SBG to PCBE either because they are in the midst of it, are anticipating it and preparing for it at present, or underwent it. Specifically, the school sample included two schools that were currently practicing SBG (profile B), as well as two schools that had used elements of SBG at some point (profile A). Additionally, experts offered valuable insight. Three themes emerged from interviews with leaders and teachers from these schools: policy, technology and internal systems, and perceived community readiness.

Due to the scope and time constraints of the study, we were not able to work deeply with schools that have gone through the SBG to PCBE transition process; doing so would likely render a more detailed understanding of what this aspect of the transition looks like, as well as what procedural flow and activities are most beneficial.  This is recommended for future studies.

### Policy

The transition entails structural changes; these can be enabled or prevented by policies and regulations. While many policies can apply, the following emerged from the interviews as having essential implications on the degree to which a school can modify its learning framework and grading system. Each is followed by an example to illustrate where a school, district, or state has navigated this barrier.

**Regulations on time requirements for schools:** To have flexible pacing and alternative pathways, a school needs to be able to separate time and learning, and allow schools to focus on meaningful learning experiences instead of requiring a presence in a class and

school building for a certain number of hours a week and days per year. This allows students to access and use learning opportunities off campus for credit, and it also allows schools more autonomy on how they structure their schools.

We can look to Utah for a strong example of this in action. The Utah State Board of Education (USBE) allows local education agencies (LEA) to apply for waivers in their pursuit of following their state vision of personalizing learning for all students through competency-based education. To encourage understanding and use of flexibility waivers, USBE published the Guide to Education Flexibility in Utah.[7] Waivers for flexibility exist for various regulations, including instructional hours and seat time. LEAs are able to apply for waivers on the 180-day requirement for an entire school or set of schools should the school meet certain requirements, or for a specific student in support of the student's IEP or Plan for College and Career Readiness. For an individual student, this sort of flexibility can allow them to engage in learning experiences outside of the school building itself. For a school, it can allow the autonomy to determine how they use time over the course of a week. For example, one school in Utah has moved to reallocate their hours across the week in favor of a four-day school week, leaving Fridays open for optional targeted sessions for student support as well as teacher professional development.

**Regulations on what learning counts toward for credit:** To have anytime, anywhere learning, states/districts need to enable schools to recognize learning that happens outside of the school and separate from the faculty.

Speaking to how policy has enabled innovation in his district, superintendent Robert of Chesterland shared how a specific bill was essential in order "for kids to get credit when they were … walking with their parents instead of going into a PE class." This example illustrates how students are able to work toward learning goals (in this example, fitness) in unique, personalized ways that suit their personal goals and lifestyle (in this example, working toward fitness as a family unit). What makes this anytime, anywhere learning is that learning that occurs outside of the school building and classroom is able to count as evidence of learning and toward credit.

**Regulations or autonomy to set graduation requirements:** A school community can customize graduation requirements to mirror what they believe qualifies a student for

[7] USBE published their Guide to Education Flexibility in Utah in May 2020 and released an updated version in February 2022. As of May 2022, the updated version can be found here.

graduation when granted autonomy to do so. This enables more alignment between a school's graduate profile and graduation requirements.

Kelsey High provides an example of this. As an instrumentality charter, Kelsey is a part of the school district. However, it has been supported in setting its own graduation requirements. By doing so, they can align expectations for students with their own vision, and should they decide to adopt a full PCBE framework and mastery transcript, they are confident that this flexibility would enable them to do so.

**Regulations on how credits are accumulated**: Requiring schools to award credit based on Carnegie Units is a pragmatic barrier with direct outcomes for schools since credits are awarded based on mastery in the PCBE framework.

For an example of this barrier being removed, we can return to the USBE. In Utah, students must accrue a minimum of 24 credits for high school graduation, and the credits may come from either a course (which is a time-based, Carnegie Unit approach) or from demonstrated competency.

## Technology & internal systems for CBE

Schools spoke to the challenge of finding an LMS that adequately matches the learning framework and grading system of the school, which is a critical component of the SBG to PCBE transition. As one school participant pointed out, most LMS software ties learning to courses instead of to competencies, whereas a system is desired that allows evidence of learning and progress to follow a student across courses and learning experiences. Schools spoke to the need to create their own internal processes for documenting such things, as well as researching and finding existing systems that suit their needs. They also spoke about spending time building internal processes to establish and norm on a new workflow oriented towards PCBE. Notably, this norming is connected to developing a shared understanding among faculty of what demonstrates proficiency of the competencies, as they are incorporated and assessed for across school programming. While these are not an insurmountable obstacle, it is a time-consuming one.

Speaking to this challenge, Ted, the director of personalized learning in Chesterland, shared, "I'm talking about a learning management system at this point, like, what tool can you bring in that's going to make …that workflow more efficient, and more effective so that you spend less time trying to manage the system and try to organize yourself and more time doing what's … valuable, and that's, you know, coaching kids and helping kids." In this,

Ted was speaking to the degree to which time is a commodity in the transition process, and the degree to which time allocated to establishing new workflows detracts from time that could be dedicated to directly supporting students.

### Perceived community readiness: Political climate

One school expressed that they are intentionally not moving beyond SBG to full implementation of PCBE with a gradeless mastery transcript at this time and instead customized their approach toward PCBE to respond to and align with their unique political climate. Their district is currently experiencing a high degree of controversy around public education. It is in an area with predominantly conservative political leaning, and initiatives that may be construed as politically progressive are controversial. In this climate, the school leadership determined it does not want to attract attention that they deem unnecessary, and believe deciding to use a gradeless transcript at this time would do so. Instead, they intend to focus their innovation efforts on changing how they talk about learning as a school community by centering discussions around learning objectives in standards and competencies, with the intention of making grades irrelevant and learning the focus of discussion with students, teachers, and families. They feel strongly that they have already made great progress in doing so and believe that, should they decide to phase out grades at a later date, doing so will feel like a natural evolution of their work.

## B) Where and how have schools effectively **integrated SBG with teaching and learning** needed to help learners acquire skills in the **graduate profile**?

Two schools in the sample used an SBG system with teaching and learning practices that aligned with their graduate profile. Document analysis and interviews with leaders and teachers from these schools indicated teaching and learning practices at these schools that can help learners acquire the skills in the school's graduate profile. These practices are described here. Without seeing evidence of student learning or the implementation of these practices, which is beyond the scope of this study, we can not say for certain the degree to which learners are acquiring these skills; further research is recommended to address this question further.

The following case study illustrates how teaching and learning practices in two districts may help learners acquire the skills in their graduate profile.

## Case Study: Jester School District

In Jester School District, schoolwide structures and normed teaching practices have been put in place to enable "flexible, personalized, and blended pathways" as called for in their vision. The school embraces SBG practices: Courses are assessed by standards that align to state core standards and grades reflect mastery of standards at the end of the course. Students receive grades per course and credit by Carnegie Unit. The district takes measures to establish consistent practices; clear, actionable guidance is provided to educators from the district to differentiate between formative feedback and summative evidence of learning, as well as between the different purposes of scoring, reporting, grading, and crediting. The graduate profile, broken into knowledge, skills, and dispositions, includes clear indicators for skills. Structures and learning experiences provide avenues to cultivate skills and dispositions as outlined in the graduate profile. Two such structures are their choice-ready framework and targeted Fridays.  Each of these structures is described next.

Learners exercise a significant amount of choice in determining their secondary journey with the district's choice-ready framework. This planning structure is in place to guide students to emerge from high school both with 21st-century skills and having met the benchmarks for readiness for either workforce, military, or college, depending on the pathway they chose. Choice emerges in how they prepared themselves along that pathway, as well. While students are not required to meet the benchmarks in the framework, they are encouraged to do so; if they do, their graduation materials are endorsed to reflect this. To demonstrate their essential skills in the framework, students select to engage in four or more learning experiences outside of courses and academics. Two of the options that students select from are the successful completion of a capstone project or a work-based learning experience. It is very possible that, in pursuit of these options, students develop competencies in the graduation profile, namely: leadership and initiative, and responsibility and productivity (note that each of these sets is combined into one competency).  This is to say that these learning experiences may lead to acquiring these skills; further study is required to understand the degree to which, and how, learners are developing these skills and other competencies in the graduate profile.

At Jester junior high school, regular school days pause for targeted learning on Fridays. On these days, students choose from a selection of learning extensions and interventions based on interest and learning needs. This means students may spend this time relearning, conferencing with teachers, or extending their learning, depending on their individual

needs at that time. Options include experiences like fly fishing and hiking as well as opportunities to work on skills at math hour. This structure allows for faculty and students to dedicate time to additional support, individual guidance and feedback, and opportunities to reassess and demonstrate new growth toward mastery. It also allows students time to pursue areas of interest and engage in new experiences with peers.

Learner experiences on these Fridays differ greatly based on their choice, though each provides an opportunity for students to acquire skills and dispositions as outlined in the graduate profile such as curiosity, teamwork, working creatively with others openness and courage to explore, flexibility, and communicating in diverse environments. For students working on relearning, they are likely developing skills toward responsiveness and constructive feedback.

### Case Study: Chesterland School District

Nine years ago, Chesterland School District leadership started the heavy lifting that would eventually launch them into a district-wide transition toward PCBE. A successful district by traditional measures already, they sought to "create something that's even better for learners and educators that will better serve our community," as Superintendent Robert explained. They are now five years into enacting their plan, with changes in the realms of content in learning, what assessment looks like, and the use of time in curriculum and student progression. The changes span all grades, with the full preK-12 community transitioning together toward a PCBE vision rooted in their graduate profile. Changes in teaching and learning have occurred across the schools, with a signature feature being studio.

Studio is a six-week course that can be built out into a longer project, even lasting the course of a full year. Some studios run with a full class of students and others are individual to one student. Open-ended and designed to allow students to follow their curiosity while working toward identified learning goals, studio courses have a few criteria in common: they have a heavy research component and an expert connection, tasking students with working with someone in the larger community. Ted, director of personalized learning in Chesterland, explains the relative impact of learning experiences from his perspective: "In 17 years in education for me … it's the most powerful thing that I've been involved in. The level of conversations you get into those with kids is, is remarkable."

Learner-driven and educator-facilitated, these learning experiences are as varied as the students' interests. One student created an escape room that used storytelling to

demonstrate an understanding of history skills. Other students have opted for writing projects, including graphic novels and, from a car aficionado, a persuasive essay on how to upgrade a favorite vehicle. Some students that were previously uninterested in writing papers became published authors through their projects. One particularly noteworthy studio was conducted by a student with a passion for art. This student combined learning objectives in history, science, and English and engaged in a research process that enabled her to create her own pottery glazes. As a part of their process, this student wrote a grant in hopes of offsetting the cost of supplies.

While studio started at the high school level, it's now moving into the middle school as well. In a class-wide studio, students read Hatchet and then practiced survival skills. Their experience culminated with an overnight survival trip in 30-degree weather that the students planned themselves.

The self-directed inquiry and design process of studio presents the opportunity for students to develop many of the skills in Chesterland's graduate profile. By designing their own projects, students exercise organization and problem-solving, components of adaptability and accountability in Chesterland's framework. With a heavy reliance on self interest and motivation, students likely develop their drive to learn. In navigating issues that arise in the process, students likely exercise flexibility and problem-solving, two more elements in their framework. While the exact skills that students exercise and acquire during their studio experiences are specific to their project and personal process, the outcome of their work (as described above) indicates that they likely each demonstrate some degree of the dispositions and skills outlined in the graduate profile.

### Reflections: Graduate Profile Skills in an SBG Framework

The teaching and learning that can happen alongside SBG shows promising opportunities for alignment with the graduate profile, potentially allowing for students to acquire the skills that the graduate profile communicates. To ascertain the degree to which learners are acquiring these skills requires further research and a focus on evidence of student learning as well as the teacher and student processes behind these learning activities.

# Research Area 3→ Challenges & Supports

The following section synthesizes themes that emerged from the findings and indicate impediments that slow a school's progress toward PCBE as well as support structures and conditions that are beneficial in their transition process. We found challenges and supports to be highly aligned and have organized this section, with headings and introductions, reflecting this analysis. Accordingly, these two research questions are addressed together. To see a chart of all themes and their alignment, see Table 6. To see how these themes align with the Journeys to Mastery Learning framework, see Appendix L. Headings for each theme provide a synthesized overview of the analysis.

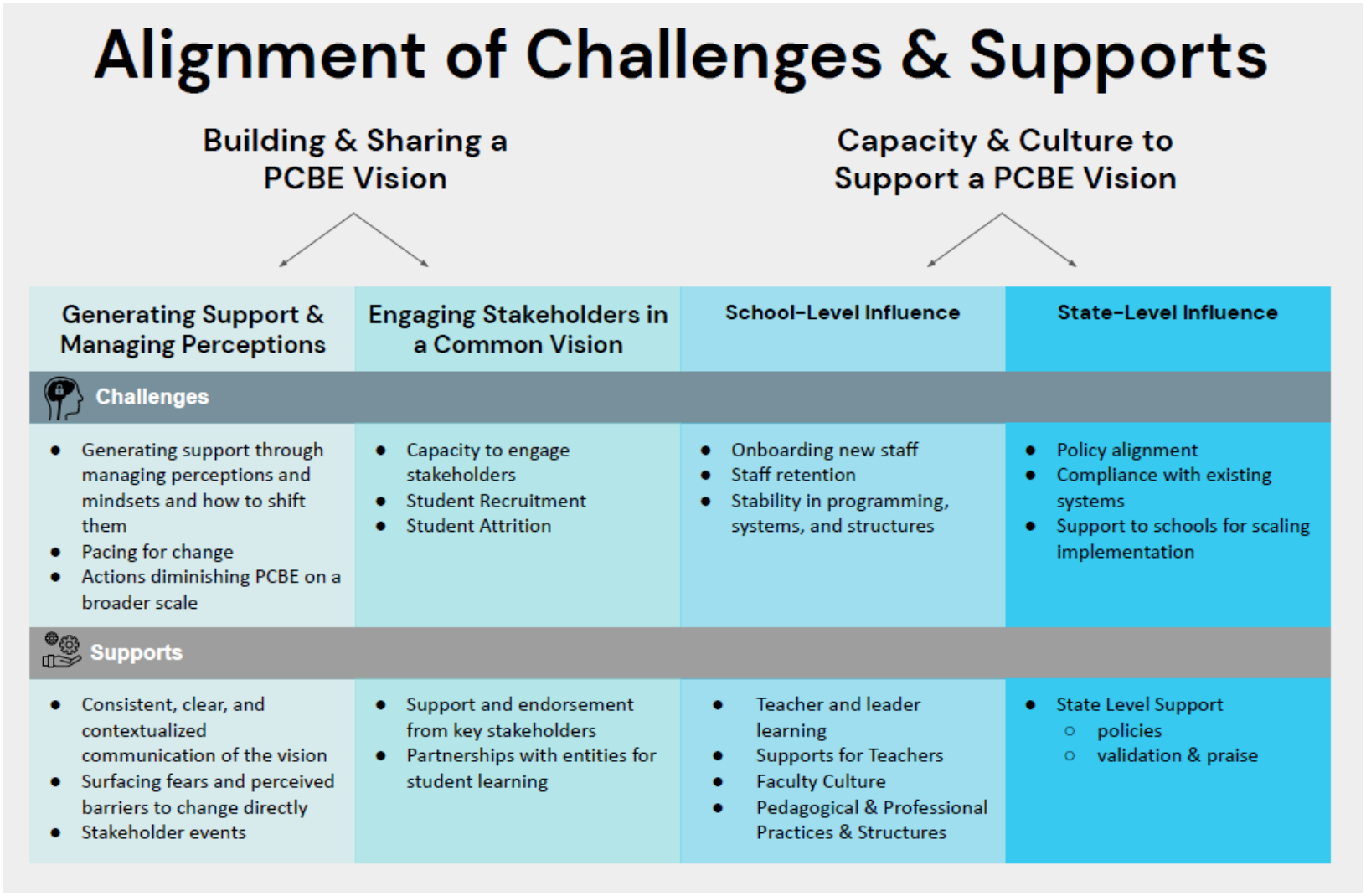
### **A)** What **supports** are beneficial to schools throughout their transition to ML/PCBL? **What steps/policies/practices** appear to be most essential in all school profiles during the **transition**?

### B) What **challenges and barriers** do schools face during the **transition**?

Our findings reflect a strong alignment between the challenges faced by schools and the supportive measures implemented within their communities as indicated by Table 6. As a result, two key themes emerged, each with two subthemes: First, the school's ability to develop and communicate a shared vision among stakeholders through generating support and managing perceptions and engaging stakeholders in a common vision; second, the school's ability to cultivate a supportive culture and build the necessary capacity to uphold their PCBE vision through school- and state-level influences. These themes will be explored further in this section, with each subtheme beginning with a table displaying a brief definition of our findings, followed by a descriptive section that first elaborates on the difficulties faced in schools and then describes the conditions and structures deemed to be beneficial supports.

It is important to note that the identified themes reflect the perspectives of schools and experts working in various stages of the PCBE transition. This section represents the collective perspectives of school leaders and faculty of the schools interviewed, with a focus on emphasizing the lived experience of those enacting school (re)design at a school site. When it adds a depth of understanding of the larger, national, or state-level context of support, the perspective of experts is included.

**Table 6.** Alignment of Challenges & Supports



# Building and Sharing a Vision

Building and sharing a vision emerged as a critical theme in a school's transition toward PCBE. This theme entails collaborative efforts to shift stakeholders' mindsets and cultivate an understanding that PCBE is a valuable investment of time and energy. Our research findings highlight that while building and sharing a vision presents challenges, schools are actively employing innovative strategies and structures to create a supportive PCBE environment. To organize our findings, this section is divided into two subthemes: generating support and managing perceptions, and engaging stakeholders in a common vision.

## Generating Support & Managing Perceptions

Generating support and managing perceptions is a core condition to enable change among our school sample, cutting across school types, implementation phases, and JML elements. In this subtheme, we first look at the challenges schools are experiencing in this area. This includes how schools are managing perceptions and mindsets, generating support, and dealing with actions that influence the acceptance of PCBE on a broader scale. Then, we will explore the supports schools are integrating into their routines to improve their PCBE program.  This involves engaging in ongoing vision alignment, addressing fears and perceived barriers to PCBE in a meaningful way, and engaging stakeholders in activities that promote PCBE understanding.

### Challenge:

**Generating Support & Managing Perceptions** among internal and external stakeholders to promote and advance the vision of PCBE while adapting to encumbrances.

| | |
|---|---|
| Perceptions and Mindsets | The held beliefs, understandings, and experiences that affect the emotions, motivations, and perceptions of administrators, teachers, and students in the PCBE transition. |
| Generating and managing support | Developing common understandings and goals among key stakeholders; understanding how key stakeholders interpret the |

| | |
|---|---|
| among stakeholders | implementation of PCBE and how to act on it and other actions that diminish PCBE on a broader scale. |
| Actions Diminishing PCBE on a Broader Scale | Factors impeding PCBE implementation on a broader scale, including strategy of PCBE implementation, policy alignment, and teacher preparation alignment. |
| Pacing for Change | How a school understands both time and strategy to make gains in PCBE. This includes a different approach to implementation than strategic planning. Schools use system-level strategies in identifying when to iterate to make the largest impact and understanding what critical milestones need to be hit before moving on to the next phase in the transition. |
| Shifting Mindsets | An understanding of how a school works in their context to shift perceptions. This includes their ability to be responsive to iterative change, as well as an understanding of how district policy, through its policies, structures, and conditions, plays a role in the effective rollout of PCBE. |

Findings show that schools face this barrier in two ways: 1) one, within the school context, and 2) two, within the greater community. Findings reveal that school-level stakeholders, namely principals, teachers, and students, have formed opinions on schooling and these mindsets inform how they interact with school change. Some schools struggle to confront and guide these stakeholders to build mindsets that generate support for PCBE within the school context and broader community, which can lead to actions that are taken and detract from progress toward PCBE.

**Perceptions & Mindsets**

Administrators, teachers, and students experience difficulty in accepting and moving toward PCBE. Principals can experience fatigue, self-doubt, and perceived lack of support. Principals are concerned with support from district leadership. Superintendent tenure is low, and incoming superintendents bring with them an unknown agenda. Compounding these fears is the risk of losing their job. Past experiences have shown that principals who make unpopular decisions, despite acting in the best interest of students, are "put on the chopping block," in the words of one principal. Additionally, PCBE requires a different

approach in comparison to that of traditional principalship. Administrators are faced with greater negativity both internally and externally. Principals must be able to traverse these highly sensitive, perception-producing situations that arise with few proof points to show constituents or places to turn for feedback. Holly, a teacher from Horizon High who has experienced working in two different CBE school systems mentioned, “I think teachers are more comfortable with that [transitioning to mastery learning] than principals. Usually principals want the playbook...they just want it all to be super predictable. And learning is not predictable.” Leading with ambiguity is also uncomfortable for many administrators. Leading experts and principals have both professed there is no way to avoid this. Carter from South Central High School said, “I don't know if you can actually avoid any missteps when you're implementing a new process, because you don't know where they're gonna end. You don't know where they're gonna be.” Dealing with varying intensity levels of adversity is a common state of practice when transitioning to PCBE.

Teachers, like principals, experience the transition to PCBE in their own way, which requires them to confront their beliefs and practices on teaching and learning. Teachers experiencing this shift observe two lines of thinking: either they view the transition to mastery as the newest educational fad or as an opportunity to assess and align their pedagogical practices. While resistance can be seen as nefarious, teachers hesitate for more personal reasons. For instance, some teachers are highly skilled in their practice and obtain excellent results by certain metrics. For these kinds of teachers, PCBE demands them to reinvent these practices and be vulnerable in front of peers and students. Others may agree with PCBE but feel little confidence in their ability to make an impact on the educational system as a whole, given what is left of their time and energy. Bill Rich said, “I think the other piece is so many teachers and systems have lost their confidence that they have the agency to actually make schools a whole lot better...We [the teachers] believe [PCBE] but I need to go keep the old system going while we sit here for a little while and talk about how great it could be.” This learned helplessness was named by PCBE experts as highly prevalent within the field.

This mindset can also be attributed to a lack of school readiness brought on by insufficient structures and conditions to guide systems change. As a consultant, Rose Colby has seen teacher frustration in her work and describes teacher lack of investment in PCBE as not a complete fault of their own. She describes how PCBE should be introduced to staff, “This isn't something that is going to go away in three years. This is actually the science of learning, and we are going to be shifting how we teach because we know that it will improve how students learn and then here’s this framework that’s going to help us do

that." She asserts the intentionality of programming is key in guiding change as she continues, "I really think that in the majority of schools, that's not at all how it's approached. It's approached like, we are going to become standards-based, and now we're going to pop that down on everything else we do and we are going to hope that you can change." How PCBE is approached and put into action results in meaning-making that can be discouraging to teachers. Emily Rinkema explained that some schools package PCBE to the staff as the remedy to greater learning gains and the cure for inequity. "The second it doesn't do that, then everybody's disappointed and it gets kicked out like, oh, that's not gonna work." When the communicated outcome is unachievable, morale is deflated.

Teachers have many factors that influence their mindset including reservations about meaningful PD, hesitation on the validity of PCBE, an uneasiness in dealing with ambiguity, and a desire for autonomy in planning and teaching (this will be touched more upon in the Capacity section).

