Competency-Based Education Survey Instrument Report

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Education Policy Innovation Collaborative

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Section One: Introduction

Competency-based education (CBE) is a school-based practice of teaching and learning where students advance through the instructional system upon demonstrated mastery of content and skills as opposed to advancement upon fulfillment of a standard based on seat-time.

To support CBE, Michigan allocated funding through the Marshall Plan for Talent Development and Section 21j of the 2017-2018 and 2018-2019 School Aid Act, totaling more than $2 million in funds allocated over two years. Grants were allocated to seven 21j pilot districts to design and implement CBE programs. The Michigan Department of Education (MDE) approved instructional flexibility for these districts to properly implement CBE practices.

Michigan State University's Education Policy Innovation Collaborative (EPIC) partnered with the MDE to conduct a multi-year study in the 21j pilot districts. This mixed-methods study seeks to investigate the implementation and effectiveness of CBE in the 21j pilot districts using data from surveys administered to 21j district administrators, teachers, and students; interactions with CBE practitioners and school system leaders in Michigan; and conversations with the MDE. In this technical report, we explain the development of the surveys, their revisions, and report descriptive results and reliabilities from the 2020-21 administration of the survey.

Section Two: Data and Methods

The multi-year study of Michigan's implementation of CBE in K-12 schools included surveys of students, teachers, and administrators, administered during both the 2019-20 and 2020-21 school years.

SURVEY DEVELOPMENT

Survey development began with a literature review of CBE theory and implementation. Researchers used this review to develop the Theory of Change (discussed further in Section Three: Theory of Change). The Theory of Change contains core CBE components, intermediate outcomes, and long-term outcomes. We developed three surveys—student, teacher, and administrator—with sets of questions designed to measure these components and outcomes.

Once the Theory of Change was developed, the research team reviewed existing publicly available CBE surveys and developed a list of potential survey items for building administrators, teachers, and students. Researchers began validation of potential items using student cognitive interviews. Cognitive interviews helped determine whether the item objectives matched how students interpret the actual survey questions. The sample of students came from three schools, one elementary (n=9 students) and two high schools (n=17 students). Answers were then coded using proprietary coding criteria developed by Resonant Education. Researchers also conducted teacher focus groups using written feedback and verbal discussion to validate teacher survey items. Cognitive interview protocol and teacher focus group protocol can be found in Appendix A and Appendix B respectively.

Researchers used data from the cognitive interviews and focus groups to form the initial surveys. There are two versions of the student survey, a 4th through 8th grade survey and a 9th through 12th grade survey. The 4th through 8th grade survey contains certain items with language that accommodates for upper-elementary reading levels. The 9th through 12th grade survey contains additional questions pertaining to high

school and life after graduation. There is one version of the teacher survey and one version of the administrator survey.

Once the initial surveys were finalized, researchers grouped survey items into constructs based on the component or outcome in the Theory of Change the item was intended to measure. We further divided constructs into domains if a construct contained multiple sets of questions targeting specific aspects of a CBE component or outcome. For example, the "student relatedness" intermediate outcome contains eight questions on the student survey. All eight questions comprise the "student relatedness" survey construct. This construct is broken down into two domains, "teacher connection" and "peer connection," where four questions ask about students' relatedness to their teacher and the other four ask about their relatedness to their peers.

The initial surveys were administered to five 21j districts' building administrators, teachers, and students in 2020. After survey data was gathered, researchers ran Cronbach's alpha tests to measure the internal reliability of each survey construct. Researchers used this data to inform improvements to the surveys. Changes to the initial survey include removing extraneous survey items and adding items to capture aspects of schooling that relate to CBE but were particular to the challenges experienced in the 2020-21 school year. The final surveys were developed in 2020 and administered in 2021.

SURVEY ADMINISTRATION

Student surveys asked students to consider a specific course and teacher when responding to certain questions. Researchers rostered, or matched, students to courses and teachers before administering the surveys. The primary goal of survey rostering was to maximize the number of students rostered to core subject teachers—math, ELA, science, social studies, and traditional self-contained elementary teachers—by ensuring core subject teachers had one full class of students rostered to them. If it was not possible to assign an entire class to a core subject teacher, the secondary goal was to roster a minimum of 10 students to each core subject teacher. The third and final goal of the rostering process was to assign at least 10 students per non-core subject teacher. Researchers created and utilized a rostering methodology (see Appendix C) which ensured these goals were duly met.

Details of survey administration varied by district as researchers worked to accommodate for districts' varying schedules, survey type (paper vs. virtual), desired administration period, etc. but generally ran from November through January during the 2019-20 school year and January through March during the 2020-21 school year.

Researchers developed both an online and paper version of the student surveys. During the first year, the student surveys were primarily administered online, but due to technical difficulties, some districts switched to a paper version. To be accommodating during COVID-19, student surveys were administered according to the school or district preference the second year. All districts that administered 2020-21 student surveys through teachers or advisors received a $10 Amazon gift card as an incentive for taking the time to facilitate their students' participation. Participating schools were also eligible for $500 both school years in recognition of their efforts to administer the survey. Online surveys were sent to students via email from their teacher/advisor or posted as an assignment using the district's learning management system. Teachers gave paper surveys directly to their students. Teachers and advisors were given instructions on how to administer the survey and a prompt to read to in-person participants or email to virtual students. Students had one class period to take the paper survey. The administration period for the online surveys was two weeks, with optional two-week extensions as needed. Teachers collected paper surveys in manila envelopes and were instructed not to look at students' results. Researchers received online survey data directly. An example of student administration protocol can be found in Appendix D.

Five of the seven 21j pilot districts, 21 schools, participated in the survey. One district dropped out from the study before the second wave of survey administration during the 2020-21 school year.

SURVEY ANALYSIS

Analyses in this report include the survey response rates, item response frequencies, item discriminations, and construct and domain Cronbach's alpha scores for the 2020-21 iteration of student, teacher, and administrator surveys. We report these analyses by the eight core components of CBE, the intermediate teacher and student outcomes, and long-term outcomes.

Response Rates

As mentioned above, five districts participated in the survey in the 2019-20 school year and four districts participated during the 2020-21 school year. Despite the reduced number of districts and the ongoing COVID-19 pandemic, student and teacher response rates increased overall as shown in Table 2.1.

Table 2.1. Overall Survey Response Rates by Academic Year				
Survey Type	**2019-20**		**2020-21**	
	Surveys Administered	**Response Rate**	**Surveys Administered**	**Response Rate**
Student	8,410	60%	6,989	75%
Teacher	608	73%	514	79%
Administrator	42	70%	38	61%

Student Responses

The overall student response rates increased from the first wave of the survey (Table 2.1), which did experience technical difficulties that could have negatively affected response rates. However, with that