Students come with little understanding and working knowledge about PCBL. Students who are new to PCBL grapple with goal setting as their past benchmark of success, the letter-grade A, is no longer a standard they can practice. Students experience anxiety and have difficulty understanding what high-quality work looks like. Prioritizing important tasks is also an issue. "If the students aren't staying on top of what they're supposed to be doing, and they kind of get behind in earning elements and artifacts, it's really hard to dig themselves out of the hole," said Ryan from Odyssey High. With more exposure, students show a greater appreciation for PCBL. They begin to see how the culminating course assignments can affect their learning; however, it is a struggle for students to understand the importance of the more mundane tasks. Holly from Horizon High explained, "We need to kind of create and help support students and teachers to understand that we want to create, a mentality around assignments..., the smaller stuff, that we might be asking students to do for homework or, you know, just tasks that, helping them understand and see that it's practice, and that is how you will to get the competence. You can't just wing it on the last day." Some students show a lack of buy-in, which can be perceived by some as a lack of self-motivation, in order to take ownership over their learning so that they can be successful.

Students who are not independent learners struggle in a PCBL environment. Hannah from Odyssey High mentioned that for a student to perform well they must be able to manage their learning. "If they don't know themselves well enough to make decisions, then they're going to struggle with us all day long, because it's always about decision making." Some of

these choices pertain to deciding what courses are needed in order to fulfill their competencies, how to represent their work in the best way, and what the best work is to submit and keep as part of their learning portfolio. Students who have a difficult time making decisions find it a challenge to fully participate in a PCBL program.

**Generating & Managing Support Among Stakeholders**

Findings indicate that it is challenging for schools to develop a common understanding of what their vision is, and how they should implement it, with both internal and external stakeholders. Doing so requires extensive resources and time allocation. This impacted their ability to generate and manage support among stakeholders.

Within schools, managing and norming among faculty is labor intensive. Staff have varying viewpoints, specifically, how one envisions implementation of PCBE. John from Horizon High shared, "I think all of our [school staff's] principles are the same, our vision is the same, but sometimes the methods in the way we're trying to get there can cause some tension." Friction can occur from many different areas including the deeply held beliefs an individual holds about PCBE, lack of common beliefs in PCBE, and how implementation of PCBE is paced.

For external stakeholders within the community, schools find it challenging to allocate the time, energy, and resources required for perception management. Schools know more positive experiences around PCBE can help shift mindsets within the community, they are unsure of how to scale this kind of exposure. Schools find it difficult as an insular practice to provide continuous and persistent work on communicating PCBE and trying to change society's deeply held beliefs around teaching and learning. Hannah from Odyssey High mentioned, "I think it's all about conversations...and there just aren't enough of us to have the conversations that are needed out for all of the parents, all of the admin, all of the board members, all of the community partners, all of the students just to explain that what we are doing is a super solid model of education." Other challenges for generating support and managing perceptions include communication around change, understanding the context of your school community, and vision alignment.

Confronting values a faculty places on its vision can be tiring, and if not pursued, can result in a program straying from its purpose. For one school, even after ten years of being in the work, the school still needs to ensure vision alignment. "I have to keep reminding staff all the time, we added the competencies, not as the goal," said Kyle from Kelsey High, "We added the competencies as the guideposts for kids." If the "why" for pursuing PCBE is not

regularly circled back to, and used to build and gain clarity among staff, schools find themselves failing to adhere to the tenets of PCBE.

### Actions Diminishing PCBE on a Larger Scale

On a larger scale, perception management within the broader community poses challenges. There is a lack of cohesion within the greater PCBE community, and education community in general, which can exacerbate misperceptions about the practice and preparedness for it. This leads to situations and actions that can negatively impact the progress of PCBE on a larger scale.

At a state level, this can be seen in the creation of innovation zones. While these have been beneficial structures in bringing change to states, they can also project an impression of "us versus them," creating an illusion that the work of PCBE can only be done by some. For example, Jane from Odyssey High pointed out how she encountered this in her district when a colleague said, "Well, you're a charter, you can do that stuff and have that conversation." These reactions can discourage teacher morale within a PCBE school as they are seen as having special privileges to innovate, and in turn, decrease teacher agency in more traditional schools, where educators feel constrained by policy and context.

While state regulation can create tension between PCBE and existing frameworks, schools can be a participant in creating varying degrees of understandings. Elliot from Aurora Institute said, "I think a lot of people say that they're doing personalized learning…I'm not saying that's a bad thing that could easily be an improvement over existing system for certain kids in certain courses under certain circumstances, but that's not competency-based education." Without a common understanding, misperceptions exist and spread misinformation and myths about PCBE.

Teacher preparation programs need to do more in preparing teachers for PCBE, especially around assessment practices. David Ruff mentioned, "If there is an Achilles heel for the competency worker [it] is assessment literacy, because remember, if we don't assess well, the likelihood of inequity trampling over everything is extremely high."

### Pacing for Change

Schools require a deep understanding of the pace required for change in their given context. While the rate of change varies depending upon the context and what iteration is taking place, schools struggle to figure out when to make slow and fast change. Rose Colby described how schools approach pacing ineffectively, speaking to the value placed on

strategic plans. “A lot of people have plans, but… they don’t have evaluations of their plans along the way.” She expressed that it is critical for schools while phasing in PCBE to set milestones at the end of each stage, where a school is able to assess where they are in PCBE work. This reflection period acts as a buffer, a “deliverables-free stage,” to protect schools from overlooking certain critical elements that must be transitioned before moving on.

**Shifting Mindsets**

The implementation of PCBE has brought to light the struggle schools face in aligning their vision and purpose with changes in mindset, particularly how the school can move stakeholder mindsets. This involves the school’s capacity to adapt to incremental modifications, as well as a recognition of how district regulations, by means of their policies, systems, and circumstances, impact the successful implementation of PCBE.

During our interviews, some participants described how PCBE implementation sometimes only results in superficial changes, such as a mere “word edit” in school documents, without any significant impact on the actual programming. This highlights the need for a change in systems, such as district policy, that supports the change. A principal from Mountain High expressed the need for district policy support to bring about systems change. Grace said, “this [grading policy] should not be a site-based decision. This needs to be a district initiative that says we’re going to do right by kids, and this is what we’re going to do.”

Additionally, the poor integration of new assessment practices resulted in some educators feeling that altering grading practices is ineffective, as it does not lead to the desired outcomes. It is important to note that the perspective of teachers was not captured on this issue. It is essential to understand how district and school leadership’s vision misalignment creates further issues at the school level.

## Support:

### **Building an understanding of PCBE** among internal and external stakeholders, such that a common understanding of the vision and end goal exists.

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| Consistent, clear, and contextualized communication of vision | Ongoing and consistent communication of the rationale and end goal of PCBE approach; this is connected to the Portrait of a Graduate and is used as a beacon guiding and justifying the work.<br><br>Internal communication includes consistent messaging that guides the school's methodology for teaching and learning.<br><br>Communication reflects local context and accepted vernacular. |
| Surfacing fears and perceived barriers to change; Addressing them directly | Hesitations and fears that internal and external stakeholders have about the vision are solicited, heard, taken into consideration, and responded to, resulting in stakeholders feeling heard and validated and deepening their own understanding. |
| Stakeholder events | A method for building an understanding of the school vision and/or soliciting the perspective of stakeholders. Some events focus on showcasing the progress of the school and students toward the vision whereas others position the school team as listeners, gathering and gaining the perspective of families and external stakeholders. |

Building an understanding of PCBE emerged as a multi-faceted, ongoing strategy to garner stakeholder support (which is the theme explored next), both of which emerged as key to various steps of the transition. Two actions work together synergistically to build understanding: 1) consistent, clear, and contextualized communication of the vision and 2) surfacing and addressing fears and perceived barriers to change. Stakeholder events surfaced as a means to achieving both.

**Communication of Vision**

Consistent and ongoing communication of the vision, as well as the purpose and practice of PCBE, surfaced as a theme at all schools. A key moderating factor was the clarity and understandability of the vision. In particular, the vision needed to reflect the local vernacular and understanding. For example, whereas some communities subscribe to the phrasing of "PCBE," others use "Personalized Competency-Based Learning" or PCBL because of its emphasis on learning instead of implying change to the field of education. Kyle at Kelsey High explains how he uses his understanding of stakeholders to

determine what language to use: “I don't use those terms anymore, personalized learning, I don't use that term. I use competency-based learning. I [think it] feels jargony for parents and I feel like we are not in that. We … lose trust with parents when we start to speak over their head or use jargon. So I just talked about learning. I'm gonna make it all generic. Otherwise, it feels like some new math, right?” In short, context matters.

It’s important to note that clear, consistent, and contextualized communication of the vision is not intended to be a one-time event, but rather, is most beneficial when it is done routinely and frequently through all phases of the transition and with all stakeholders. In this sense, the vision is a touchstone that connects all elements and stakeholders to the work and their role in it. This was named as a highly beneficial and essential action across schools.

**Addressing Concerns & Stakeholder Events**

Stakeholder events and addressing stakeholder concerns were each found to be highly beneficial means of building collective understanding and generating support. While they were not always found to operate in tandem, stakeholder events were often used to build an understanding of the vision and address the concerns of stakeholders.

The format and structure of stakeholder events we heard about from participants differed based on the purpose. Some gathered stakeholders in a place and means that encouraged them to name their hesitations and fears associated with the vision. While this act itself was valuable, a second step was even more beneficial: hearing, considering, and responding to fears and hesitations.

Examples from Chesterland district demonstrate how these strategies were used in combination to build support for their PCBE vision with internal and external stakeholders.

Speaking to how they embraced this strategy in Chesterland to build understanding and motivation for the vision amongst faculty, Superintendent Robert shared:

> “We started with a really simple activity. And that activity was [for faculty to] give us every reason that we can't do this, and give us every reason we can. … I think we had about five pages of why we could and like a page and a half of why we couldn't and then we looked at that and said, ‘alright, let's put them into groups.’ Like, why can we do this? Let's group it. And then, why couldn't we? The most powerful thing was almost every couldn't was an adult preference. And it was really tough then as a

> group to say, 'we're not going to do this,' when the only thing holding it up was our own attitudes or our own beliefs."

In this example, the Chesterland leadership created an environment where faculty members felt comfortable engaging in honest conversations about the reasons they felt that they could and couldn't engage in a district-wide transition toward PCBE. This demonstrates an element of faculty culture, which is a finding explored in a subsequent section, as well as a willingness and readiness of leadership to hear the concerns, and even fears, of teachers. Deeply listening to the perspectives of teachers enabled the leadership to then respond to them with frank sincerity. Chesterland demonstrated this strategy again when meeting with families and community members. After hearing about their concerns regarding admission to local colleges, the administrative team visited local colleges and secured letters of support to share with the community. Explaining the strategy, Ted, the director of personalized learning at Chesterland, shared:

> "[We] did what we call the roadshow. We went out and talked to local universities and said, … 'Here's what our transcripts gonna look like. Here's the picture that we're going to give you… What are your thoughts? And, you know, by and large, we heard the same thing, like, 'Yeah, we take transcripts from all over the world. Why wouldn't we accept one from 30 miles up the road?' And we got letters of support from them that we could share with the community."

These two examples demonstrate how Chesterland held events with stakeholders to learn about concerns, then used that information to determine what needed to be done to navigate obstacles and build investment in their vision. While these two examples are particular to one district and two sets of stakeholders, these three themes were seen to varying degrees across schools.

## Engaging Stakeholders in a Common Vision

Engaging stakeholders in a common vision was a major theme encountered in schools during transitioning to PCBE. This section will first describe the challenges schools face. This includes their capacity to engage stakeholders, efforts to recruit students, and issues that stem from student attrition. Then, the strategies and actions schools have put in place and named as beneficial will be further described. This will speak to how schools obtain key stakeholders' endorsements and partnerships that support vision alignment while advancing student learning opportunities.

## Challenge:

### **Engaging Stakeholders** through mitigating impediments to teaching and learning.

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| Capacity to Engage Stakeholders | The ability of a school to engage stakeholders in change. This challenge includes an increased teacher workload, sustaining momentum in the transition, the planning and teaching practices of teachers, and availability of the tools necessary for effective PCBE. |
| Student Recruitment | Attracting students to join a PCBE school. |
| Student Attrition | Students leaving the school for any reason, including family circumstances such as transitory employment, resource challenges such as transport, or desire for different schooling. |

**Capacity to Engage Stakeholders**

Change efforts require a lot of work, and schools were found to struggle with being adept to engage stakeholders because of an unmanageable workload, lack of resources, and materials for instruction. Some teachers reported an immense workload with little time to collaborate to improve current conditions or the chance to look into more long-range planning. Karen from Chesterland School District gave insight on her *hard days*, admitting, "On the hard days, when it drains you, you kind of start going, *Man, why*?" While she shared that she was still committed to transitioning to a mastery program, she also feels burdened by the workload. This also showed up in our schoolwide survey, as one anonymous participant wrote, in response to teacher burnout, "There's a teacher shortage in this country, and I can't help thinking that this is one of the reasons why." In addition, schools engaging in PCBE find it easy to revert back to what is comfortable, not due to resistance, but more out of habit. This was found to be an area of struggle where schools have difficulty sustaining the momentum.

On the teaching front, challenges are faced in both planning and teaching. Teachers understand their content well but can have difficulty in understanding how to meet the needs of all learners through scaffolding and differentiation, particularly in a cohort with significant differences in student skill levels. As well, a common model for PCBE is co-teaching and while these structures can benefit teachers in many ways, it can take away from a teacher's autonomy and predictability in how lessons are managed and decisions

are made causing friction.

Schools named challenges in procuring resources needed to support the teaching and learning of PCBE. Teachers discussed the misalignment of current learning management systems (LMS). Some teachers spoke of having school- and district- LMS systems that do not integrate efficiently, while others spoke to a lack of user-friendly features. These features include difficulty in navigating the program, responding to regular updates in software, and student-parent communication. Instead of finding a system that fits their needs, teachers have found it easier to modify their work to fit the system they have. Transportation has also been an issue for students to gain more access to off-site learning due to bus driver shortages and district policies. Schools that are required to work through their districts are bound by scheduling conflicts and bureaucratic processes for ordering buses.

**Student Recruitment & Attrition**

This section discusses the difficulties that schools encounter when managing the influx and outflow of teachers and students. Recruitment and retention was cited as an issue for students. Student recruitment focused on newly established schools. Some of these entities had difficulty gaining trust with parents and shifting their values and beliefs around traditional schooling. Schools matching this profile in this study named two main reasons parents hesitate:  parents do not wish to remove their child from a school setting where they are already finding success and parents are not satisfied with the amount of evidence provided in regard to student post-graduate success.

Additionally, in some settings, community perception that their PCBE school is intended to serve specific audiences for specific purposes impacts recruitment efforts. Hannah from Odyssey High School explained what this looks like at her school site: “The kids that, and parents that are looking for something different, it’s because they’re not being successful, and it’s not because they’re just looking for a different way to learn.” One charter school mentioned that students who actively seek out an innovative program do so because they are having trouble in the traditional setting. As a result, one of the schools we spoke with was considered by the community an alternative program school for students who could not make it in the traditional setting. The community saw PCBE as an alternative program that provided specialized assistance. Compounding this situation is that the children with IEPs flocked to this particular school. Bailey from Odyssey High shared, “We are in constant communication with families and students and other teachers who tell us that it's really great that we have that school for those kids. And we are constantly saying, ‘what like, who

are *those* kids? Who are you talking about?'" In this quote, Bailey expressed her frustration in the perception that, to much of the public, her school is seen as serving a particular group of students. Since Bailey's school is a former alternative school, it is difficult to shift perceptions within her district to see that PCBE is based on science and good for all students, not those the community sees as struggling.

## Support:

**Internal and external stakeholder support of the vision** that materializes in a variety of ways and results in collective buy-in, acceptance, and reduced barriers to practices and methods of PCBE.

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| Support and endorsement from key stakeholders | Investment and buy-in in the vision. This manifests differently based on the stakeholder though can come in the form of word-of-mouth endorsement, validation of efforts through publicity, or commitment to the vision by adopting the strategy (by faculty) or sending students to the school (by families).<br><br>Specific stakeholders whose support was named by school leaders and teachers as instrumental include:<br>• School-level administration<br>• District-level administration<br>• Superintendent<br>• School board members<br>• Families of current and would-be students<br>• Alumni<br>• Teachers<br>• Private/non-profit organizations and businesses connected to the community<br>• Students that operate officially as student ambassadors |
| Partnerships with entities for student learning | A working relationship with organizations, businesses, and/or colleges in the local or extended community where the partnership directly connects to what and how students are learning. |

School leaders and educators spoke about how the support of stakeholders was beneficial to their work. Through their examples, it became clear that the support of stakeholders is connected to partnership and engagement with stakeholders while building and enacting the vision. Here, stakeholder engagement is sorted into two buckets: support and endorsement from key stakeholders, and partnerships for student learning.

**Key Stakeholder Support**

Support from key stakeholders consistently emerged as an element that contributed to the transition to PCBE in theory and in practice. This connects to the previous themes of generating support and managing perceptions: the actions taken by the school leadership to build investment and understanding of the vision lead to support from key internal and external stakeholders. This, in turn, can contribute immensely to collective buy-in for the theory of PCBE, leading to positive morale of faculty, which in turn contributed to internal stakeholder support in a positive feedback loop.

Speaking to the influence and importance of superintendent support, Principal Carter of South Central High shared:

> "if I didn't have the superintendent/ assistant superintendent that I have right now, I'd probably be in a different district looking for one that would have that vision to move this way. Because it's really tough to do without it."

This example speaks to the impact of support from the superintendent level on a principal. Many other examples came from schools that indicate how support can come in the form of tangible resources or gestures that indicate philosophical support for the idea and implementation of PCBE. Two more examples below demonstrate the impact of this support.

At Odyssey high school, students are helping spread institutional knowledge to other students, which is impacting the collective buy-in of students themselves. One way the school is moving through this is by creating formal student leadership roles. Another way staff see this is through the support, inquiry, and sharing students are able to have through advisory.

At Horizon High, Principal John spoke about the impact of support from the district level. He explained that, through a strong communications department in the district, the school is now getting some highly elected officials coming to campus, being featured on national radio, and receiving grants. This helps share the word with networks... "the word is starting to get out now, which I'm super grateful for."

**Partnerships for Student Learning**

Partnerships with local entities for student learning influenced student learning in different ways. One way is where students are working directly with the business or organization,

such as one class that is building an electric motorcycle with the assistance of Harley Davison engineers. It can also look like soliciting and leveraging feedback from a local organization. Two examples from Pedstone illustrate what this looks like in action: Scott, a humanities teacher, explained how insight from professors at a local premier engineering school led to curricular action: “[T]he biggest thing students were lacking was the ability to read and write complex directions. So we're gonna build out electric circuits, and then we're gonna do an electric conversion for [a motorcycle].”

Speaking to how he interacts with external entities regularly in his role, Charles at Pedstone shared:

> "I spent a lot of time in that in that space... trying to build partnerships working with different manufacturing companies ... So, right now, we're ...getting a FANUC robotics arm in the classroom."

In these examples, Scott points to how feedback from local industries informed their understanding of key skills students should develop, and Charles explains how partnerships with companies impact teaching and learning. While these examples demonstrate partnership for different reasons, they build to the same theme that is present across schools in the sample to varying degrees: businesses and organizations outside of the school itself are influencing the learning experience of students. This is characteristic of PCBE. What is noteworthy here is how enthusiastically teachers and leaders pointed to these connections as bright spots in their work with students. These connections are not only helpful in building out the teaching and learning methods in PCBE, but also helpful in building enthusiasm among educators in their work.

## Capacity and Culture to Support a PCBE Vision

Having the capacity and culture to support a PCBE vision emerged as a core theme across all schools, with many subthemes comprising it. Capacity refers to the skills, knowledge, and resources that schools have to support the work needed in the transition process. Culture refers to the norms, behaviors, and morale of those engaged in the PCBE work. As the findings indicate, there are many challenges in securing capacity and establishing a strong culture, as well as many structures and practices that are beneficial and supportive to the transition process. Herein, the findings are organized into two buckets: those influenced at the school level, and those influenced at the state level.

## School-Level Influences

There are influences within the school affecting its ability to support a PCBE vision in regard to capacity and culture. This section first seeks to uncover the struggles faced by schools. This includes issues that arise with having capacity to onboard new staff, recovering school operations when an educator leaves, and having stability in their programming, systems, and structures. Then, the helpful structures schools have integrated will be explored. This includes supports and structures for teacher and leader learning, faculty culture, pedagogical and professional practices and structures, and further supportive conditions for teachers.

## Challenge:

### **School Capacity** to introduce and sustain change over time.

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| Onboarding New Staff | Having the capacity required to bring in new staff to share the same vision and values for which the school stands. |
| Stability | Creating sustainable programming, systems, structures, and conditions that allow educators to implement their PCBE model. This includes setting achievable tasks and goals and availability of aligned PCBE resources for teachers. |
| Staff Retention | Long-term commitment from school staff to maintain employment with a PCBE school. |

**Onboarding New Staff**

Schools find it difficult in orienting new staff. Onboarding faces challenges in aligning the instructional vision with current and new staff, regularly communicating that vision, and unsatisfactory teaching conditions. When new teachers arrive, it requires considerable time and energy to orient them to the school's PCBE program. One important consideration is the capacity the school has to align their new staff with its vision. New staff have varying experiences before they arrive at their PCBE school, some have experience in PCBE while others are brand new. To help, some schools have put new teachers in self-paced, personalized learning modules where they complete microcredentials. Courtney from Jester High remarked, “Onboarding teachers to this system is a significant lift, and again, the coaching component supports that, but I don’t think people talk about this enough. It’s hard. It’s really hard work.” Having the capacity to support teacher orientation and

development requires significant energy from the school to maintain. This includes creating opportunities for ongoing communication for the instructional vision. One new teacher pointed out the lack of leadership in onboarding new staff and students at his school. He expressed the importance of this activity in helping promote a unified vision among staff. While there are points in the school day for norming with students, like advisory, some teachers expressed that they do not consider this enough to communicate a clear vision for teaching and learning. Teachers see the lack of a formal orientation program as an additional burden to their core job responsibilities.

**Stability**

The transition to PCBE can be challenged by a lack of structures and resources. For instance, in curriculum planning, a traditional program would have a textbook with practice sets of questions and applications for the teacher to use to assess student understanding. However, in PCBE, there are few resources that explain how to use learning components and organize them around a competency. Teachers who require support find it difficult to find, especially in fields like mathematics where traditionally a given curriculum or textbook guides the lesson. "The seminars that [our school] leads are more *doing*," Maddy, a math teacher at Odyssey High expressed, "but you know, picking an application that works well for a project-based learning, I guess. It's been very challenging. It takes time, some creativity, to figure out how to come up with that project." Project-based learning requires more planning and the ability to generate an idea that can match the standard being taught and cover appropriate content in the curriculum.

Other structures that put strain on the transition is a lack of systems and structures necessary to carry out the work. One school in our sample is growing its student body from 40 students this year to 100 in the fall, where each student will need a personalized internship. Leadership is currently seeking out how to sustain these efforts, as when the school reaches full capacity, it will need to maintain 200 personalized internships every year. Even with a large support system, the school has concerns about the sustainability of this academic program. Jane also spoke about the importance of school structures saying, "We have to start by building the infrastructure that will support people and actually adapting that thing as we get it to a space where yeah, this really does demonstrate that it's more effective, because if we don't... the fact that it's more effective isn't enough to get, you know, to cause change." At Legacy High, her team spent time ensuring teachers had the conditions in which to thrive. Schools need to have the capacity to build stability in programming, structures, and systems in order to obtain the change necessary to reach

PCBE.

**Staff Retention**

Teacher retention can also impact small PCBE schools. Foster from Pedstone High expressed, “we're such a small staff that every single transition [teacher leaving] feels like it's huge.” Teachers leave for a myriad of reasons. There is concern regarding teacher and administration shortages as this may lead to placing unqualified people being placed in positions they are not prepared to handle. This, in turn, impacts the degree to which a vision is able to be carried out consistently.

## School-Level Supports

Participants named many school-level supports that are beneficial in the transition process. These are synthesized into four buckets: **professional development, support for teachers**, **faculty culture**, and **pedagogical and professional practices**.

## Support:

**Professional development** for teacher and leader learning that focuses on the capacity-building of skills and mindsets that contribute to the culture, teaching, and learning of PCBE.

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| In/external PD on learner-centered frameworks | Training focused on learned-centered frameworks and tools central to the school’s vision for teaching, learning, and culture, including Universal Design for Learning, Project Based Learning, the MTC platform, and the iterative cycle of design thinking. Training could be facilitated in-house by the school, district, or state or could be by an external contracted party. |
| PLCs and structures for continuous learning | Professional Learning Communities and other structures that are designed for a group of teachers and/or administration to engage in continuous learning together. |
| Personalized learning for faculty | A personalized learning approach for faculty that allows for differentiation by allowing faculty to engage in learning experiences that match their personal goals. |

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|---|---|
| Partnerships with other schools engaged in similar work | A working relationship with another school or district working toward PCBE. Two different structures for the relationship emerged: 1) visiting and speaking with other schools; 2) forming ongoing relationships that allow for collaborative thought partnering to address challenges and exchange ideas over time. |

Teachers and leaders demonstrated an appreciation for a variety of means of professional development (PD), citing it often as a key support to personal and collective capacity building.

Specific structures for PD named included training focused on learned-centered frameworks whether they are internally or externally facilitated and structures for continuous learning such as PLCs. Such experiences created space for school teams to have important discussions that lead to norming. Principal Jane of Odyssey spoke to the influence of such discussions when she shared, “And some of those types of discussions really were significant struggles, good struggles, in the early years." In this, Principal Jane explains how norming discussions are productive, even if sometimes difficult, aspect of the transition process.

Participants named various ways that schools supported individual teachers in building their skill sets for PCBE. Offering the perspective of a PD facilitator, Eric Hudson of GOA spoke about the design of PD, explaining how it can be structured to mirror the learning environment intended for students in PCBL. Schools demonstrated this in different ways. Jester uses a personalized structure, mirroring the choice provided to students, where teachers were provided regular flex time and set individual intentions for their work. The timing and frequency of PD also surfaced as an aspect that contributes to its usefulness. For example, Jester reconfigured its schedule to allow for an extra 30 minutes of PD time every Friday. While the move can be construed as small, it allowed for consistent time out of the regular schedule for collaboration and professional learning.

Similarly, Chesterland has structures for planning intentional PD that mirror the personalized pathways for students in PCBE. Speaking to how his district has leveraged personalized learning plans for teachers and PLCs for administrators, Robert, the Chesterland superintendent, shared:

> "One is we did this last summer create what we call our personalized learning strategic vision. And it basically laid out over the next four years what are the skills and behaviors that we need to have from our educators. And so that's been kind of

> crystal clear. Then we use that to help people set their growth goals and their plans for personalized professional learning. But in terms of how do we manage it? How do we keep on top of that? We have a personalized competency-based learning team. We meet about every three weeks and we're addressing what do we need to do to continue learning, what do we need to do to address concerns or questions? And that's been very valuable our leadership team... we meet every week in our PLC and we'll have conversations on that as well. But that PCBL team is ultimately the most important part in terms of that's that's kind of our steering committee for all the work we do."

This example from Robert also illuminates how structures, PLCs, and personalized learning can work in tandem. In his district, a strategic vision for educator competencies drives teacher growth, and the structure is managed by a team that meets routinely to ensure support of adult learning.

In the eyes of some leaders, partnerships with other schools are absolutely essential in navigating the day-to-day and moments of doubt. Ted, a member of district leadership supporting Chesterland, shared:

> “I would even consider [partnerships] paramount in the work because, like any change, you're gonna find you're gonna hit roadblocks and barriers and, there's multiple times recurring [where] I would sit there and just be like, are we doing the right thing? Are we crazy for doing this? That day-to-day fighting through those moments is really really tough. So if you have that group of people that are like-minded and, kind of, fighting the same barriers and challenges or have fought those things that can help you through it, it just keeps you inspired and motivated to keep going. So in a lot of cases, those partnerships are valuable.  Just on that front. When you hit those moments in time. You're like, ‘man, are we doing the right thing?’ To have the people that you can go to to keep that motivation and inspiration moving is super important."

In this example, Ted speaks to how partnership with other schools operates as a support structure, leading to having someone that understands the transition process and can offer insight and perspective.

## Support:

**Supports for Teachers** as they build capacity, acclimate to the learning model when they are new to it, and contribute to school redesign.

| | |
|---|---|
| Hiring: Clarity of vision and role | The PCBE vision and what the role of a teacher is within that vision being clearly communicated during the hiring process. |
| Onboarding Practices | Allocation of time and a specified process to support new teachers in learning the systems and structures as they align to the vision of PCBE at the school site. This includes space for new teachers to ask questions and try out the teaching methods. |
| Mentoring and coaching | A practice and process that leverages the experience and expertise of others (either in-house experts or external, contracted assistance) to build capacity in teachers. |
| Collaborative classroom teaching | The practice of having more than one educator facilitating a course. The model could differ though could feature: two teachers co-leading equally; two teachers co-learning with different roles; one lead teacher with push-in from others for support at strategic points. |
| Time for collaboration | Time set aside from the regular schedule for teachers to work together in collaboration. The purpose of the collaboration differs though could be time for norming on practices, building out a course structure that will be co-taught, or otherwise. |
| Compensation and credentialing | A method for honoring and rewarding an extra time commitment and the ongoing skill development of teachers building capacity, curriculum, and school structures that align with PCBE. Two strategies emerged: extra compensation for extra time and micro-credentialing for faculty whereas micro-credentials are tied to the salary schedule. |

Support for teachers making the transition toward, or in the case of some, the adoption of, a PCBE model emerged as a consistent theme of support, and it materialized in a variety of different ways. Structures, practices, and methods for supporting named here seemed to serve as moderating factors for faculty culture (a theme explored next in this section). Whereas some of these supports are in the locus of control of the school itself, such as onboarding practices, others require support at a district level.

The first two themes work alongside one another: clarity of the vision and role in the hiring process, and onboarding practices. Teachers indicated that understanding their role, and being guided as they stepped into it, made them feel supported. Speaking to her onboarding experience, Josephine from Pedstone shared, "They also did a good job of onboarding me. So, they brought me in [two weeks before] the rest of the staff came back and just, kinda like, uploaded everything about their system and gave me time to, kind of, play with the different systems, but also just ask more questions." Elaborating and explaining her perception of the experience, Josephine shared, "[I thought it was] very helpful to just have access to things and then to just be able to, kind of, learn myself, ask questions, go back, and just almost, kind of, do my own type of project and learn and build from that." This example demonstrates how Josephine experienced both structured support and a personalized pathway in the onboarding experience.

Participants also spoke of collaborative teaching practices, as well as mentoring and coaching, as structures that helped them build their own skill set. Speaking to how Pedstone uses co-teaching as a strategy for norming and building skills, Foster shared, "For our teachers, we often push new teachers to co-teach at least one seminar." Foster elaborated, explaining how co-teaching helps incoming teachers understand their course and crediting structure. Speaking to how his team leans into the expertise of some members, Principal John of Horizon High shared, "And so we kind of rely heavily on them and their expertise to you know, make sure that we're our thinking caps are still in line with that competency-based learning."

A theme that surfaced in expert as well as teacher and leader interviews was time for collaboration. When a school is able to provide it, findings indicate that it is deemed helpful by those involved. As a leader of professional development for PCBE, Eric Hudson of GOA offered his lens on the importance of time for faculty collaboration:

> "I've seen schools sort of lose momentum if they don't make enough time for their teachers to work together… The research on really good PD–like the most effective PD–is teachers getting together in small groups and talking about problems of practice, and I don't think schools do enough of that."

The final theme that arose as a support for teachers is compensation and credentialing. Denis, a teacher at Chesterland, spoke of how, "just being given time and being

compensated for our time" made him feel supported. Speaking to the impact of micro-credentialing on compensation and the role of the district in enabling it, Kyle at Kelsey shared:

> "We moved... away from a step-and-lane salary advancement for teachers into all micro-credentials. So salary advancement in our district is through micro-credentials. So that really values teacher learning. You know, so the teachers are going to propose a topic, propose an idea, gather a reading source, gather their group of teachers, then they're going to implement that in their classroom and then they're going to get paid [a] substantial amount of money that gets added on to their base salary as part of that micro-credential. So little innovations like that at the district level."

In this, Kyle explains how salary advancement accounts for the learning and growth teachers engage in as part of PCBE.

## Support:

**Faculty Culture** that feels empowering to faculty, rendering them ready to take innovative risks, offer honest perspective, and contribute to continuous improvement of the learning model and school structure.

| | |
|---|---|
| Encouragement and safety to innovate | An environment where faculty feel comfortable to engage in innovative work, test their thinking, and express what they are thinking honestly to ensure continuous evolution toward the vision.<br><br>A moderating factor seems to be the degree to which faculty feel that their jobs are secure regardless of whether an attempt at innovation works out as planned, so long as they leverage the instance for personal and school growth. Another moderating factor appears to be the degree to which leadership understands faculty concerns and hopes. |
| Culture of continuous improvement | An environment where systems, structures, and curriculum are expected to evolve given ongoing reflection, debriefing, and collective learning. |

| | |
|---|---|
| Teacher agency and autonomy | Faculty expectation and entrustment to exercise professional discretion through professional development pathways, curricular decisions, school structure innovation, and vocalizing ideas and perspective.<br><br>Two themes emerged: 1) Faculty are expected and empowered to practice autonomy in curricular design, bounded by the learning framework of the school; 2) Faculty participate directly in the school redesign process through sharing perspectives, problem-solving, and innovation. |

Faculty culture appeared as a theme at all schools, and while elements of culture emerged as subthemes (named above in the chart), it is apparent through participant testimony that many themes and subthemes contribute to the emergence of a strong faculty culture. For example, supports for teachers builds the capacity of faculty, and time set aside for collaboration and team norming provides the space for faculty to have conversations that build a common understanding.

While a variety of contributing factors and elements of faculty culture emerged, one theme was clear: the faculty experience is important.

The paired perspectives of a leader and a faculty member from Chesterland illustrate this:

Superintendent Robert from Chesterland:

> "I'm going to say that when we think about the values, I think it's this idea and the belief that, if we're truly going to be learner-centered, it means that we've got to put our ego aside. We've got to put what we believe and think we know about education to the side, we need to look at the research and we need to be honest that that research might be different than what we've been doing. And how can you do that? Well, you do that through just a rock-solid culture."

Denis, a teacher at Chesterland High School:

> "[It's a lot to take on,] especially when you know what you want it to look like, and then trying to build that from the ground up as you're running. [That's] a lot of work. So I think that's … been the biggest challenge. But thankfully, I feel our … support system has been really nice when it comes to feeling like we have the freedom to fail."

Both of these quotes are from Chesterland, illuminating how the intentionality of the leadership is impacting a teacher's experience. Both Robert and Denis are speaking about a faculty culture that allows teachers to take risks and be innovative in an effort to continuously improve, and knowing that you'll have the support of others if the efforts do not work out exactly as planned. As Robert explained, that is a time to "put our ego aside," and focus efforts on what needs to change.

An aspect of having the freedom to fail that surfaced in the findings was teacher agency and voice. Teachers expressed contentment in being a part of the school design process and being able to contribute. Charles, a teacher at Pathways, spoke to the role that teachers had in problem-solving for the school, "I think one of the things our admin team is really good at is... putting together staff teams and stipending staff teams to [work on] specific problems that we're facing and trying to come up with solutions to those problems." Charles elaborated, speaking to how staff teams were tasked with examining core features of the curriculum and advising programs, and noting that the work felt valued, particularly when extra work was compensated. This is one of many examples of teachers expressing their role in discussing schoolwide design matters. While their actual words and examples are important, just as notable is the way that some, like Charles, expressed the process made them feel: valued.

## Support:

**Pedagogical & Professional Practices** that exist within the school and lead to common and collectively held understandings and practices amongst faculty and support for students to learn and grow in a framework that is often new to them.

| | |
|---|---|
| Supports for student transition | Practices and programming specifically geared toward supporting students in transitioning toward PCBE and the school environment, particularly during their first year. This is inclusive of cultivating mindsets, skills, and familiarity with processes. Examples include supporting students in reframing what counts as learning; building a practice of organizing their work as evidence of learning; giving students time to build new understanding. This is particularly evident in schools already practicing PCBE. |
| Schoolwide practices | Practices, frameworks, and tools that are used across the school community that lead to consistency and norming of methods and culture. Examples include adherence to Universal Designs for Learning framework, using common |

| | |
|---|---|
| | interdisciplinary proficiency rubrics, and a student culture of restorative practices. |
| Team norming | Both an act and an outcome: The act of the school team coming together to build consistent and shared understandings as well as the actual shared understandings themselves.<br><br>Four specific items that require faculty norming emerged: practices for faculty collaboration; mindsets in support of PCBE and a culture of equity; ongoing calibration of what student proficiency looks like; common practices, frameworks, and vernacular. Note that team norming overlaps with Professional Development, as PD was a means to achieving a normed team in some cases. |

The act of building schoolwide pedagogical and professional practices that respond to the student population's needs and support the faculty in building their capacity and structures toward PCBE emerged as a theme to some degree in all schools. Such practices allowed the school team to work with, or in some cases toward, common understandings from which structures and decisions emerge. Three themes emerged from the findings in this section: support for the student transition, schoolwide practices in general, and team norming.

Stephanie, a school administrator that focuses on student culture, spoke to supporting students in their transition to a new model through two means: having a block of the schedule dedicated to faculty support and allowing students time to adjust:

> "I work intimately with the freshmen... usually, the majority of them don't come from project-based middle schools or anything like that. There is... a transition that happens and I think that's why having the core classes are important... students are like, 'we're not learning because we're not taking tests per se, right?' Because this whole blowing up the mindset of what it means to learn, what's the process of it? That is not quick and easy. It's more of just progressive over time."

This example points to a structure that the school put in place to support students in their transition to the PCBE environment and to guide teachers as they are supporting the students themselves.

Schoolwide practices and team norming are structures that serve to enable many other beneficial supports that surfaced as findings, such as faculty culture. They provide a vehicle for the school team to operate in synchronicity, which is a key feature of PCBE schools. They are also used to reach a number of ends that require consistency, from advisory, to

course structure, to assessment practices. Discussing schoolwide practices and team norming to determine proficiency levels, Holly, a teacher at Horizon, shared, “So we just sat down and kind of did a, sort of, a critical friend group looking at student work and just kind of deciding, ‘Does this show competence or not?’ As we scale we're going to need to do a little bit more to have some shared understandings, and we're going to use rubrics for that.”

## State-Level Influences

Our research indicates that the state can influence and impede school efforts in making progress in PCBE implementation. This section first looks at the challenges schools face in this area, including state policy, compliance within existing systems, support to schools for scaling PCBE. Then, we will look at how states are currently using structures and supports to aid schools in the transition through policies, validation, and praise.

### Challenge:

### **State-Level Influence on** policies, compliance structures, and **state-level support** needed to scale PCBE.

| | |
|---|---|
| Policy Alignment | How policy aligns with PCBE initiatives, specifically with funding and providing necessary structures for schools to do PCBE work. These policies include absence of a credit waiver, state funding formulas for students, requirements for teacher licensing, regulations concerning special education, and calculations of full-time equivalents. |
| Compliance with Existing Systems | This speaks to structures and regulations from a state level that impede PCBE work. This includes accountability and assessment. |
| Support to Schools for Scaling Implementation | How policy and practice work in tandem in a delicate balance to make systemic changes. |

This section is dedicated to outlining state-level influences surrounding the PCBE

movement; however, it must be stated that this was identified as the issue with least importance, both through our interviews and schoolwide survey. In particular, schools reported that state policies posed obstacles to their work, but did not act as a definitive barrier to their progress. Many schools acknowledged their state's willingness to support innovative education practices.

The three main themes that arose from our data were policy alignment, compliance within existing systems, and support for schools in scaling implementation. Due to the ways states regulate differently across the United States, not all can be generalized across contexts.

**Policy Alignment**

The lack of the following policies was found to hamper progress on PCBE in schools: absence of a credit waiver, state funding formulas for students, requirements for teacher licensing, regulations concerning special education, and calculations of full-time equivalents. Participants in our interviews urged states to support a credit waiver model, "so that mastery based [education] doesn't just become a lip service thing," said Holly from Horizon High. She also mentioned, "Schools still keep grades or they keep the credit model because there's no actual, like, systemic funding structures that align with it yet." Licensure requirements are also difficult for innovative schools to meet. Some states require subject teachers to have highly specialized teaching licenses in order to teach the course and provide students credit toward graduation. In one state studied, a political science teacher cannot be specialized as a social studies teacher, but instead, must have additional teacher preparation in the area of political science itself. This can limit the school in having the ability to design interdisciplinary experiences.

State regulations around special education also affect PCBE, and in analysis, specifically in charter schools. One state in this study requires students with IEPs to report to their home district; however, if these students choose to move to a charter, they must by state law, waive their right to an IEP. In practice, this poses challenges as students who forfeit their IEPs and 504s now move to charters with no additional support to the school. Multiple educators from Odyssey High, expressed this as their biggest challenge, with Madeline stating, "...as a school within the district [our school] is very disproportionately high for students with IEPs and 504s compared to the rest of the districts. So most of the time, most buildings are hovering at that 10 to 12%.  We're almost at 50%."

**Compliance Within Existing Structures**

PCBE schools do not easily align with current compliance structures set up by the state.

Accountability and assessments are viewed by the state as practices that inform one another, but this contradicts the foundational beliefs of PCBE which believes student data should be gathered to inform instruction as it is happening. Accountability models also represent that learning takes place at a certain place and at a certain time. Virgel Hammonds said, "But I think those are some of the, some of the biggest issues that kind of prevent the systemic transformation of this work because we're still being measured by very traditional mechanisms."

**Support to Schools for Scaling Implementation**

State policy can also interfere with efforts to scale. Jane from Odyssey High expressed, “I do think we’re still, we’re not you know, that the scaling [of] this to full competency to a larger school would still be really challenging because of state-level regulations.” Schools, despite having success in certain change management strategies, still struggle to overcome their challenges. Schools require more from a district- or systems-level to make this process take hold. The pace for scaling change hinges on the balance of policy and practice.  If one is more advanced than the other, or if the change is mandatory, unfavorable reactions are normal. David Ruff described this as a “push and pull” relationship. For instance, if professional development in understanding how to implement PCBL is lagging, yet teachers have been asked to begin using these practices in school, teachers by nature will push back. If there is policy without proper support structures, it can be equally debilitating. He mentions, “we’ve seen too many cases where schools have been cut off at the knees, and they can’t move their work. It crumbles.”  School implementation can be affected by an imbalance of progress, despite the presence of an excellent program and qualified personnel to establish it.

## Support:

## **State-level supportive actions** that enable innovation and encourage positive morale.

| | |
|---|---|
| State-level supports<br>• Policy | Actions taken by the state department of education and/or in state legislation that endorse PCBE and/or schools moving toward PCBE or reduce barriers to practices that enable PCBE. This includes policies as |

| | |
|---|---|
| • Validation | well as validation and praise of practices from representatives at the state level. In some circumstances, state-level support looked like assuring autonomy to schools to innovate based on local context. |

Most of the structures and practices that teachers identified and shared as particularly beneficial were focused on school-level actions. We interpret that as a reflection of the teacher experience, which is primarily at the school level and focused on preparing for student experiences, as well as the limitation of time during interviews. Leaders and experts spoke more frequently about the ways that actions at the state level impacted the transition process. These findings indicated that state-level actions positively influenced the transition process through two means: policy and validation.

**Policy**

The support of external stakeholders through policy and waivers contributed to reducing barriers in the implementation process such as by paving the way for schools to award credit by competency instead of seat time. This makes sense because a PCBE school environment relies on structures that are fundamentally different from those in a traditional setting.

Superintendent Robert of Chesterland spoke about how a strong relationship with the state department has paved the way for innovation in his district. In this example, Robert spoke about how a two-way dialogue has led to legislation in support of innovation.

> "Our state has said that you can do what you want, as long as you're accountable... I have a report I write, about a 25-page report, to report out how we're doing and the things that we're doing every year. I've never been denied anything. And actually, we've even had some instances where [we were denied some requests] and our state superintendent will say, 'Absolutely not. We're not putting a barrier in front of them. Figure a way to make it happen.'"

**Encouragement & Validation**

The second way that interview participants indicated state-level actions impacted their transition process is through validation. In the example above from Chesterland, we begin to see how pragmatic support can also turn into positive morale for leaders, as Superintendent Robert felt encouragement to innovate with the state endorsing his

requests. The next example focuses on how actions that do not necessarily provide logistical support can still be experienced as beneficial.

Courtney, who specializes in innovation for Jester High and other district schools, spoke to how praise from the state level resulted in positive experiences and morale during the transition process:

> "[T]here is a momentum that comes from enthusiasm. So we've had state visits or they've directed people to come and see us, and it's led to all these conversations about, 'what do they want to see? [It's] just a regular Tuesday!' And we say 'Well, no, it's a regular Tuesday for you. But this isn't a classroom that these visitors are used to seeing.' ... It sparks a lot of conversations and schoolwide reflection."

As indicated in the interviews, actions at the state level could impact the school transition process logistically, leading to reduced barriers to implementation, as well as organizationally by helping to build morale.

## Perceptions and Magnitude of Challenges and Supports

The interviews conducted with school staff and experts provided valuable insight into the challenges and supports at the school level from a variety of different perspectives. Due to the nature of the interviews, the conversations with each school were unique. While themes surfaced across schools, some themes surfaced more frequently than others. Interview participants shared answers openly, yet the limiting factors of time (interviews were limited to 60 minutes) and context (many interviews included more than one interviewee), meant that we were not able to gather a thorough understanding of all the challenges and supportive structures and conditions experienced in the transition process. By utilizing the survey, we were able to ascertain the extent to which the challenges and supports that were identified in the interviews were experienced by many faculty across the school sample. Specifically, we were able to glean the degree to which there is consensus in what is perceived as a challenge or barrier, and what is perceived as a necessary supportive structure or condition, in the transition process, according to our sample population. We were also able to glean the perceived magnitude of specific challenges and supports. This section highlights key findings. See Table 6 for an overview of how the challenges and supports are connected and, Appendix M for the survey and Appendix N for all survey results.

## Perception of Challenges and Supports

The survey indicated a high level of agreement among respondents on what types of supports are necessary for the transition to PCBE. Specifically, of nine themes that emerged from the interviews, eight of them had agreement from 90% or more of respondents that they were necessary. These were: professional development, support for teachers, teacher agency and autonomy, stakeholder support, school culture, building an understanding of PCBE among stakeholders, support for students in their first year, and pedagogical and professional practices. Note that "support for teachers" had 100% agreement. These findings reveal that when these supportive structures and conditions are enacted, they are beneficial. It also indicates that if they are not available, they are desired by leaders and educators. Conversely, there was less agreement that external partnerships are necessary.

There was considerably less agreement on what constitutes a challenge. Of the seven themes that emerged from the interviews, three had 80% or more agreement. These were: generating support for and managing perceptions; staff and student retention and recruitment, and a common understanding about the transition.

While all of the challenges and supports deserve due consideration as they come from the lens of those directly experiencing school transition, these findings illuminate how much these supportive conditions and structures, as well as challenges, are noticed and experienced. This provides key insight for those planning and leading a transition on what challenges are likely to be perceived, and what supports are likely to be considered helpful, by those experiencing them. See Table 7 and Table 8 for the breakdown of agreement on each challenge and support.

**Table 7.** Challenges as Identified in the Survey

| % of Respondents that perceived the challenge | n = 51 |
|---|---|
| Generating support for and managing perceptions | 88.2% |
| A common understanding about the transition | 82.4% |
| Staff and/or student retention and recruitment | 82.4% |
| Instruction | 76.5% |
| Capacity | 76.5% |

| | |
|---|---|
| Resources | 70.6% |
| State-level influence | 51.0% |

**Table 8.** Supports as Identified in the Survey

| % of Respondents that perceived the support as necessary | n = 51 |
|---|---|
| Support for teachers | 100.0% |
| School culture | 98.0% |
| Professional development | 96.1% |
| Building understanding of PCBE among stakeholders | 94.1% |
| Teacher agency & autonomy | 94.1% |
| Support for students in their first year | 92.1% |
| Pedagogical and professional practices | 90.2% |
| Stakeholder support | 90.2% |
| External partnerships | 68.6% |

## Perceived Magnitude of Supports and Challenges

Whereas the previous section indicated perception of agreeance on whether structures and conditions are helpful or challenging, this section indicates the relative magnitude of specific themes and subthemes. Of all the subthemes presented, five supports and one challenge were indicated to be “very beneficial” or a “significant challenge". The supports are: teacher participation and voice in the school redesign process and problem-solving; support from school-level administration; a strong staff and faculty culture; a school culture of embracing failure as a factor of innovation, where educators feel supported in trying new methods and encouraged to fail forward as a part of the redesign process; and a strong vision and/or reason for pursuing the change that is well communicated. The challenge is: leader and teacher workload. These findings provide a relative idea of what are the most burdensome challenges and helpful supportive conditions and structures from the perspective of those at the school site. Table 9 indicates the frequency that survey respondents indicated that they had both experienced a challenge and considered it *very challenging*, and Table 10 represents the frequency respondents experienced and considered certain supports as *very beneficial*.

Please note that dashes indicate that the theme defined was not included in the survey. Indented lines indicate subthemes that were included in the survey.  N-counts change with the subthemes because the survey questions on the perceived magnitude were conditional, and respondents only engaged with these questions if they identified the associated category as significant.

**Table 9.** Frequency of Challenges Identified as Very Challenging by Survey Respondents

| | % of respondents that have experienced this support and found it a "significant challenge" | n |
|---|---|---|
| **Building & Sharing the Vision** | | |
| **Generating Supports & Managing Perceptions** | | |
| **Perceptions & Mindsets** | - | - |
| Clear vision and purpose for making the change | 23.8 | 42 |
| Shared language and common understanding | 23.8 | 42 |
| **Generating & managing support among stakeholders** | - | - |
| Managing community perceptions | 37.8 | 45 |
| Managing parent perceptions | 33.3 | 45 |
| **Shifting Mindsets** | - | - |
| Administrator mindset shift | 16.7 | 42 |
| Teacher mindset shift in teaching and learning | 33.3 | 42 |
| **Student Readiness** | 45.2 | 42 |
| Student motivation | 59.5 | 42 |
| Student capacity to fully participate; anxiety and other stressors prevent students from being fully engaged | 52.4 | 42 |
| Students earning requisite credits by end of 4th year of high school | 16.7 | 42 |
| **Pacing for Change** | - | - |
| **Engaging Stakeholders in a Common Vision** | | |
| **Capacity to Engage Stakeholders** | 15.4 | 39 |
| Internal and external stakeholder vision alignment | 37.8 | 45 |
| Relational work environment for faculty and staff | 28.9 | 45 |
| Creating a culture of learning: staff understands what it is like to work together and collaborate | 20.5 | 39 |
| Workload | 76.9 | 39 |
| PCBE assessment literacy | 28.2 | 39 |
| Having time allocated to plan instruction | 69.2 | 39 |
| Adopting a design-thinking approach in one's teaching practice | 38.5 | 39 |
| Create instructional content | 28.2 | 39 |
| Lack of a benchmark for success | 26.2 | 42 |
| Teacher clarity on academic program | 40.5 | 42 |
| Availability of meaningful PD for teachers | 47.6 | 42 |
| Lack of time for collaboration among staff | 58.3 | 36 |
| Poor LMS software | 27.8 | 36 |
| Transportation available for learning activities off campus | 25.0 | 36 |
| Rigidity in schedule | 27.8 | 36 |
| School funding structures within school | 33.3 | 36 |
| **Student Recruitment** | 19.0 | 42 |

| | % of respondents that have experienced this support and found it a "significant challenge" | n |
|---|---|---|
| **Student Attrition** | 14.3 | 42 |
| **Capacity and Culture to Support a PCBE Vision** | | |
| **School-Level Influence** | | |
| **Staff Recruitment & Turnover** | - | - |
| Teacher turnover | 50.0 | 42 |
| Leader turnover | 19.1 | 42 |
| Teacher recruitment | 33.3 | 42 |
| Workforce diversity | 23.8 | 42 |
| **Onboarding New Staff** | 20.5 | 39 |
| **Stability in Programming, Systems & Structures** | 28.2 | 39 |
| **State-Level Influence** | | |
| **Policy Alignment** | - | - |
| District policy | 20.0 | 45 |
| State policy | 26.7 | 45 |
| **Compliance within existing systems** | 55.6 | 36 |
| Making PCBE fit within the state framework; determining when or how to align standards with competencies | 38.5 | 39 |
| Poor policy alignment in curriculum, assessment, and accountability structures | 38.9 | 36 |
| **Support to schools for scaling implementation** | - | - |
| State's ability to support schools in the transition | 28.2 | 39 |
| Lack of funding | 33.3 | 36 |
| School funding models | 55.6 | 36 |

**Table 10.** Frequency of Supports that Respondents Experienced and Found "Very Beneficial"

| | % of respondents that have experienced this support and found it "very beneficial" | n |
|---|---|---|
| **Building & Sharing the Vision** | | |
| **Generating Supports & Managing Perceptions** | | |
| Consistent, clear, and contextualized communication of vision | 70.8 | 48 |
| Communication team that builds supporting messaging | 27.1 | 48 |
| Surfacing fears and perceived barriers to change; Addressing them directly | 47.9 | 48 |
| Stakeholder events | 29.2 | 48 |
| **Engaging Stakeholders in a Common Vision** | | |
| **Support and endorsement from key stakeholders** | | |
| Parents | - | - |
| School-level admin | - | - |
| District-level officials | - | - |
| Superintendent | - | - |
| School board | - | - |
| Student voice and engagement in school redesign process | - | - |
| **Partnerships with entities for student learning** | - | - |
| **Capacity and Culture to Support a PCBE Vision** | | |
| **School-Level Influence** | | |
| **Teacher & Leader Learning** | | |
| **In/external PD on learner-centered frameworks** | 42.9 | 49 |
| **PLCs and structures for continuous learning** | 42.9 | 49 |
| **Personalized learning for faculty** | - | - |
| **Partnerships with other schools engaged in similar work** | 37.1 | 35 |
| Speaking with and visiting other schools engaged in similar work | 45.7 | 35 |
| **Supports for teachers** | | |
| **Hiring: Clarity of vision and role** | - | - |
| **Onboarding Practices** | 52.9 | 51 |
| **Time for collaboration** | - | - |
| **Mentoring and coaching** | 62.8 | 51 |
| **Collaborative classroom teaching** | 41.2 | 51 |
| **Compensation and credentialing** | - | - |
| Compensation | 62.8 | 51 |
| **Pedagogical & Professional Practices & Structures** | | |
| **Supports for student transition** | - | - |
| Teaching 1st-year students strategies for self-directed learning | 42.6 | 47 |
| Programming to support students in their first year | 23.4 | 47 |
| **Schoolwide practices** | - | - |
| Student culture of restorative practices | 45.7 | 46 |

| | | |
|---|---|---|
| Strong special education practices like UDL | 39.1 | 46 |
| **Team norming** | - | - |
| Common, interdisciplinary proficiency rubrics | 47.8 | 46 |
| Ongoing team norming on what proficiency looks like | 60.9 | 46 |
| **Faculty Culture** | 80.4 | 46 |
| **Encouragement and safety to innovate** | 78.3 | 46 |
| **Culture of continuous improvement** | 67.4 | 46 |
| Collecting and using data on school culture to inform next steps | 50 | 46 |
| **Teacher agency and autonomy** | 66.7 | 48 |
| Teacher voice and participation in school redesign process and problem solving | 77.1 | 48 |
| **State-Level Influence** | | |
| **State Level Support** | - | - |
| Validation and praise | 25.1 | 46 |
| Policies that support innovation | 41.3 | 46 |

# Research Area 4 → Considerations for Equitable Implementation

## Do schools and/or districts with high-need, racially and/or socioeconomically **diverse student populations** face **particular challenges** in the transition to PCBE? If so, what are they?

The findings featured here arose from the data from both schools and experts. Three of nine schools in the sample had 70% or more students of color as well as more than 65% of students qualifying for Free and Reduced Price Lunch. All schools and experts were asked about unique challenges they faced in serving high-need, racially and/or socioeconomically diverse student populations, as well as questions about considerations to ensure equitable implementation of PCBE. The following are themes that emerged, some in direct response to the research question and others that felt too salient to the authors to leave out.

## Unique supports & challenges

Participant responses indicate that schools and/or districts with high-need and racially and/or socioeconomically diverse student populations do face particular challenges. Responses indicated many themes, and the findings are divided into two sections: school-site challenges and systems-level challenges. The first describes findings that occur within the school site; the second describes findings from a systems level, involving factors outside the school, with implications for the students, teachers, and/or the successful transition toward PCBE at large.

### School-Site Challenges

#### Ensuring students have supports to graduate in a timely manner

In a traditional school, students accrue credits by course completion and advance through grades by credit accumulation. In a PCBE environment, students accrue credits by demonstrating mastery, regardless of pace and timing, and graduate based on demonstration of mastery in the competencies that the school community deems necessary in accordance with their graduate profile.

As explained by Kyle of Kelsey High, this can result in two very different scenarios for an 18-year-old student who does not yet read and write proficiently and has not yet demonstrated mathematical fluency.

1) In a traditional school with grades based on completion, the student advanced through each grade by completing assignments and extra credit, earning grades that are not high but are passable. They are now graduating, earning a diploma, and entering the workforce.

2) In a school that awards credits based on mastery, the student would not have earned the school's credits that indicate mastery of writing, critical reading, and quantitative thinking proficiency. This means that they have more work to do before graduating and will not be graduating and earning a diploma at this time.

Due to historic inequities in education, students of color and socioeconomically disadvantaged students are more likely to have learning gaps. This scenario was shared by Kyle to summarize the challenge faced: ensuring structures are in place to support students with learning gaps and ensure students are receiving the feedback and guidance necessary to make consistent progress toward mastery.

In Kyle's words:

> "For students who ... have some extreme trauma and are really far behind in their learning–that is always a challenge for us because our competency-based environment graduates kids based on credit. Those students are not earning credit at a sufficient pace. In the traditional environment, they might get C's and DS, but they're gonna graduate from high school on time... we've had to get creative about how we define intervention with kids to meet those needs."

Kyle's example points to the need for structures and protocols for monitoring and responding to student learning in a PCBE environment.

### Supporting student acquisition of skills to thrive in a PCBE environment

Students entering a PCBE environment generally face a transition period to acclimate to their new learning environment. Depending on a student's previous learning experiences, that transition can come with additional challenges.

Jane, the principal of Odyssey High School, spoke to the role of learned helplessness as an obstacle to student success in the PCBE environment. In her words:

> "[W]e have dealt with a lot of kids who have developed really, really deep learned helplessness … It took a lot of work on us getting really tight on what a scaffolding looks like, what are just some routines and rituals and things that we have to do the same [across the school] because we have to minimize … the level of complexity for students in those rituals and routines so that they can use their cognitive capacity to dig into the work."

Note that while the obstacle is present, Odyssey has worked to refine structures to support students in overcoming it.

Stephanie of Pedstone, an administrator focused on school culture where 66% of students qualify for FRPL and 72% of students are students of color, spoke to how the majority of their students did not go to a project-based learning middle school and were acclimating to new skills and mindsets. This is mentioned because it surfaced through participant perspective, yet the degree to which the acclimation to these new skills and mindsets differ based on previous learning experience and the degree to which student background and identity factor into previous learning experiences were not discernible through our data. This is recommended for further study.

## Systems-Level Challenges: impact on students, schools, and the transition at large

Many systems-level challenges surfaced in the data, primarily coming from the lenses of experts considering the larger ecosystem of education. These are a result of factors outside of the school site itself, and have impacts on learners' experiences, educators, school structures and practices, support for PCBE in general, and in turn, the elements needed for a successful, widespread transition to PCBE.

### Limited availability of, and consistency across, PCBE Schools impacts transient students

The limited availability of PCBE schools and inconsistency across those schools impacts students that experience high mobility. Student mobility refers to students moving their residence and subsequently changing schools. Speaking to the unique way that this impacts students in a PCBE environment, Virgel Hammonds of Knowledgeworks shared,

> "We have high mobility for a variety of reasons. We have a high migrant population … poverty oftentimes either traps families or requires families to relocate. And a reason why we believe it's important to address, to think about PCBL … [as a] systemic commitment at the local level, but also at the state level, is for many of the reasons that… we've referenced."

Hammonds went on to explain that, if a child were to transition between counties in the same state, and the counties had already agreed on comparable competencies and what mastery of the competency looks like, then the child would be able to pick up on their learning in their new school where they left off.

This also means that if students are transitioning from one school to another, and one practices PCBE but the other does not, or the other practices it in a way that is not aligned to the first, the student faces a challenge in transferring their learning and actual credit. This points to two challenges: the lack of widespread availability of PCBE schools, and the transferability of competencies, student learning, and records between schools.

### Lack of leadership pipeline impacts consistency of vision implementation at schools with high leadership turnover

Findings elaborated in Research Area Three demonstrate the importance and impact of a strong, consistent vision. Speaking to the important role of leadership in carrying out the vision, Hammonds illuminated how a lack of a leadership pipeline, combined with leadership turnover, leads to inconsistency in vision implementation. In Hammonds words:

> "Currently, the reality is principals and superintendents … carry a lot of the policy power–right?–to transform. And so if folks in those positions are not… constant or are constantly changing, then the vision or the culture for transformation is hard to sustain. So, how do you create a leadership pipeline?"

In his response, Hammonds is referencing high leader turnover in schools that serve historically marginalized students and the impact of turnover on sustaining a vision. This points to two obstacles: leader turnover and a lack of a leadership pipeline. What Hammonds is surfacing is this: in schools or districts that experience a high turnover in leadership, the absence of a leadership pipeline that prepares upcoming leaders to understand and implement a PCBE vision impacts the degree to which the vision is implemented over time.

### Inconsistent understanding of inequitable outcomes impacts collective buy-in

Virgel Hammonds of Knowledgeworks relayed the story of "The Ones Who Walk Away from Omelas," a 1973 short story by Ursula K. Le Guin, to illustrate how the current education system fails certain students:

> "It's about a community that's focused entirely on joy. But the joy comes with the sacrifice of a child, which is really interesting. And so it's essentially a community question of … if we are to ensure the joy of our entire community, is the sacrifice of a child on an annual basis worth it? And it just tugs at your heartstrings… The reality is, the system that we currently work in, at least across our country, is doing that very thing. And it's, 'Hey… most of our kids are very happy.. Most of them are doing pretty good, so we should be okay.' Which is not the truth… I relate that to kids that are in our current system."

Used as an analogy, Hammonds surfaces an obstacle to systemic education redesign: Many people accept and find satisfaction in the current system, despite readily available evidence that it is failing a portion of students.

Eliot Levine of Aurora referenced a study that illuminates the role that misunderstanding plays in societal investment for shifts toward more equitable outcomes in education. The study focused on perceptions of education in New England states and indicated that 60% of respondents were unaware of existing opportunity gaps[8]. Explaining his takeaways from this, Levine explained: "Remarkably to me, and probably to you, a lot of people haven't gotten the memo about this yet. So we still have a ton of education, a ton of work, to do getting the message out. It amazes me but it's true."

With national initiatives like NCLB and Race to the Top, it can be easy to believe that it's a common understanding that schools truly have differential outcomes for students. However, as Levine points out, there is not a nationwide, shared understanding. While this is an obstacle to all initiatives for equity in education, it impacts the movement toward PCBE in a particular way. Many organizations and leaders in PCBE work cite the core reason for the transition to PCBE as creating an equitable education that prepares all students to

[8] Levine wrote about the study he referenced on the CompetencyWorks blog in an article titled, "Competency-Based Education Needs Deeper Evaluation of Educational Equity Outcomes." The article was published April 22, 2021. The original study came from the Rennie Center for Education Research & Policy and was shared on December 9, 2019 in a presentation titled "Community Forum on the Future of Education," where they shared key findings from the New England States Poll.

thrive in their adult life. With equity as the *why* behind the work, they see PCBE as the *how,* or the method. Without a widespread understanding of the rationale behind the *why*, it is challenging to build investment in the *how.*

### Accountability frameworks impact classroom practices

Virgel Hammonds of Knowledgeworks pointed out another obstacle: the role that systems of compliance play in preventing personalized education, and how it is at odds with the intentions and actions of many educators.

> "A lot of our policies, a lot of our practices, are about compliance and not about the individual learners before us, and when we're talking about personalization and the systemic commitment to personalization, that means that we are recognizing, honoring the voice, the background, the experiences, the culture, of the young people before us. And I truly believe that all educators want to do that. But when systems are not structured that way, it's really hard [for] educators to align their heart and purpose with pedagogy."

Here, Hammonds points to how systems for compliance and accountability prevent meaningful and authentic personalization in education, where students' individual strengths and identities are reflected and honored in their experiences. He also points out that, while educators see the need and want to personalize curricula and methods to individual students, the systems and structures they are operating in make it challenging to do so. While this challenge pertains to all educators seeking to personalize education for their students, it is particularly relevant for educators and school systems transitioning to PCBE because the indicators for success in PCBE extend beyond, and are therefore not accounted for within, the national accountability framework that drives compliance through standardized testing and reporting.

### Perceived need for traditional accountability data to drive equitable practices impacts widespread support

Virgel Hammonds of Knowledgeworks spoke to a tension that exists between some equity-focused organizations in education and those advocating for PCBE as a means for equity: alternative assessment systems. Because disaggregated standardized testing scores illuminate the degree to which students of color and economically disadvantaged students are underserved, there has been a fear that not having, or centering, those scores could

lead to ignoring the phenomenon entirely, resulting in reduced efforts focused on serving historically underserved youth. Speaking to this issue, Hammonds shared the following:

> "When you talk about PCBL and alternative assessment systems, [some equity-focused organizations] were against that because… [traditional] assessments ensured that we were doing what was necessary to support our Black, Brown, and socio-economically disadvantaged children. Versus before it was easy… for our young people to, perhaps, hide… behind the data. And so the idea of alternative assessment structures that are focused on mastery and highly personalized–there was a bit of pushback on that. Because… the equity-focused organizations rightfully were saying, 'hey, look, we can't hide our children… We need to be able to be really honest about where they are so that we can give them the support they need.' Totally, totally agree… what we needed as a field… was to show how we can validate learning experiences and mastery in different ways while ensuring not *some* of our young people are advancing and getting what they need to be successful, but that *all* of our kids were getting what they need to be successful and that it was possible to do that when there was a systemic focus."

This points to a challenge in practice and in the perception of PCBE. Student performance data that comes from traditional assessments and is collected as a part of state and national accountability frameworks has illuminated the degree to which there are inequitable outcomes in education. When education entities, as well as national conversations, rely on this data to prove that inequitable outcomes exist and, subsequently, that action needs to be taken to rectify this inequity, it's understandable that there is resistance to moving away from using the data, and in turn, the school and classroom practices that yield this data. While the alternative teaching, learning, and assessment practices of PCBE stand to serve all students and interrupt historical inequities, they are not directly compatible with the traditional performance data framework. This signals a need for widespread *use* and *understanding* of systems that validate the learning experiences and assessments in PCBE to ensure that school accountability practices monitor learning that happens in PCBE schools. This, in turn, allows educators to use PCBE practices while also ensuring that student outcomes are available and disaggregated for the purpose of transparency and accountability. Support for PCBE as a means for equitable outcomes in education is impacted by this challenge.

## Equity in Education & PCBE: Alignment in movements

Numerous school and expert participants communicated a similar perspective: If PCBE is going to be implemented well, it's going to change the education system to be more equitable. As they explained their logic, three themes emerged: reimagining the system of education for equitable outcomes; specific elements of the PCBE system that address longstanding inequities; and consideration of context and community in PCBE. While these findings do not directly address the research question, they do provide insight from multiple perspectives on how PCBE is a method for restructuring and rebuilding education systems for more equitable outcomes if it is implemented well. In short, equity is considered the *why,* and PCBE is considered the *how*, for many stakeholders in the transition to PCBE. This framing provides important context for the motivation driving the work of many stakeholders leading and enacting transitions to PCBE, as well as the commitment to the distinct characteristics of PCBE.

### Reimagining the education system for equitable outcomes

Experts and many school participants named that their work in PCBE is motivated by an equity-driven goal: creating a system that is designed to serve the needs of all learners. They are motivated by seeing an end to inequitable outcomes, including the lack of intervention during elementary and middle school years, as well as high schoolers graduating without college and career readiness. Aurora's Elliot Levine spoke to how the genesis of competency-based education as an equity strategy: "[T]he whole design of CBE or the principles of CBE from the beginning, were intended as an equity strategy to address the very large number of students who aren't being well served by the existing system, as well as the students who are being served pretty well by the existing system, but we believe would learn better under a different approach."

Speaking to the system-level approach, Knowledgeworks' Virgel Hammonds shared:

> "Our focus is on systemic transformation for personalized company-based learning, and we feel that if we are really going to address the equity disparities that exist in our systems that we have to target the entire system."

Together, these statements from Levine and Hammonds build a larger picture: equitable outcomes are the long-term goal and PCBE is a strategy for getting there that addresses the entire education system.

## Specific elements of the PCBE system that address longstanding inequities

School site participants and experts named specific elements and strategies of PCBE that address longstanding inequities in education. Each strategy that surfaced is named below with a brief description and an explanation from the lens of a practitioner or expert.

### Opportunities on demand

Students are able to engage in learning at a pace and time that works given their circumstances without the threat of failing a course due to time missed, meaning that traditional interruptions in education do not have the same impact.

> "I think that one of the things that competency-based can do is create this level, equitable playing field, where opportunities can be on demand. So if a student is behind, or if a student is having a home crisis or a mental health crisis, or... they've been disadvantaged in any other way... [in] our implementation of competency... they don't fail courses... They always have that ability to jump in and take an opportunity. " –Kyle, Kelsey High, School Director

### Building a network of mentors and sponsors for students

The way that teaching and learning are organized in a PCBE school system creates connections between learners and experts. Students begin building a professional network in high school by gaining access to, and building relationships with, experts and professionals during their learning process. Whereas some students already have access to such connections, many disadvantaged students do not.

> "...[W]e work to provide some kind of experience with the outside partner in every seminar... [like the] professor from the University of Buffalo that... has worked in the area of ... chaos, when I was teaching the chaos science class during the pandemic. [I] had engineers from NASA... had a cybersecurity expert into my programming class last week... It's working to... build those kinds of contacts for our students because a lot of our student body doesn't have... direct access to those types of people, kind of, outside of the school. So kind of intentionally building that list of who they know." –Charles, Tech and math teacher, Pedstone

### Organizing for deeper learning

Teaching and learning are organized around holistic and often interdisciplinary knowledge, skills, and dispositions in PCBE. Learning is assessed through the transference of competencies to new contexts and situations. This structure of learning activities ensures students are challenged and growing through the work and able to focus their cognitive

capacity on learning instead of on navigating complex systems and logistics, regardless of their starting point. In examples shared previously, Principal Jane spoke about how her school team worked together to ensure students access and exercise higher-order thinking regardless of prior learning and experiences. Specifically, Principal Jane spoke about using " rituals and routines" that allow students to focus "their cognitive capacity to dig into the work."

**Ensuring students are continuously learning and graduating college or career ready**

Whereas students, particularly marginalized students, have historically advanced through grades without performing at grade level and without support to address learning gaps, resulting in students graduating without essential skills, the PCBE model advances students based on mastery and is designed to ensure feedback and support toward mastery. When this is implemented well, it results in all students reaching graduation with proficiency in all of the skills, knowledge, and dispositions that their community deemed necessary for a meaningful and purposeful life in their graduate profile.

> "We have a long history of passing kids along to the next level when they're not ready yet. And that really handicaps them for success in higher levels... CBE doesn't do that when implemented well, but also accompanies that with providing timely, differentiated supports, with the goal still being that kids are more or less ready to, you know, be at a college-ready or career-ready, graduation-ready level by around age 18." –Elliot Levine, Aurora Institute.

## Consideration of Context and Community

In PCBE, schools are designed around supporting every student's needs and fostering their innate curiosity and strengths, which requires a deep understanding of every student. It also requires a shared understanding of what the community intends for its graduates to know and be able to do upon graduation. This is why PCBE schools plan their teaching, learning, culture, and structures around what their community has envisioned as their graduate profile. In order to have a graduate profile that the community agrees on, and in order to support individual students in their learning journey, the community, family, and student voices are incorporated as crucial components of the design and reflection process. Incorporating these voices is an element of equity itself, as explained here by Virgel Hammonds of Knowledgeworks:

> "And so, vision, culture, and transparency, and the biggest piece that I've referenced before, it's really equity-focused ... [is] agency. How might we be inclusive of all the

> voices that are represented throughout our community? And how do we capture that and how do we honor them? And how do we build with those voices at the table? And that's a part of the design of the vision."

Hammonds is speaking about how inviting, respecting, and honoring the perspectives of community members in building a vision for PCBE in a school is an essential element of the design process. While it is useful for all schools to gather the input of community members, the fact that PCBE is rooted in a community-held vision of a graduate profile necessitates it. Expanding on this idea, Hammonds speaks to how the families' and stakeholders' understanding of their community invites unique considerations for each school's vision and design.

> "There are assets that exist that are unique to each community. And there are also opportunities that are unique to each community. So those designs and those evolutions of those designs will be unique to those communities… So, include young people, families need to be a part of the design process."

The idea of including learners in the design process isn't a new concept, yet it isn't something that is routine in education. Hammonds spoke to this deficit and the value-add of the learner's voice:

> "We're not really great at involving our young people … who are directly impacted by our designs. So what we have found is, if we're really going to be equity-focused, if we're really going to honor agency, the agency that our kids come with, and to help amplify that, then we need to include them in the design process."

In this, Hammonds also surfaced how the inclusion of students' voices also contributes to the development of their own agency.

Customizing graduate profiles and school structures to the vision of a community is considered an equitable act in itself because it allows the community's cultural beliefs, as well as their needs and assets, to be honored in their schooling system. Additionally, consideration of the unique context of students in a given school community enables school designers to customize their approach to address the specific structures that present obstacles to equitable outcomes amongst their students. An example of this can be seen in Utah's approach to supporting PCBE efforts across the state. Michael Hakkarinen of USBE spoke about the role of the state in ensuring that each school

community has the support necessary to customize its approach and address unique challenges to equitable outcomes.

> "Because we're decentralized and equity is at the heart of what we're doing... We're creating the condition for the schools to do it. And I think the schools should be the ones that are telling you how they do it."

Hakkarinen elaborated, providing examples of actions taken by different school sites to leverage assets and rectify barriers to equitable learning given their context through personalization and CBE. One example illuminated how an alternative school with many students that have jobs and need to provide childcare uses a personalized approach to ensure students have the flexibility to tend to their responsibilities while also moving at their own pace through school.

# Discussion

This landscape analysis sought to understand four aspects of the transition to ML or PCBE. Key findings emerged across all four areas of analysis.

The transition process is informed by the school's reason for the change, how they bring in stakeholders to support this vision, and what steps they take in designing, or redesigning, their school. Similar themes are present across schools regardless of their starting place for the design work: norming, use of professional development, ongoing clarity and vision setting/realignment, stakeholder engagement and support, guiding perceptions, and feeling at least somewhat supported by the district of state policy, to some degree, that they continue to make changes. Two differences stick out: 1) Schools that are newly established and have more flexibility in school redesign (charter, magnets) are able to begin as mastery allowing for them to set and align a vision. In this way, they are able to recruit school staff that has aligned values and mindsets toward pedagogy and build and iterate their program so that it more closely resembles mastery. Alternatively, schools that are traditional or SBG and moving towards mastery could have staff whose values do not align, or who have seen education initiatives come in and out of the district. 2) Norming, consistency, and professional development are important in both places, though the strategy for building culture and managing perceptions around PCBE does seem to vary.

Schools that are transitioning to PCBE from an SBG system do not have a clear path for doing so, particularly when there's a need or desire to maintain state standards, and often

experience friction. Schools have been innovative in building models that combine the two (overarching competencies with standards) though are complicated and take a focused lens to unpack and understand how they operate. This can be a barrier to building understanding among stakeholders. Schools can face friction in the transition in disconnecting pace level from grade level; combining state standards (and accountability systems) with competencies; finding an LMS that meets their needs; and establishing school systems and structures for integrating ongoing extension opportunities and supplemental supports for students into routines.

Schools that practice SBG grading practices are building in teaching and learning that guide students in building skills of the school's graduate profile to some degree. While the exact practices are school dependent, many align with elements of PCBE including student agency and voice, success pathways, and timely support. For full implementation of PCBE, all elements work in synchronization; it does not appear that full implementation of PCBE can be realized without the use of all elements. However, it appears that some of its benefits are derived from this combined approach.

Structures and practices that are supportive and beneficial to the transition process go hand in hand with elements that are challenging. Combining the lessons of both, it's essential that schools build a strong foundation of faculty culture characterized by trust and relational, distributed leadership, resulting in personalized pathways for educator growth, faculty empowerment and buy-in, and honest conversations. The transition process is nuanced and often lengthy but feasible, rewarding, and enjoyable with strong relational leadership and faculty culture. State or district policies that enable structural or systems flexibility to support elements of PCBE are beneficial, though not essential at the start of the transition process.

While there are not necessarily unique challenges for schools and districts with high-need, racially and /or socioeconomically diverse student populations, there are challenges that are more likely to manifest in such schools given historic inequities in the system. Some of these are addressable at the school site, and some call for overhauls to systems and structures beyond school walls. Two school-level challenges emerged in this study: ensuring students' progress is monitored and supports are in place to ensure timely graduation, and supporting student acquisition of skills to thrive in a PCBE environment. Additionally, many systems-level challenges emerged that align with and validate what exists in existing literature.

## Contributions to Existing Literature

These findings build on existing evidence of the transition process to PCBE by validating existing evidence with the perspective of school-site personnel and experts in the field. While significant literature is available on change management in schools, fewer studies have been conducted on the transition process toward full implementation of PCBE in schools and the experience of teachers and administrators throughout the transition. These findings add depth through detail, particularly in that they identify the structures, practices, and elements that feel beneficial to school-site personnel in the transition process. This perspective is key, as teachers and school administration are the front-line workers in the movement, and supporting their initiative and momentum is crucial in the effort for systemic change. Our results show that a key theme across the transition is understanding perceptions in the community and generating support for the movement and that this is both a challenge and an essential element of design. Findings also revealed the perceived benefits of supporting school-site leadership through a variety of means including administrative PLS and school partnerships for collaborative problem-solving. Each of these yield evidence that can be used for immediate action to create stronger support for those in the transition process.

Findings also contribute to the understanding of how SBG assessment and learning models can be used to guide students in building the skills in the graduate profile. It demonstrates that while schools may not be leveraging all the design elements of PCBE, they are still able to yield some of the benefits of PCBE for learners. This practice should heed caution; only the implementation of PCBE with all its elements aligns with equity, and an approach that uses parts of PCBE, but not all, can lead to misconceptions about PCBE. Findings also match the literature on assessment, indicating the trickiness of balancing the benefits of reductionist and constructivist approaches and ensuring consistent, normed validation of mastery alongside authentic assessment opportunities for student mastery. Norming across assessments and teaching teams is one practice that is used for consistency, and yet clear, scalable systems for balancing both did not emerge in this study. The findings indicate the challenge of creating different pathways and varied pacing for students to demonstrate proficiency of learning standards; each tends to be tied to courses. This core difference between most SBG systems and full implementation of PCBE presents friction and a place where schools appear to get stuck in the process. This finding aligns with what is known about adopting a full PCBE approach, as it is known that a structural overhaul is

necessary at that point. Likewise, findings align and confirm the need for policy and technology to enable this phase of the transition. This study surfaced the influence of local politics on the school's strategy and interest in transitioning from SBG to full implementation of PCBE. Whereas the role of community perception and stakeholder buy-in is known to be important, it is novel to note the degree to which a school may customize its language and strategize its approach based on the current political climate. Collectively, these findings illuminate the ways that schools are incorporating SBG with teaching and learning practices of PCBE, as well as surface challenges in progressing from this point.

Literature grounds PCBE in equity and names challenges that can get in the way of meeting every student's needs, as well as systemic changes that need to take place for systems-level implementation of PCBE. The findings confirm the need for all things deemed necessary, namely: prioritization of equity at the front end of implementation and systems for students to navigate PCBE effectively. Findings also provide proof points for where strategic moves toward equitable implementation are happening.

We expected state and federal accountability systems to cause bigger barriers to stakeholder buy-in and systemic change. While this was mentioned, it was not emphasized as a major challenge. It seems that where there is will, the way prevails and that the biggest barrier to sizable change is actually in the policy. Without shifts in the district or state policy, only classroom teaching and assessment can change. With a policy that removes barriers, the school structure can change: how they use time, how they award credit, and their ability to recognize what happens outside of the school building.

The scope of this study yields strong insight into the experience of school-site personnel in the transition and the perspective of experts, yet the scope and time parameters limited the depth of findings. Case studies would have been richer and provided a deeper understanding of teaching and learning practices and student experience with site visits, classroom observations, student interviews, and analysis of students engaging in assessment, learning experiences, and structures of the schools.

## Recommended Research

Each of the areas of analysis in this study opens a door for further studies. The following are suggested research topics, questions, and aims.

**Mapping School Transition, including the SBG to PCBE transition:**

- How does the process a school undergoes to design for PCBE differ by their starting place (or school profile)? What key considerations exist?
- What are the different ways that schools have combined standards with competencies to form a PCBE model? What was their process in doing so?
- Bottom-up meets top-down support: How does the support from the Utah State Board of Education enable school transition toward PCBE, from the lens of a school?
- SBG with teaching and learning aligned with the graduate profile: The scope of this study allowed us to gain insight into how learners in schools with an SBG framework are building skills in alignment with the graduate profile, though further study is required to deepen understanding. We recommend a focused case study with multiple school visits, family and student interviews, classroom observations, and curriculum and assessment inventory to more fully understand how schools are effectively integrating SBG with teaching and learning needed to help learners acquire skills in the graduate profile.

**Understanding Supports and Challenges in the Transition Process:**

- This study provided evidence of what is deemed helpful and challenging. Leadership can be challenging in predictable and routine times; leadership during transformational, systemic change calls for strategic yet responsive, confident yet humble, and reflective yet action-oriented leadership. What does the playbook for leadership decisions look like, from enabling supports to navigating foreseeable challenges?
- Professional development and PLCs are experienced as beneficial to the transition. What are the specific benefits to different PLC formats and PD structures and trainings?

**Supporting Equitable Implementation of PCBE:**

- Where are there instances of success in the equitable implementation of PCBE in schools and districts? Suggestion: An in-depth case study with a focus on student supports.
- Suggestion: Follow students through the first year of their high school in a high-need school. Where are the obstacles and challenges? Include their full experience, including transportation to school and out-of-school learning,

acclimation to the school, and the impact of the degree to which community and family are supportive of the school model.

- Bottom-up meets top-down support: How does the local-control approach of the Utah State Board of Education enable context-specific equity considerations? What steps are being taken to implement with equity at the forefront, depending on context?
- How do schools monitor student progress to ensure timely graduation? What systems, structures, and supports enable timely support to ensure graduation at the predicted time?
- What specific supports result in student acquisition of skills to thrive in a PCBE environment, particularly in schools with high-need or racially and/or socioeconomically diverse student demographics?

This study mapped four aspects of the PCBE terrain across public schools in the US with findings that both validate existing literature and understanding as well as add perspective as to how these four aspects are experienced in schools and perceived by experts, indicating that: Culture, leadership, and communication matter during school transition to PCBE; the gap between SBG and PCBE is important and nuanced, though schools are bridging it in innovative ways to reap some of the benefits of PCBE; common challenges and support structures exist, presenting an opportunity to utilize this knowledge to support schools in new ways; implementing PCBE with integrity means implementing with equity at the forefront; schools are weary of potential pitfalls to implementation for equitable outcomes and yet could benefit from assistance, guidance, and partnership in navigating them.

# Recommendations

Based on the findings of this study, we offer the MTC several key strategies for supporting member schools in alignment with their Theory of Action:

We recommend using the three I's: Investment, Instruction, and Iteration.

## Recommendation 1: Invest in People

### *Support schools with communication, perception management, and community insight.*

Our findings suggest investment of time and in stakeholders are critical in the transition to PCBE as they emerged in all school types, implementation phases, and all elements of the JML Framework. Specifically, investing in all stakeholder voices involved in the change can help build trust, promote a strong community culture, and mitigate risks during the transition. Based on these findings, we recommend two strategies:

In the short term, we recommend that the MTC develop case studies focusing on norming and visioning practices in schools. These case studies should provide insights into generating support from both internal and external stakeholders, effective perception management, understanding stakeholder perspectives, managing change in adverse circumstances, and maintaining ongoing alignment with the vision.

In the long term, the MTC should create guidance materials that outline best practices for stakeholder engagement. For schools undergoing redesign, these materials should concentrate on facilitating meaningful engagement among school staff. For design schools, the materials should also focus on strategies to support magnet and charters in student recruitment. Specifically, this guidance should emphasize how to involve families and community members in the development and implementation of PCBE. Additionally, strategies for approaching parents and encouraging their participation should be provided.

## Recommendation 2 & 3: Instill Confidence with Guidance

### *Guidance for schools with high-need, or racially and/or socioeconomically diverse student populations on navigating foreseeable challenges.*

Student readiness to thrive in a PCBE environment was an important theme that emerged from our findings. To facilitate this adjustment period, scaffolds should be put in place to bridge past learning experiences to one of PCBE. This also requires creating conditions to ensure students acquire the skills needed to graduate on time.

In the short term, the MTC can support schools by providing guidance in two areas:  first, share tools and strategies for monitoring and responding to student progress; and second, provide guidance on specific rituals and routines that allow learners to focus their cognitive capacity on complex learning tasks while efficiently building dispositions and skills necessary to thrive in a PCBE environment.  In the short term, this can look like compiling guidance on the best-known practices in the PCBE environment, including critical questions to guide reflection and common pitfalls to avoid,as well as create case study examples that demonstrate consideration of context and unique situations.

In the long term, the MTC can create materials for their member schools to share with the elementary and middle schools that reside in their district. These materials would aim to be user-friendly and facilitate the integration of PCBE elements into their existing curriculum. To achieve this goal, the MTC can develop a series of teaching modules that can be adapted by different grade bands and explicitly communicate how these dispositions and skills will contribute to greater student success overall as well as in their high school experience. It's important to note that while these resources are intended for an audience outside of high school, building these habits from an early age can have a significant impact on a student's secondary school experience by developing self-directed learning skills and to prevent learning loss from forming.

### *Support schools that are combining standards and elements of PCBE.*

Our research highlights the challenges faced by schools in the SBG stage of PCBE implementation, where a balance needs to be struck between meeting state standards, ensuring authentic learning, and compliance with set structures.

In the short term, the MTC can provide targeted guidance and support in SBG and PCBE, such as resources that combine 21st-century skills with academic standards and pathways for flexible student learning that separate standards from grades.

In the long term, the MTC can offer benchmarks and critical questions for schools to measure progress against, as well as foster school partnerships and PLCs to provide ongoing support. To ensure that these strategies are effective, the MTC should draw on successful implementation examples and continually refine and update its resources.

### Recommendation 4: Iteration through Continuous Improvement

#### *Support schools in establishing Principal & Educator PLCs and partnerships*

Our research revealed that leadership and teachers in schools transitioning to PCBE face significant challenges, especially when working in isolation. Further, our findings suggest that strong leadership, characterized by longevity in their role and the belief they have the ability to effect change, is critical to successful PCBE implementation.

One promising approach we identified is the use of administrative and educator professional learning communities. These communities offer support for school-level staff by creating a routine of reflection, collective accountability, and thought partnering, which can strengthen PCBE policy implementation, foster motivation, increase principal efficacy, and contribute to continuous improvement through iteration. During our study, principals shared how administrative PLCs provided essential thought partnership. In these, they helped each other navigate difficult situations by leveraging each other's strengths, and found it affirming to learn that others faced similar obstacles.

Additionally, the MTC can leverage its networks to identify and connect school leadership in both design and redesign schools that would benefit from maintaining long-term relationships within a Network Improvement Community. By doing so, the MTC can collect data on significant challenges faced by schools and use the practices of improvement science, which centers the experience and voices of those engaged in the work, to address problems of practice they are experiencing and build proof points. Thisould support PCBE implementation across schools and benefit both the MTC and participating schools.

# Conclusion

This study sought to deepen understanding of how to best support schools in their transition to mastery learning. Perspectives of school faculty and administration and industry experts, as well as existing literature and school documents, contributed to this understanding in four areas: the transition process to PCBE based on the school's design

phase and starting place; the ways schools are transitioning between and combining elements of SBG and PCBE; the structures, conditions, and entities deemed supportive or challenging in the process of transitioning and/or design; and implementation to serve all students equitably. Findings contribute to existing literature and lead to recommendations for action that align with the MTC's theory of action.

As previous research indicates, the national, public-school transition to PCBE will require a systems-level change, resulting in the evolution of every entity in the ecosystem of education. These findings and recommendations stand to inform this evolution, providing guidance and actionable evidence, grounded in the lived experience of stakeholders. With the tools of design thinking and improvement science for iteration, the transition process can build momentum, resulting in a swifter arrival of the day when every learner receives the personalized, competency-based education that fosters their unique strengths, reflects their culture and identity, and equips them with skills to thrive in the 21st century.

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# Appendix

# Appendix A: Glossary

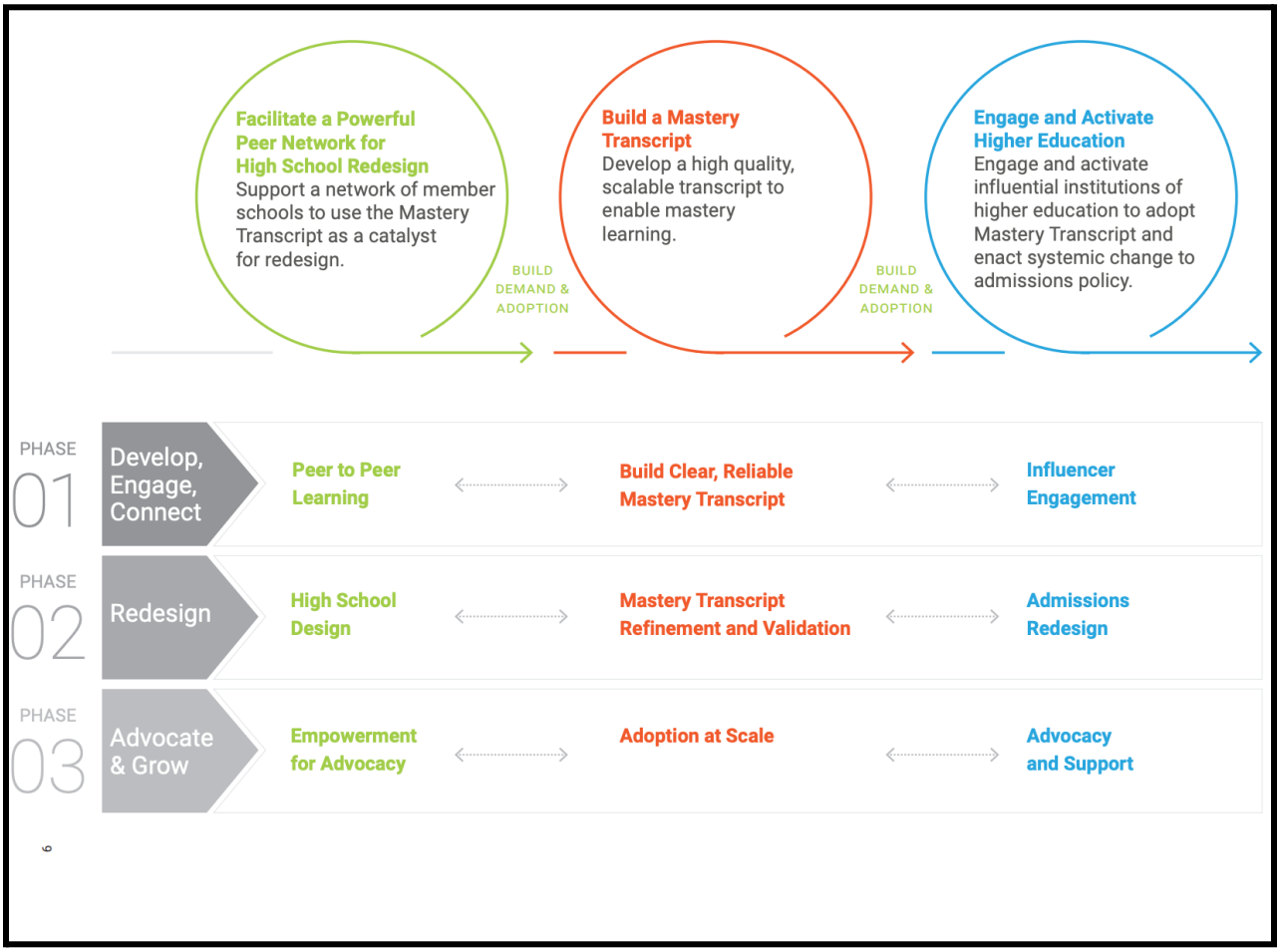
Below is a glossary of commonly referenced words found throughout this paper.

| Word | Abbreviation | Meaning |
|---|---|---|
| standards-based grading | SBG | A process in which teachers monitor student progress based on academic standards and sometimes dispositions and skills. Students' progress is measured via formal and informal formative and summative assignments and is based on proficiency of explicit learning targets. This grading system is paired with a curricular approach of backwards-planning from the set standards. |
| competency-based education | CBE | See Footnote 3 on page 15 or Appendix C for the complete definition of PCBE used in this research and by the MTC..<br><br>Whereas some prefer the term PCBE because it names the degree to which personalization is a necessary component of CBE, others note that some schools plan and assess by competencies but do not have structures, systems, or practices for personalized pathways. |
| personalized competency-based education | PCBE | |
| personalized competency-based learning | PCBL | Terms that were used by those interviewed as synonyms for the practice of PCBE. |
| mastery learning | ML | |
| mastery transcript | MT | A transcript developed by the MTC that does not use Carnegie Unit, but rather represents credits awarded by demonstration of mastery in skills, knowledge, and dispositions that align to the graduate profile of the high school program they have completed. |
| Journey to Mastery Learning Framework | JML | The framework MTC has developed to help schools redesign their program to a PCBL |

Levine, E., & Patrick, S. (2019). *What Is Competency-Based Education? An Updated Definition*. https://aurora-institute.org/resource/what-is-competency-based-education-an-updated-definition/

## Appendix B: MTC Theory of Action

This is MTC's Theory of Action as depicted in Getting Our Signals Straight (Casey & Sturgis, 2019). This research is situated in the Facilitate a Powerful Peer Network for High School Redesign pillar.



## Appendix C: Definition of Competencies

The MTC and this research adopt Aurora's updated definition of competency-based education as outlined in *What Is Competency-Based Education? An Updated Definition* (Levine & Patrick, 2019). The full definition is provided here and was updated in 2019 from a previous definition from 2011. See the full text for foundational belief statements, clarification of key concepts, and misconceptions about competency-based education.

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"A competency-based school or district should implement all seven elements of the definition. Strong implementation also requires policies, pedagogy, structures, and culture that support every student in developing essential knowledge, skills, and dispositions." (Levine & Patrick, 2019)

**The 7 Core Elements**

1. "Students are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning.
2. Assessment is a meaningful, positive, and empowering learning experience for students that yields timely, relevant, and actionable evidence.
3. Students receive timely, differentiated support based on their individual learning needs.
4. Students progress based on evidence of mastery, not seat time.
5. Students learn actively using different pathways and varied pacing.
6. Strategies to ensure equity for all students are embedded in the culture, structure, and pedagogy of schools and education systems.
7. Rigorous, common expectations for learning (knowledge, skills, and dispositions) are explicit, transparent, measurable, and transferable." (Levine & Patrick, 2019)

## Appendix D: Common Barriers to PCBE

The 2018 *Show What You Know Landscape Analysis* identified six common barriers to PCBE. The list below represents their findings (Getting Smart, 2018). See the full report for descriptions of each barrier and its components.

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1) Defining competencies
    a) Lack of well-defined competencies
    b) Lack of equity as priority
    c) Lack of definition of work-ready skills
2) Transition challenges
    a) Difficult transitions to standards-based grading
    b) Moving from a culture of success versus failure, to a culture of revision
    c) Adoption of new roles and development of new capabilities for all teachers
    d) Limited supports
        i) Equitable implementation requires time, innovative teaching, learning strategies; weighted and flexible funding help
    e) Inadequate teacher preparation and professional learning
    f) Pressure to retain privilege
3) Tools and resources
    a) Few platforms support dynamic learning (LMS)
    b) Few quality curriculum materials
        i) Most materials are home-grown. More are needed.
4) Technical challenges
    a) Lack of common student record
    b) Limited interoperability
    c) Inability to combine formative assessment from multiple sources
5) Reporting
    a) Higher education reliance on traditional measures
    b) No common competency transcripts
    c) NCAA still pushes seat time
6) Accountability
    a) Accountability systems reinforce grade levels

## Appendix E: Aurora's Equity Principles

The following visual is from Aurora's report, *Designing for Equity: Leveraging Competency-Based Education to Ensure All Students Succeed* (Sturgis & Casey, 2018a, p.17). The report notes that the principles that lead to an equitable system align with those that lead to the high-quality design of PCBE (Sturgis & Casey, 2018a).

## Appendix F: JML Framework

The Journeys to Mastery Learning has 5 areas of development. The makeup of each area is described in more detail below. The chart is adapted from the Journeys to Mastery Learning explanation on the MTC website (Mastery Transcript Consortium*, 2021*) and *The Journeys Toward Mastery Learning* report (Bell et al., 2019).

| **Purpose & Vision** | | | | |
|---|---|---|---|---|
| **Description** | **Driving Question** | **Design Essential** | **Design Elements** | **Design Element Description** |
| **Defining a Compelling Reason to Innovate** | What is your compelling reason to innovate? | Community-driven vision | Stakeholder buy-in | Our school has engaged in a deep review of the current state, gathering community input and feedback from multiple stakeholders to make a case for change. |
| | | | Learning is Constant, Time is Variable | Our learners progress based on evidence of mastery, not seat time. |
| | | | Equity-Driven Decisions | We employ strategies to ensure that the principle of equity for all students is embedded in the culture, structure, and pedagogy of the school. |
| | | | Learner Leaders | Our learners are empowered to lead conversations and co-design the process by which the school redefines an inclusive and just vision of success for all learners. |
| | | | Community Impact | We make connections with the larger community to advance learners' ability to collaboratively and meaningfully seek and build solutions to community-based problems. |

| **Graduate Profile** | | | | |
|---|---|---|---|---|
| **Description** | **Driving Question** | **Design Essential** | **Design Elements** | **Design Element Description** |
| **Creating a Vision of Success for all Learners** | What will success look like for all learners? | Graduate profile<br><br>Common Learning Framework | Vision of Success | Our faculty has developed and uses rigorous common expectations for learning (knowledge, skills, dispositions) that are explicit, transparent, measurable, and transferable. |
| | | | Vision-System Integration | We partner with the larger community to promote and design all learning experiences, events, and community-based opportunities around advancing learners' attainment of the vision of success |
| | | | MTC Learning Record (or transcript) | We use the MTC Learning Record (MLR) to showcase students' mastery of schoolwide competencies |
| | | | Captures Diverse Perspectives | We have co-created the vision of success with and for learners (and their families) of diverse backgrounds, especially with learners who have been historically underserved. |

| Learning Model | | | | |
|---|---|---|---|---|
| **Description** | **Driving Question** | **Design Essential** | **Design Elements** | **Design Element Description** |
| **Clarifying How Learning and Teaching Will Change** | How will learning and teaching need to change? | Common Pedagogy Framework<br><br>Systems of Balanced Assessment | Mastery Credit-Informed Instructional Design | Our school uses building blocks (mastery credits) of common expectations as the basis for constructing learning experiences that are meaningful and lead towards mastery of skills. |
| | | | Student Agency and Voice | Our learners are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning. |
| | | | Meaningful, Student-Driven Assessment | Out learners engage in (and may co-design) assessment experiences that are meaningful, positive, and empowering for students that yield timely, relevant, and actionable evidence |
| | | | Shared Vision for Learning/ Teaching | Our educators have developed a shared language, common expectations, and shared pedagogical vision across the entire school. Educators use and hold themselves accountable to the educator competencies that we've collaboratively developed and continually update to reflect the needs of our learners. |
| | | | Real-World Experiences | We ensure that every learner has opportunities to interact with and have a meaningful impact on the larger community through learning that is project-, problem-, or inquiry-based. |
| | | | Anywhere, Anytime Learning | Our faculty recognize and welcome evidence of learning created/curated beyond the confines of the school's physical plant and daily schedule. |

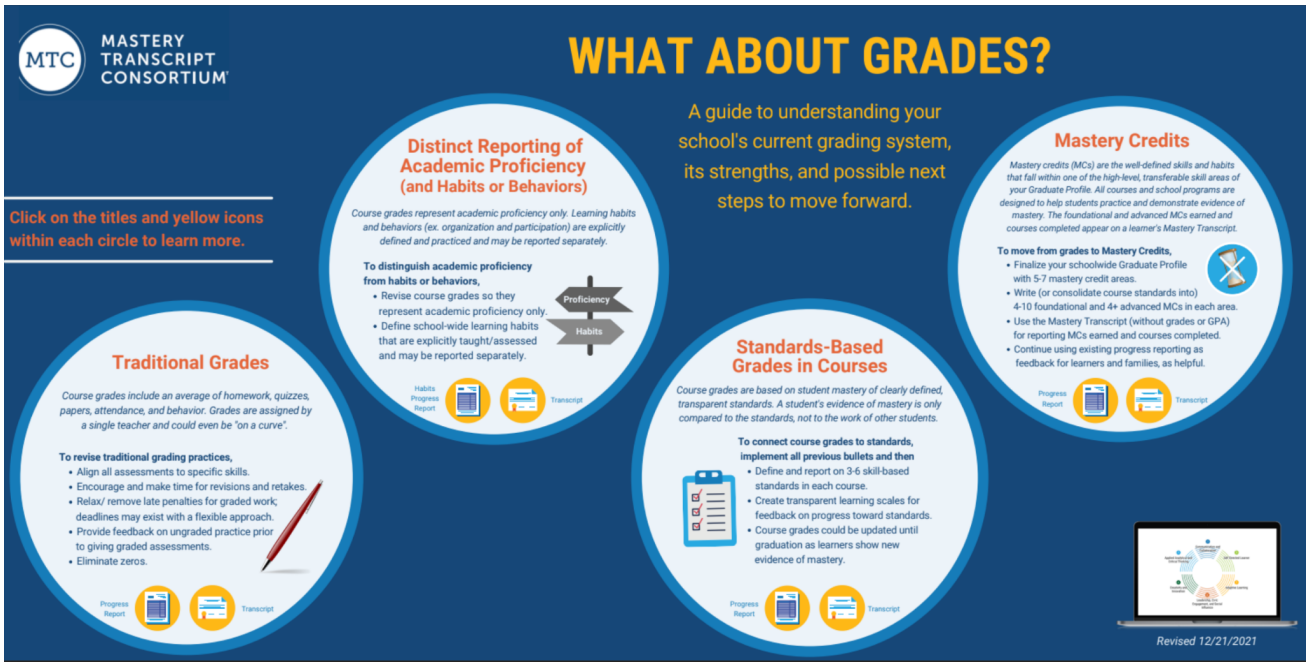
| Alignment | | | | |
|---|---|---|---|---|
| **Description** | **Driving Question** | **Design Essential** | **Design Elements** | **Design Element Description** |
| **Ensuring Culture and Structures Support Mastery Learning** | How do school culture, instruction, and structure function to support your learning model? | 1. Mastery Credits<br>2. Timely and Differentiated Supports<br>3. Transparent Learning Management and Reporting<br>4. Equity Framework and Strategy<br>5. Distributed Leadership | Timely Support | Our educators provide and our learners receive timeline, differentiated support based on their individual learning needs. |
| | | | Success Pathways | Our students engage in learning actively, using different pathways and varied pacing |
| | | | Feedback for Growth | Our learners receive meaningful and actionable feedback (in place of traditional permanently recorded grades) to support them in their learning growth. |
| | | | Mastery Transcript | We use the Mastery Transcript to capture student learning in a holistic manner |
| | | | Peer-Peer Feedback | Our learners engage meaningfully in peer-peer feedback cycles that are embedded into the workflows |

| | | | | |
|---|---|---|---|---|
| | | Structures | | of evidence creation and curation. |
| | | | Exhibition and Defense | Our learners conduct meaningful defenses of learning via schoolwide events, panel reviews, or student-led conferences that involve and engage experts and other interested parties beyond the school faculty. |

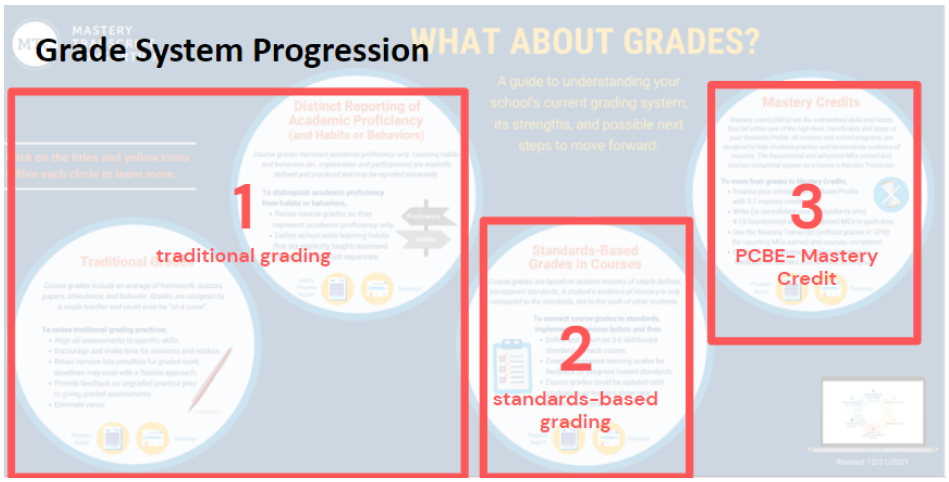
| **Sustainability** | | | | |
|---|---|---|---|---|
| **Description** | **Driving Question** | **Design Essential** | **Design Elements** | **Design Element Description** |
| **Building Capacity to Sustain Change Over Time** | How will you build capacity to sustain changes over time? | Commitment to Robust Professional Learning<br><br>Systems for Continuous Improvement | Professional Excellence | We maintain a student-centered approach characterized by organizational flexibility and commitments to robust professional development and continuous learning. |
| | | | Reflective and Strategic Iteration | We use our school's vision, holistic assessment data, feedback from students and the community, and postsecondary learner data to continually adjust and improve our mastery learning model. |
| | | | Mentoring | We actively seek out and develop mentors to support new hires or those needing additional support to internalize the mindset and practices required by the learning model to achieve the Profile of the Graduate. |
| | | | Policy Development | We continuously review and revise our policies to reflect the culture and practices we've adopted to achieve the Profile of the Graduate. |

## Appendix G: MTC Grading System Progression

This is the *What About Grades?* infographic of the MTC, adopted directly from the member platform (*What About Grades?*, 2021). The model is used in this research as a conceptual framework for grade system progression.




For the purpose of this research, “traditional grades” and “distinct reporting of academic proficiency” were combined into one category, called “traditional grading.” The other two categories were left as is. The second graphic represents these three categories used as a conceptual framework in this study.



## Appendix H: Interview Protocol, School Leaders

The following interview protocol was used with school administration.

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**Interview Protocol: School Leaders (Administrators & Curriculum Directors)**
Transitioning to Mastery Learning
Fall 2022

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**Key:**

- **Sections of the interview**
- **Lead questions**
- Follow-up questions
- Cues – questions specific to a certain school model
- Probes - Connections and conditional follow-up questions

Timing: 60 minutes

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**Preamble**

- Explain purpose of study
    - We(the researchers, Megan and Ashley) are conducting this study as a capstone project in partnership with the Mastery Transcript Consortium.
    - We are seeking a deeper understanding of what the transition to mastery learning entails for different schools, what challenges are encountered, and what supports are helpful along the way. We will ask some questions that will help us understand your current learning model and how it came to be in practice, and others that will help us understand the nature of the transition to this learning model.
- Explain confidentiality
    - All answers are confidential, which means that only the researchers – Megan and Ashley–are aware of participant names
    - You are welcome to skip any question you'd prefer not answer; just let us know if that's the case.

**Questions**

**Opening**

"We're hoping to start off with learning a little more about each of you."

- *(If unknown)* **– Name and role?**
- **To each: How did you come to join (school), and how did you become interested in mastery learning?**
- In what ways has this transition impacted your day-to-day job?
    - Where do you see/ witness/ experience (school's) vision for mastery?

**Purpose, Vision, Graduate Profile**

"Our next set of questions have to do with the school's vision for learning."

- **VISION**
  - **How did the school decide to transition toward mastery learning (**personalized learning**)?**
  - *For schools that started with a mastery model:*
    - **How was it decided to start the school with a mastery model?**
  - **Who was involved in setting the vision/ making the decision?**
    - Probe for: Stakeholder buy-in; Equity-Driven Decisions
  - What, specifically, does it entail?
    - Probe for: SBG, CBE, CBC; Learning is Constant, Time is Variable
  - Is there a strategic plan, vision, or specific goals, guiding the process? Please describe it.
    - How do you track progress? What benchmarks are you driving toward?
    - How will you know when the transition is complete?
  - **How was the transition introduced to the community?**
    - What was the timeline?
    - What strategies or formats were used?
    - What guidance has been offered, either in meetings or documents?
  - ***If not explicitly named –***
    - Does the vision entail standards-based grading, or competency-based assessment, or competency-based crediting, or some combination?
      - What does that look like?

- **GRADUATE PROFILE**
  - **Some schools that are (or have) transitioning(ed) to mastery learning have a graduate profile, or a vision for what competencies (or standards) they intend all graduates to have.**
    - *Choose the appropriate first question:*
      - Does your school use a graduate profile?
      - Could you describe the graduate profile?
  - **What was the process of creating it?**
    - What steps were taken?
    - Who was involved?
      - If you were to revise the profile, are there any additional stakeholders that you'd hope to be involved?
  - **How does it align to the learning model?**
    - If it does – does it differentiate foundation/ advanced credits?
  - How and when are students introduced to the graduate profile?
    - Does the graduate profile relate to competencies? When do students interface with the competencies, and how?
  - Probe for: Vision of Success, Vision-System Integration, Captures Diverse Perspectives

**Learning Model & Alignment**

- **LEARNING MODEL, ASSESSMENT, CLASSROOMS**
  - **Walk us through the current learning model and how it is different from other models,** *(if applicable)* **including previous models used here**
    - *For schools that started with a mastery model:*
      - **Walk us through the learning model.**
  - **What does the student learning experience look like?**
    - Can you walk us through an example?
    - *If applicable* - What shifts have happened in the classroom with the transition to mastery learning? (changes)
    - Probe for: Student Agency and Voice, Meaningful, Student-Driven Assessment, Shared Vision for Learning/ Teaching, Real-World Experiences
  - **What does student support look like?**
    - How do peers support one another's work?
  - **What does assessment look like?**
    - How do students know they have made growth toward mastery?
    - How do students receive feedback, and how frequently?
    - What do students do once they've received feedback?
    - Probe for: Timely support, Success pathways, Feedback for growth, Peer-peer feedback, exhibition & portfolio/ credit defense, Anywhere/anytime learning
    - ***If unclear*** – **How do students currently receive credits?**
      - How are competencies and crediting aligned/related?
      - Probe for clarity: SBG, CBE, or CBC.
    - *If it's a competency-based crediting model:* How do students earn credits for mastery?
      - For example – is there an application or portfolio process?
      - What has worked well in this process?
      - What has been challenging?
  - **How is learning communicated/ represented to students and their families?**
    - *If relevant* – What alternative transcript do you currently use, or intend to use in the future?
    - Probe for - Progress report/ formative vs. Summative records

- **RESOURCES, TECHNOLOGY**
  - **What systems do you use to support learning, assessment, and feedback?** This includes LMS and internal home-made systems.
  - To what degree do these systems support the process well?
  - What would you like the systems to do that they currently do not?

- **LEARNERS/ STUDENTS**
  - **Tell us about your student demographic.**

        - What are student **mobility/ retention** rates?
        - What are the primary drivers of student mobility here?
    - **How have students responded to this shift/ learning model?**
        - Can you provide an example?
        - Changes in: outcomes, culture, attitudes toward learning, others?

- **TEACHERS**
    - **How have teachers been involved in changes to the learning model?**
        - How were they introduced to the shifts?
        - **How have they acclimated/ responded?**
    - **Do all teachers practice/ embrace the learning model to the same degree in their classrooms?**
        - *If no* – What are the differences?
            - What do you believe accounts for those differences?
    - **In what ways have faculty found time to plan and make adjustments for the curriculum?**
        - To what degree have there been challenges with resource/ time/ capacity?
        - What do you attribute that to?
    - **When and how do faculty engage in collective or collaborative professional learning?**
        - What practices or structures have been most productive?
        - Probe: Collaborative decision making, Sensemaking / consensus building
    - **What is faculty/ teacher retention like here?**
        - If retention rates are low: How has this impacted the implementation of mastery learning?
        - How has this impacted operations at the school?

- **STAKEHOLDER RESPONSE, NORMATIVE BELIEFS**
    - **Moving to mastery learning entails shifts in how we measure and think about learning. How have teachers, parents adjusted to the shift?**
        - **How has the shift been received by the community?**
        - What pushback, if any, have you experienced?
        - Can you give an example of a challenging moment?
        - How have you navigated these moments?
        - Probe for:  Board/ district support, assumptions, bias, stereotypes that are hidden in belief systems of traditional education

**Sustainability, Authority, Change management**

- **RESOURCES & SUPPORT**
    - What external resources have supported the transition?
        - District / state / outside agency or organization
    - To what degree is there district/ state **support for resources and time**, through funds or otherwise?

        - What would you consider the bottom line/minimum level of funding needed to support a successful transition for a school like yours?
- **REFLECTIVE & STRATEGIC INTERACTION**
    - What have you learned through implementing / transitioning toward your school vision that has been surprising?
    - What strategic shifts or changes have you made since the initial plan for implementation?
        - In other words, what changed from your original plan?
    - What are the next steps identified as required for the transition to mastery learning? In what ways do you feel prepared to make this step?
- **POLICY & ADVOCACY**
    - In what ways has the district/ state/ national **policies and regulations** supported or created barriers for the transition?
- ***If unclear, not already surfaced –*** **CHALLENGES**
    - **What have been the greatest challenges of the transition so far?**
        - What upcoming challenges do you foresee?
- **ADVICE - If time –**
    - What **advice** would you have for someone who is currently planning to make the transition to mastery learning?
        - What are some key decisions they should make?
        - What are some key barriers they should expect or avoid?
        - Are there other potential difficulties you would like to share we haven't addressed?

**Conclusion**

**We appreciate your feedback and look forward to sharing our findings with you once our report is complete. You can reach us by email at any time should you have any comments, questions, or concerns. If you would like to stay on to ask questions, please feel free. If not, we thank you again for your participation and in helping us share your experiences so that we can help current and future schools transition to mastery learning. Many thanks!**

# Appendix I: Interview Protocol, School Teaching Team Members

The following interview protocol was used with school administrations.

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**Interview Protocol: Group Interview with Teaching Team (3-7 teachers)**
Transitioning to Mastery Learning
Fall 2022

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**Key:**

- **Sections of the interview**
- **Lead questions**
- Follow-up questions
- Cues – question differentiation via school models
- Probes – Connections and conditional follow-up questions

Timing: 90 minutes

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**Preamble**

- Explain purpose of study
    - We(the researchers, Megan and Ashley) are conducting this study as a capstone project in partnership with the Mastery Transcript Consortium.
    - We are seeking a deeper understanding of what the transition to mastery learning entails for different schools, what challenges are encountered, and what supports are helpful along the way. We will ask some questions that will help us understand your current learning model and how it came to be in practice, and others that will help us understand the nature of the transition to this learning model.
- Explain confidentiality
    - All answers are confidential, which means that only the researchers – Megan and Ashley–are aware of participant names
    - You are welcome to skip any question you'd prefer not to answer; just let us know if that's the case.

**Questions**
**Opening**
"We're hoping to start off with learning a little more about each of you."

- **Please share your name, how long you've been here with (school), and what you teach/ other roles**
- **We'd like to start by learning how teaching and departments are organized here.**
    - Are there discipline-specific departments, interdisciplinary partnerships, or some other arrangement of teaching teams/ departments?

**Vision**

"We'd like to zoom out on the big picture and hear a little about the vision for learning here and how it came to be."

- **VISION**
    - **Tell me about the vision for (personalized, mastery, CBE) here.**
    - *If a transition:*
        - How did the school decide to transition to mastery learning?
        - When and how did you become aware of the transition?
        - How have you been involved in changes to the learning model?
            - How were you introduced to the shifts?
            - In what ways were you able to contribute to the vision?
    - In what ways does this vision live in your day-to-day life?
        - Probe for: Stakeholder buy-in; Equity-Driven Decisions

**Learning Model**

"Next, we'd like to talk about what that vision looks like on a classroom level."

- **LEARNING MODEL, ASSESSMENT, CLASSROOMS**
    - **Walk us through the current learning model and how it is different from other models,** *(if applicable)* **including previous models used here**
        - For schools that started with a mastery model:
            - **Walk us through the learning model.**
    - *If school has a* ***graduate profile*** *–*
        - In what ways are the graduate profile and learning model connected?
            - For example, when do students interface with the competencies, and how?
    - **What does the student learning experience look like?**
        - Can you walk us through an example?
    - In what ways is student learning **different and similar across classrooms**? In other words, are there elements of the model that are used across all classrooms?
            - *If applicable* - What shifts have happened in the classroom with the transition to mastery learning? (changes)
            - Probe for: Student Agency and Voice, Meaningful, Student-Driven Assessment, Shared Vision for Learning/ Teaching, Real-World Experiences
    - **What does student support look like?**
            - How do peers support one another's work?
            - How do students indicate that they would like more support or a different learning opportunity?
                - What happens next?
    - **What does assessment look like?**
        - **Walk me through the process from student learning experience to formative feedback.**

            - How do students receive feedback? In what ways (on a paper, through an application, etc?)
            - What do students receive feedback on–for example, is it usually one skill/ standard/ competency at a time, or more?
            - What do students do once they've received feedback? … what happens next? … after that?
            - If a student has more to learn or grow before they have reached mastery, how would they go about doing that?
                - For example, do they receive 1:1 support, work on developing skills independently, or revisit those skills in another learning experience?
        - How do students understand, or track, their progress toward mastery?
            - Probe for: Timely support, Success pathways, Feedback for growth, Peer-peer feedback, exhibition & portfolio/ credit defense, Anywhere/anytime learning
        - ***If unclear*** – **How do students currently receive credits?**
            - How are competencies and crediting aligned/related?
            - Probe for clarity: SBG, CBE, or CBC.
        - *If it's a competency-based crediting model:* How do students earn credits for mastery?
            - For example – is there an application or portfolio process?
            - What has worked well in this process?
            - What has been challenging?
        - **How is learning communicated/ represented to students and their families?**
            - Is there a separate progress report and transcript?
            - *If relevant* – What alternative transcript do you currently use, or intend to use in the future?
            - Probe for - Progress report/ formative vs. Summative records

- **LEARNERS/ STUDENTS**
    - **How have students responded to this shift/ learning model?**
        - What have you heard them say?
        - How have outcomes changed?
        - What has been most challenging for them?
        - Probe for - Classroom experience, assessment experience, perception of credit process

- **RESOURCES, TECHNOLOGY**
    - **What systems do you use to support learning, assessment, and feedback?** This includes LMS and internal homemade systems.
    - **How well do the current systems work for you?**
        - To what degree do these systems support the process well?
        - What would you like the systems to do that they currently do not do?

- **STAKEHOLDER RESPONSE, NORMATIVE BELIEFS**
    - Moving to mastery learning entails shifts in how we measure and think about learning. How have **teachers and parents** adjusted to the shift?
        - How has the shift been received by the **community**?
        - Can you give an example of a challenging moment?
        - How have you navigated these moments?
    - Probe for: Board/ district support, assumptions, bias, stereotypes that are hidden in belief systems of traditional education

**Teacher Experience, Teacher Learning**

- **DAILY EXPERIENCE**
    - **Adjustment: How has your day-to-day work changed since you began teaching in this way?**
        - Change and adjustment are said to take time.
            - What has the adjustment process looked like for you?
            - Over what period of time?
            - What resources have been most helpful?
    - **In what ways do you have agency in your work? To what degree do you have the bandwidth and resources to innovate, or try new tactics, in your classroom?**
        - Can you provide an example of this?
        - Probe for: Autonomy, Risk-taking, Understanding of mastery learning and its benefits
    - **Describe the resources that have supported this change/ adjustment phase (planning, materials, guidance, training, timing).**
        - What has been most useful for you?
        - What are the most significant barriers (in your current state/phase)?
- **PROFESSIONAL LEARNING COMMUNITY**
    - **Describe how your teaching faculty work together to plan lessons, assessments, and other experiences aligned with the learning model. What do curriculum planning, collaboration, and problem-solving look like on a faculty level?**
        - How do you collaborate and share resources and expertise?
        - How do you tackle obstacles/barriers together?
    - How often do you collaboratively discuss obstacles and how to address them?
        - What feedback loops exist so that immediate changes can happen in your school to benefit students?
    - Have you used internal or external training?
        - If yes – How regularly do you receive training around aspects regarding the transition to mastery learning?
        - What about those training feels most meaningful/valuable?
    - Probe for: Collaborative decision making; Sensemaking/consensus building

- **SCHOOL REDESIGN/ CHANGE MANAGEMENT**
    - **Outside of this, what are your experiences with school redesign (or efforts to create systemic school change)?**
        - In your experience, what has worked best in these efforts?
    - **What has been your experience with this shift in practice?**
        - What has gone well?
        - What have been the greatest challenges?
        - What challenges were foreseen? Have any been surprising?
    - **What has made you feel most supported in this shift?**
        - What has been the level of support you have received at a school level to help you make this transition? District-level? State-level? Outside organization level (outside help)? How could support for teachers in your school and/or department be further enhanced?
    - Responding to challenge: Describe a situation where you encountered a significant barrier to implementation and how the teaching community responded.
    - Probe for: Existing beliefs about school change

- **ADVICE - If time –**
    - What **advice** would you have for someone who is currently planning to make the transition to mastery learning?
        - What are some key decisions they should make?
        - What are some key barriers they should expect or avoid?
        - Are there other potential difficulties you would like to share we haven't addressed?

**Conclusion**

**We appreciate your feedback and look forward to sharing our findings with you once our report is complete. You can reach us by email at any time should you have any comments, questions, or concerns. If you would like to stay on to ask questions, please feel free. If not, we thank you again for your participation and in helping us share your experiences so that we can help current and future schools transition to mastery learning. Many thanks!**

## Appendix J: Interview Protocol Template, Experts

The following protocol was used as a template to customize interviews with each expert. Each interview protocol included questions that align with the individual or organization's role and contributions to PCBE.

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**Interview Protocol: Experts**
Transitioning to Mastery Learning
Fall 2022

**Preamble**

- Explain purpose of study
    - The researchers–Megan and Ashley–are conducting this study as a capstone project in partnership with the Mastery Transcript Consortium.
    - Culminating research, Exploring a problem of practice
    - partnered with the MTC to better understand
    - Landscape analysis - schools across spectrum of implementation, across the US
    - We are seeking a deeper understanding of what the transition to mastery learning entails for different schools, what challenges are encountered, and what supports are helpful along the way.
- Explain confidentiality
    - All answers are confidential, which means that only the researchers – Megan and Ashley–are aware of participant names
    - Recording the conversation with the use of Otter.ai; it helps when we begin to write paper
- You are welcome to skip any question you'd prefer not to answer; just let us know if that's the case.

**Policy/ research agency questions:**

- What role has (this organization) played in the movement toward mastery learning?
    - *Ask follow-up questions – probe for specificity.*
        - *What have been the results of these efforts?*
        - *What have you learned about mastery learning, and what it takes to transition to it, along the way?*

- There is a lot of momentum in the transition to mastery learning across the country. We are interested in learning from various perspectives what helps with this transition as well as the common challenge faced on various levels.
    - What have you noticed about the challenges faced?
        - At state, district, or LEA (local education agency) level?
        - At school sites?

        - As general themes?
    - What have you noticed about support structures?
        - At state, district, or LEA (local education agency) level?
        - At school sites?
        - As general themes?

- The following are common challenges schools face when restructuring their school for mastery learning. In what ways have you seen practices or policy address these challenges?
        - Rigid time schedules
        - Rigidity in grade cohorts; lack of flexibility in “grade levels”
        - Reporting of student learning
        - Testing requirements and accountability systems

- In your perspective, how does PCBE align with the movement for equitable outcomes for all students?
    - What, in particular, needs to be paid attention to in order to ensure that innovation is happening with equity at the forefront?
    - I’d like to hear your insight on the way that barriers manifest in schools with high-needs, racially and/or socioeconomically diverse student populations. Are there particular challenges or barriers in these contexts? If so, what are they?

- From your perspective, what do you see as the biggest barrier to mastery learning at scale?

- What advice would you give schools in this domain on how to overcome barriers?

**Conclusion**

We appreciate your feedback and look forward to sharing our findings with you once our report is complete. You can always reach us by email at any time should you have any comments, questions, or concerns. If you would like to stay on to ask questions, please feel free. If not, we thank you again for your participation and for helping us share your experiences to help current and future schools transition to mastery learning. Many thanks!!

## Appendix K: School Sample Marked Across MTC Grade System Progression

This table indicates where schools are according to the MTC grade system progression. X's indicate this was observed either through document analysis or interviews. Question Marks indicate the research team's inference based on document analysis and interviews with the school.

| | | Chesterland | Pedstone | Horizons | Odyssey | Legacy | Jester | Kelsey | South Central | Mountain |
|---|---|---|---|---|---|---|---|---|---|---|
| Traditional/ Averaged course grades | Course grades include an average of homework, quizzes, papers, attendance, and behavior | | | | | ? | | | | |
| | Grades are assigned by a single teacher and could even be "on a curve" | | | | | ? | | | | |
| Traditional/ District reporting of Academic Proficiency | Course grades represent academic proficiency only | | | | | ? | | | ? | ? |
| | School-wide learning habits are explicitly taught/ assessed and may be reported separately | | | | | ? | | | ? | ? |
| Standard-based grades in courses | Course grades are based on student mastery of clearly defined, transparent standards | X | | | | ? | X | X | | |
| | Learning habits and behaviors (ex. organization and participation) are explicitly defined and practiced and may be reported separately. | X | | | | ? | X | X | | |
| Mastery credits | Mastery Credits are the well-defined skills and habits that fall within one of the high-level, transferable skill areas of your Graduate Profile. | | X | X | X | | | X | | |
| | All courses and school programs are designed to help students practice and demonstrate evidence of mastery of foundational and advanced credits through personalized learning | X | X | X | X | | | | | |
| | Foundational and advanced MCs earned and courses completed appear on learner's Mastery Transcript of ML Record or another mastery version report, based on mastery credit (not course completion) is used to represent learning.Students earn credit based on Mastery Credits instead of course completion. | ? | X | X | X | | | | | |

## Appendix L: Themes Across the Journeys to Learning Framework

The following chart represents the themes across the Challenges, Supports and Structures that emerged and how they appear across the JML Framework. The X's identify where the research team discerns the phase the challenge or support impacts the most. To conduct this analysis, we asked ourselves: *When will the challenge/support be encountered in the actions, practices, or discussions in that element of the design process? When will the outcome of that particular challenge or support be required in the design process?*

### Themes Across Challenges, Supports & Structures

| JML Framework | | Purpose & Vision | Graduate Profile | Learning Model | Alignment | Sustainability |
|---|---|---|---|---|---|---|
| Elements & Description | | Defining a Compelling Reason to Innovate | Creating a Vision of Success for all Learners | Clarifying How Learning and Teaching Will Change | Ensuring Culture and Structures Support Mastery Learning | Building Capacity to Sustain Change Over Time |
| Driving Question | | What is your compelling reason to innovate? | What will success look like for all learners? | How will learning and teaching need to change? | How do school culture, instruction, and structure function to support your learning model? | How will you build capacity to sustain changes over time? |
| **Building & Sharing a PCBE Vision** | | | | | | |
| *Generating Support & Managing Perceptions* | | | | | | |
| Challenges | Perceptions & mindsets among administrators, teachers, students | X | X | X | X | X |
| | Generating and managing support among stakeholders | X | X | X | X | X |
| | Shifting Mindsets | X | X | X | X | X |
| | Pacing for Change | X | | X | X | X |
| | Actions Diminishing PCBE on a Broader Scale | X | | X | X | X |
| Supports | Consistent, clear, and contextualized communication of the vision | X | X | X | X | X |
| | Surfacing fears & perceived barriers to change directly | X | X | X | X | |
| | Stakeholder events | X | X | | | |
| *Engaging Stakeholders in a Common Vision* | | | | | | |
| Challenges | Capacity to Engage Stakeholders | X | | X | X | |
| | Student recruitment | X | | X | X | X |
| | Student attrition | | | X | X | X |

| | | | | | | |
|---|---|---|---|---|---|---|
| Supports | Support and endorsement from key stakeholders | X | X | X | X | X |
| | Partnerships with entities for student learning | | X | X | | |
| | Partnerships with other schools engaged in similar work | X | X | X | X | X |
| **Capacity & Culture to Support a PCBE Vision** | | | | | | |
| *School-Level Influence* | | | | | | |
| Challenges | Onboarding New Staff | X | X | X | X | X |
| | Staff Retention | | | X | X | X |
| | Stability in Programming, Systems & Structures | X | X | X | X | X |
| Supports | *Professional Development* | | | | | |
| | In/external PD on learner-centered frameworks | | X | X | X | X |
| | PLCs/ structure for continuous learning | x | X | X | X | X |
| | Personalized learning for faculty | | X | X | X | X |
| | *Supports for Teachers* | | | | | |
| | Hiring: Clarity of vision & role | X | X | X | X | X |
| | Onboarding Practices | X | X | X | X | X |
| | Time for teacher collaboration | | X | X | X | X |
| | Mentoring and coaching | | X | X | X | X |
| | Collaborative classroom teaching | | | X | X | X |
| | Compensation & credentialing | | X | X | X | X |
| | *Faculty Culture* | | | | | |
| | Encouragement & safety to innovate | X | X | X | X | X |
| | Culture of continuous improvement | X | X | X | X | X |
| | Teacher agency & autonomy | X | X | X | X | X |
| | *Pedagogical & Professional Practices & Structures* | | | | | |
| | Supports for student transition | X | X | X | X | |
| | Schoolwide practices | | X | X | X | |
| | Team norming | X | X | X | X | X |

| State-Level Influence | | | | | | |
|---|---|---|---|---|---|---|
| Challenges | Policy Alignment | | | X | X | X |
| | Compliance within Existing Systems | | | X | X | X |
| | Support to Schools for Scaling Implementation | | | X | X | X |
| Supports | Policies | | | | X | X |
| | Validation & Praise | | X | X | | X |

## Appendix M: Schoolwide Survey

The survey, as seen below, was created and administered using Qualtrics.

### Introduction

**Transition to Mastery Learning**

**Capstone Study, Educational Leadership and Policy, Peabody College, Vanderbilt University**

As doctoral students in the Education, Leadership, and Policy program at Vanderbilt University, we are inviting you to participate in a capstone project about the transition to a Personalized, Competency-Based Education (PCBE), or mastery learning, model. We seek to find out what support is required for making the change to PCBE in a public school setting and to identify common barriers faced so that more schools can find success. This research is being conducted in partnership with the Mastery Transcript Consortium in fulfillment of our culminating doctoral work.

**Purpose**

Your participation will help contribute to our landscape analysis of the transition schools make to personalized competency-based learning. With your help, we hope to inform schools who will or who are making the transition to personalized competency-based education.

**Survey**

What is the name of your school?

Which of the following best describes your role?

- ○ Administrative Team Member (principal, director of curriculum, etc.)
- ○ Educator (works directly with students in an academic capacity)
- ○ Support Staff (couselor, advisor; works directly with students in a non-academic capacity)
- ○ Some combintion of the above

What grade levels do you teach? Please select all that apply.

- ☐ Elementary school
- ☐ Middle school
- ☐ High school
- ☐ I do not teach.

Which of the following are necessary supports or conditions in the transition to mastery?

| | Not necessary at all | Somewhat to very necessary |
|---|---|---|
| Professional development | ○ | ○ |
| Support for teachers | ○ | ○ |
| Teacher agency & autonomy | ○ | ○ |
| External partnerships | ○ | ○ |
| Stakeholder support | ○ | ○ |
| School culture | ○ | ○ |
| Building understanding of PCBE among stakeholders | ○ | ○ |
| Support for students in their first year | ○ | ○ |
| Pedagogical and professional practices | ○ | ○ |

Which of the following do you perceive as a challenge in the transition to PCBE?

| | NOT a challenge | A challenge |
|---|---|---|
| Staff and/or student retention and recruitment | ○ | ○ |
| Generating support for and managing perceptions of the transition | ○ | ○ |
| Capacity | ○ | ○ |
| Instruction | ○ | ○ |
| A common understanding about the transition | ○ | ○ |
| Resources | ○ | ○ |
| State level influence | ○ | ○ |

Professional development: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Internal or external professional development on learner-centered frameworks such as Universal Design for Learning, Project Based Learning | ○ | ○ | ○ | ○ | ○ |
| Internal professional learning communities (e.g. book study; discussions on assessment practices; other) | ○ | ○ | ○ | ○ | ○ |

Support for teachers: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Onboarding for incoming educators | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Mentoring and/or coaching for educators (teacher coach or mentor with CBE experience) | ○ | ○ | ○ | ○ | ○ |
| Co-teaching model | ○ | ○ | ○ | ○ | ○ |
| Additional compensation for extra work | ○ | ○ | ○ | ○ | ○ |

Teacher agency & autonomy: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Teacher autonomy in curriculum design | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Teacher participation and voice in school redesign process and problem solving | ○ | ○ | ○ | ○ | ○ |

External partnerships: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Speaking with and visiting other schools engaged in similar work | ○ | ○ | ○ | ○ | ○ |
| Partnerships with other schools engaged in similar work | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Partnerships with external organizations that support PCBE work | ○ | ○ | ○ | ○ | ○ |

Stakeholder support : For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Supportive parents/ parents trust the process | ○ | ○ | ○ | ○ | ○ |
| Validation or encouragement from the state level in the form of supportive communications, press, or otherwise | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Policies at state level that support innovation | ○ | ○ | ○ | ○ | ○ |
| Support from school-level admin | ○ | ○ | ○ | ○ | ○ |
| Support from district-level officials | ○ | ○ | ○ | ○ | ○ |
| Support from the superintendent | ○ | ○ | ○ | ○ | ○ |
| Support from school board members | ○ | ○ | ○ | ○ | ○ |

School culture: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Strong staff and faculty culture | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Culture of iteration; curriculum, practices, and structures are continuously improved | ○ | ○ | ○ | ○ | ○ |
| Student culture of restorative practices | ○ | ○ | ○ | ○ | ○ |
| Culture of embracing failure as a factor of innovation; educators feel supported in trying new methods and encouraged to fail forward as part of the redesign process | ○ | ○ | ○ | ○ | ○ |

Building understanding of PCBE among stakeholders: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Surfacing fears and barriers to change and addressing them directly | ○ | ○ | ○ | ○ | ○ |
| Strong vision and/or reason for pursuing this change that is well communicated | ○ | ○ | ○ | ○ | ○ |
| Stakeholder events (townhall meetings or other, with the purpose of gaining perspective and having a dialogue with external stakeholders) | ○ | ○ | ○ | ○ | ○ |
| Communications/ marketing department or team that produces media to build an understanding of the vision, purpose, and practice of PCBE in the school community | ○ | ○ | ○ | ○ | ○ |
| Student voice and engagement in the school redesign process | ○ | ○ | ○ | ○ | ○ |

Support for students in their first year: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Programming to support an "unschooling year" for students in their first year to support adaptation to competencies-based learning | ○ | ○ | ○ | ○ | ○ |
| Teaching first-year students strategies for self-directed learning | ○ | ○ | ○ | ○ | ○ |

Pedagogical and professional practices: For each of the following criteria that you have experienced, indicate how beneficial it has been in your own and your school's transition to PCBE.

| | I have not experienced this and I do NOT think it would be beneficial. | I have not experienced this, but I think it WOULD be beneficial. | Not beneficial | Somewhat beneficial | Very beneficial |
|---|---|---|---|---|---|
| Strong special education practices like Universal Design for Learning | ○ | ○ | ○ | ○ | ○ |
| Common, interdisciplinary proficiency rubrics | ○ | ○ | ○ | ○ | ○ |
| Ongoing team norming around what proficiency looks like | ○ | ○ | ○ | ○ | ○ |
| Collecting and using school data on culture to inform next steps/ iteration | ○ | ○ | ○ | ○ | ○ |

Staff & student retention & recruitment: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Teacher turnover | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Leadership turnover | ○ | ○ | ○ | ○ | ○ |
| Student recruitment | ○ | ○ | ○ | ○ | ○ |
| Teacher recruitment | ○ | ○ | ○ | ○ | ○ |
| Workforce diversity | ○ | ○ | ○ | ○ | ○ |
| Student retention | ○ | ○ | ○ | ○ | ○ |

Generating support & managing perceptions: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Managing community perceptions | ○ | ○ | ○ | ○ | ○ |
| Managing parent perceptions | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Internal and external stakeholder vision alignment | ○ | ○ | ○ | ○ | ○ |
| Relational work environment for faculty & staff | ○ | ○ | ○ | ○ | ○ |
| District policy | ○ | ○ | ○ | ○ | ○ |
| State policy | ○ | ○ | ○ | ○ | ○ |

Capacity: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Creating stability in programming, funding, systems and structures | ○ | ○ | ○ | ○ | ○ |
| Onboarding personnel | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| The school's capacity to engage stakeholders | ○ | ○ | ○ | ○ | ○ |
| Creating a culture of learning; staff understands what it is like to work together and collaborate | ○ | ○ | ○ | ○ | ○ |
| State's ability to support Schools in the transition | ○ | ○ | ○ | ○ | ○ |
| Workload | ○ | ○ | ○ | ○ | ○ |

Instruction: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| PCBE assessment literacy; Understanding and being comfortable with using a competency-based assessment approach | ○ | ○ | ○ | ○ | ○ |
| Having time allocated to plan Instruction | ○ | ○ | ○ | ○ | ○ |
| Adopting a design thinking approach in one's teaching practice | ○ | ○ | ○ | ○ | ○ |
| Create instructional content | ○ | ○ | ○ | ○ | ○ |
| Making PCBE fit within the state standards framework; determining when or how to align standards with competencies | ○ | ○ | ○ | ○ | ○ |

Common understanding about the transition: For each of the following criteria that you have experienced, indicate

how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Clear vision and purpose for making the change | ○ | ○ | ○ | ○ | ○ |
| Shared language and common understanding | ○ | ○ | ○ | ○ | ○ |
| Student readiness for PCBE | ○ | ○ | ○ | ○ | ○ |
| Student Motivation | ○ | ○ | ○ | ○ | ○ |
| Student Capacity to fully participate; anxiety and other stressors prevent students from being fully engaged | ○ | ○ | ○ | ○ | ○ |
| Lack of a benchmark for success | ○ | ○ | ○ | ○ | ○ |
| Teacher mindset shift in teaching and learning | ○ | ○ | ○ | ○ | ○ |
| Teacher clarity on academic program | ○ | ○ | ○ | ○ | ○ |

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Availability of meaningful professional development for teachers | ○ | ○ | ○ | ○ | ○ |
| Administrator mindset shift in necessary leadership competencies needed for a competency-based program | ○ | ○ | ○ | ○ | ○ |
| Students earning requisite credits by the end of their fourth year of high school | ○ | ○ | ○ | ○ | ○ |

Resources: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Lack of time for collaborating with staff | ○ | ○ | ○ | ○ | ○ |
| Lack of funding | ○ | ○ | ○ | ○ | ○ |
| Poor LMS software available for a competency-based education | ○ | ○ | ○ | ○ | ○ |
| School funding structures | ○ | ○ | ○ | ○ | ○ |
| Transportation available for learning activities off campus | ○ | ○ | ○ | ○ | ○ |
| Areas of the school schedule are rigid and do not allow for more flexible learning | ○ | ○ | ○ | ○ | ○ |

State-level influence: For each of the following criteria that you have experienced, indicate how challenging it has been in your school's transition to PCBE.

| | I have not experienced this and I do NOT think it is a challenge. | I have not experienced this, but I think it COULD be a challenge. | Not a major challenge. | Somewhat of a challenge. | A significant challenge. |
|---|---|---|---|---|---|
| Poor policy alignment in curriculum, assessment, and accountability structures | ○ | ○ | ○ | ○ | ○ |
| Compliance with existing systems | ○ | ○ | ○ | ○ | ○ |
| School funding models | ○ | ○ | ○ | ○ | ○ |

Is there anything else you would like us to know regarding your school's work in Personalized Competency-Based Education?

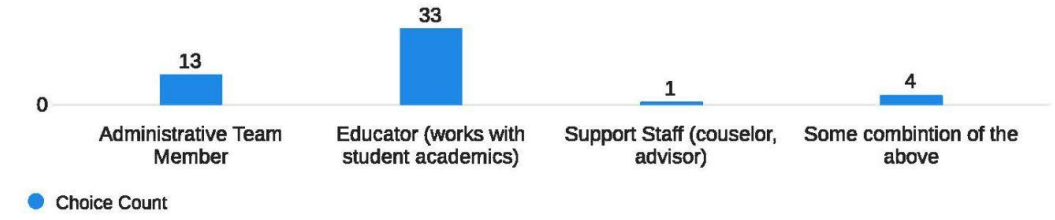
## Appendix N: Schoolwide Survey Results

The following depicts the survey results. The survey measured all respondents' perceptions of challenges and supports that surfaced in the first round of interviews. It also measured the respondents' perceived magnitude of challenge and support subthemes using conditional questioning. For each challenge and support that respondents identified as a beneficial or a barrier, they were asked to rank the relative magnitude of subthemes of the support/ challenge. The first section provides relevant demographic information regarding the respondents' roles. In total, 51 individuals from across the nine public schools (including 2 districts) completed the survey.

### Roles of Survey Respondents

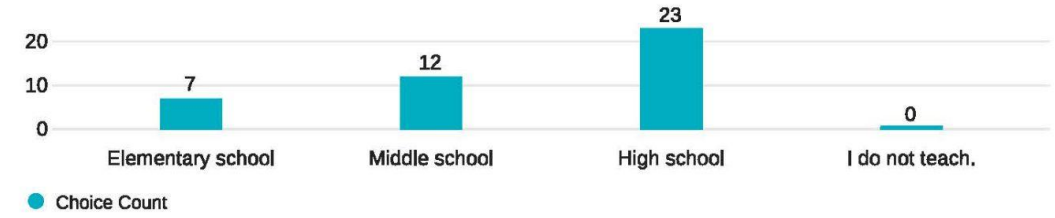
**Which of the following best describes your role?**

51 Responses




**What grade levels do you teach? Please select all that apply.**

37 Responses

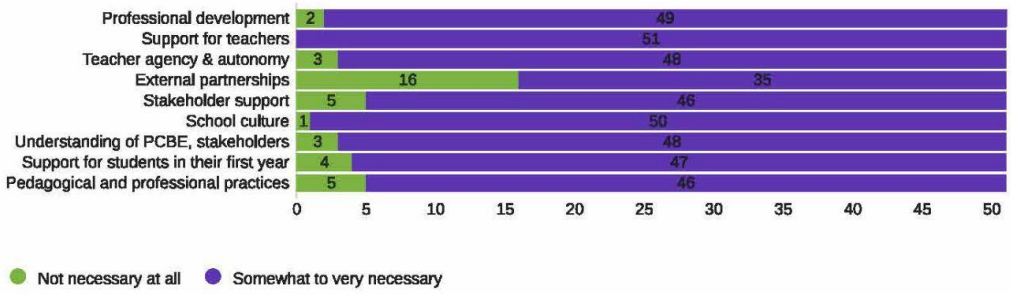


## Perception of Supports and Challenges in the Transition to PCBE

All respondents answered the following two questions. For all supports and challenges that they indicated were necessary or challenging, they were asked follow-up questions on the perceived magnitude of associated subthemes in a subsequent section.

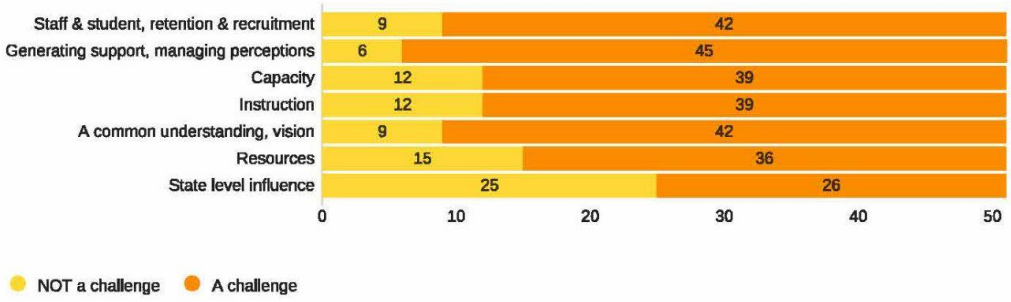
### Which of the following are necessary supports or conditions in the transition to PCBE?

51 Responses




### Which of the following do you perceive as a challenge in the transition to PCBE?

51 Responses

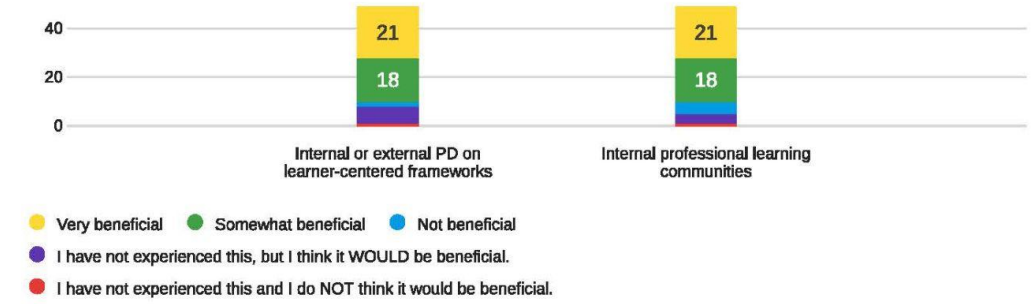


## Magnitude of Supports

For each of the following criteria, respondents indicated how beneficial it has been in their transition to PCBE. Note that these questions are conditional. Respondents only answered these questions if they indicated that the theme (for example, professional development) as a "somewhat to very" necessary support in a previous question.

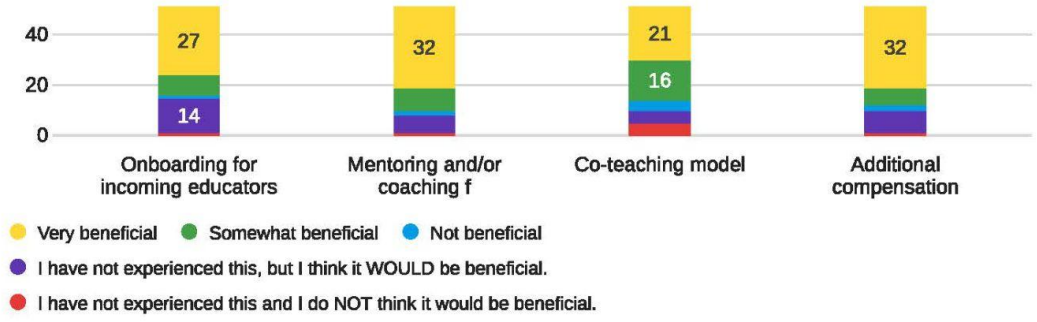
### Professional development

49 Responses



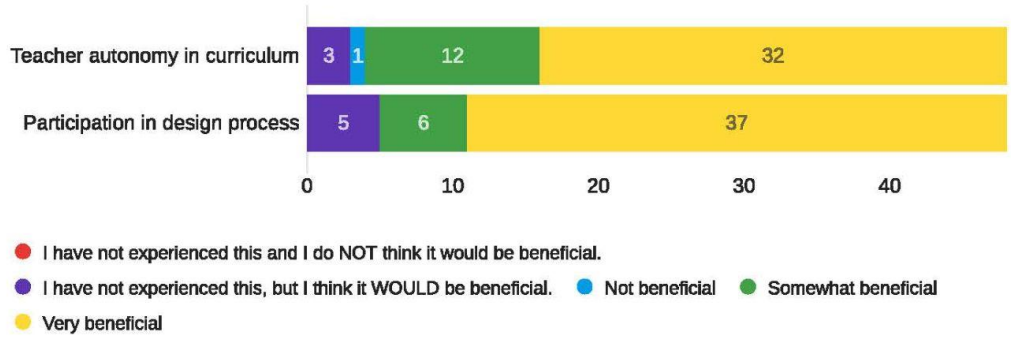

### Support for teachers

51 Responses



## Teacher agency & autonomy

48 Responses

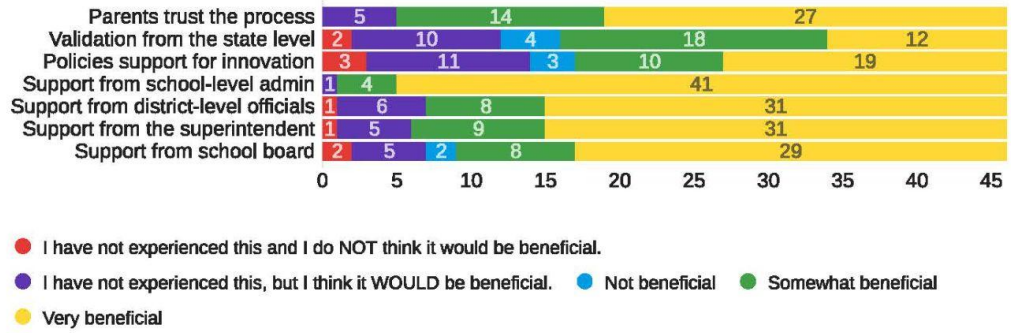



## External partnerships

35 Responses

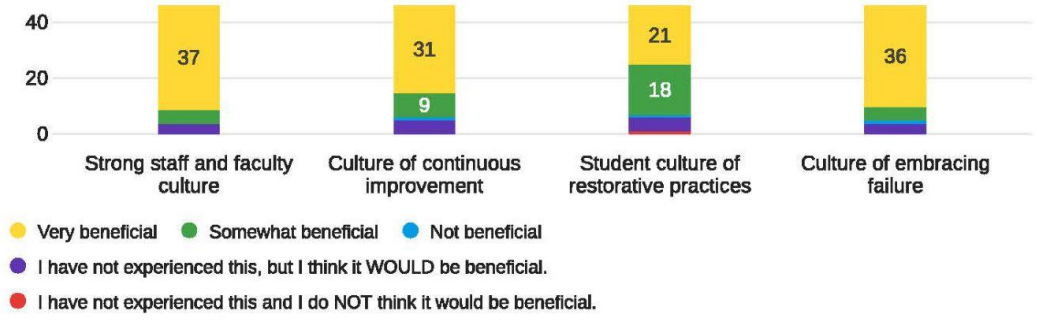

## Stakeholder support

46 Responses



## School culture

46 Responses

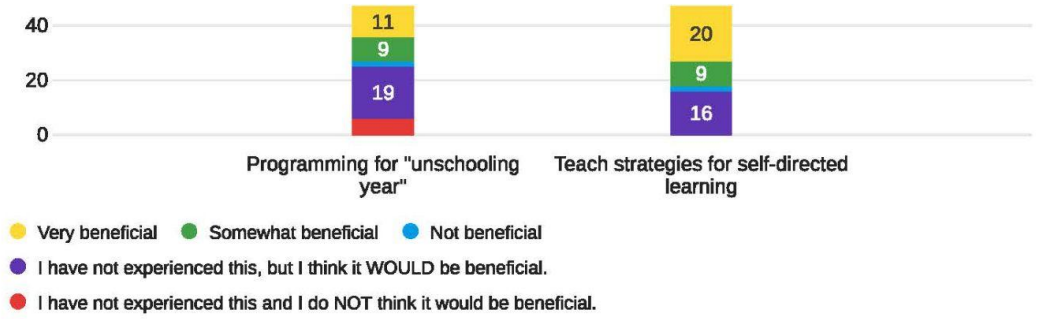



## Building understanding of PCBE among stakeholders

48 Responses

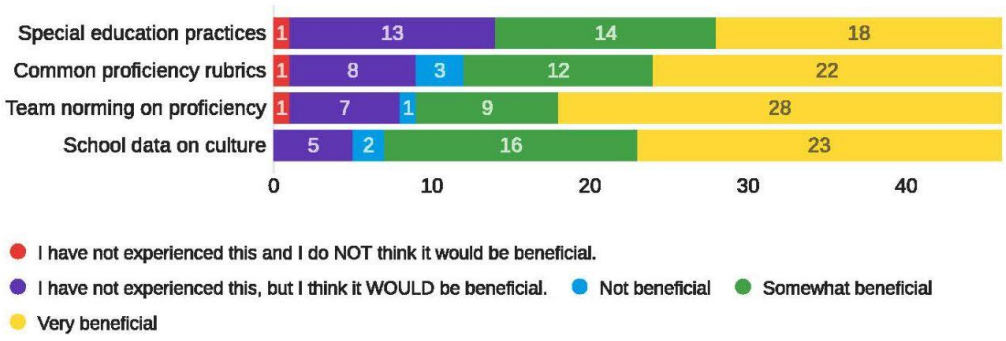

## Support for students in their first year

47 Responses



## Pedagogical and professional practices

46 Responses



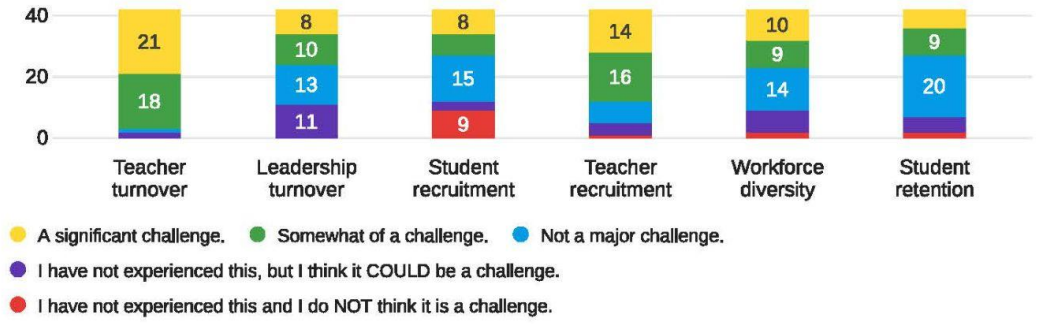

- I have not experienced this and I do NOT think it would be beneficial.
- I have not experienced this, but I think it WOULD be beneficial.
- Not beneficial
- Somewhat beneficial
- Very beneficial

## Magnitude of Challenges

For each of the following criteria, respondents indicated how challenging it has been in their transition to PCBE. Note that these questions are conditional. Respondents only answered these questions if they indicated that the theme (for example, staff and student retention and recruitment) as "a challenge" in a previous question.

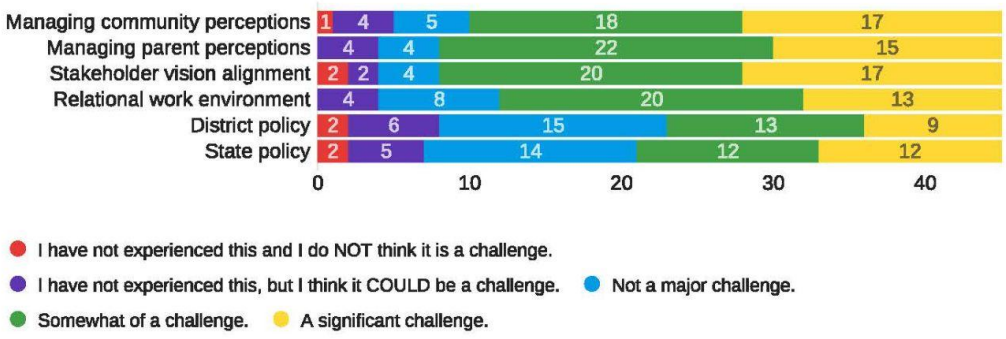
### Staff & student retention & recruitment

42 Responses



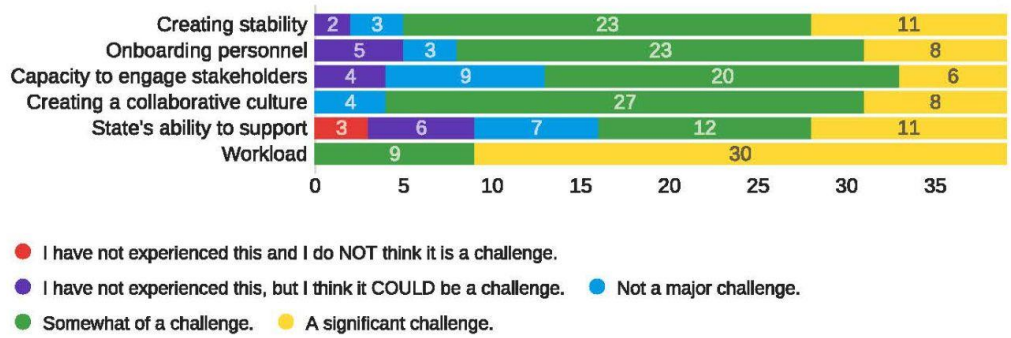

### Generating support & managing perceptions

45 Responses



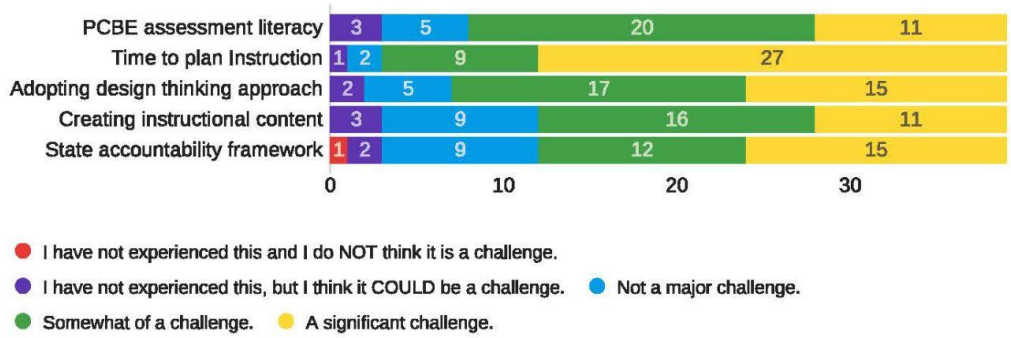
## Capacity

39 Responses



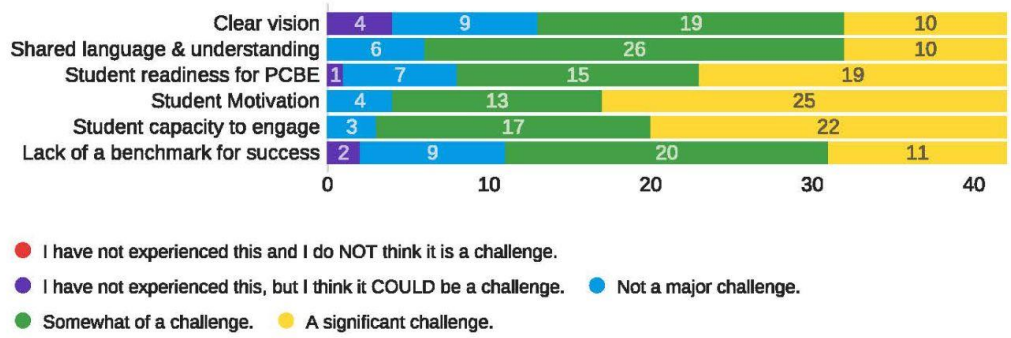

## Instruction

39 Responses



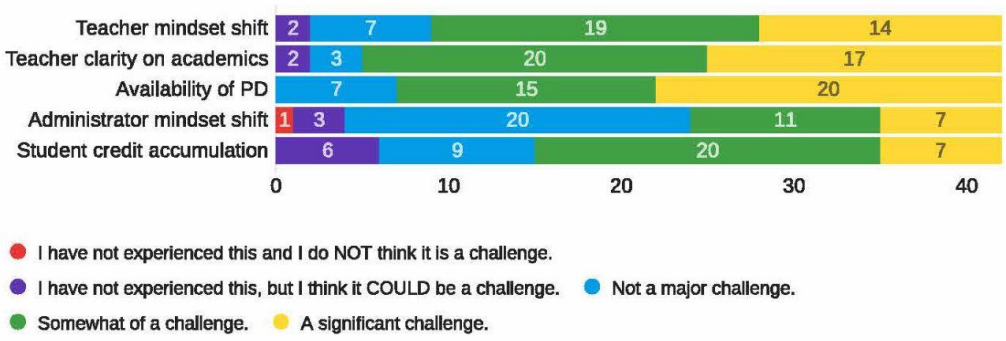

## Common understanding about the transition

42 Responses



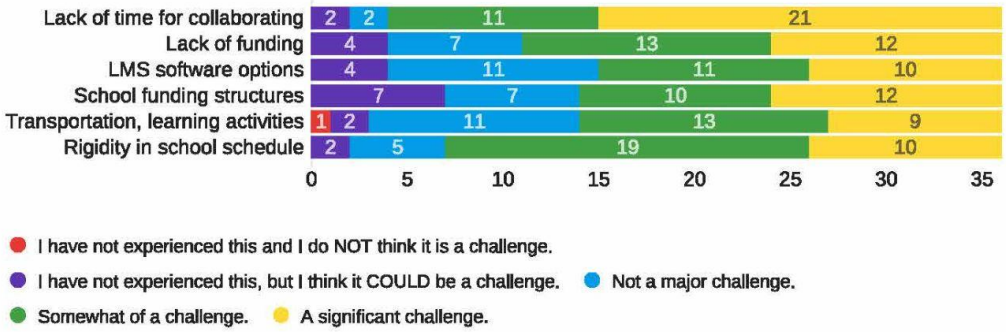
## Common understanding about the transition

42 Responses




## Resources

36 Responses




## State-level influence

36 Responses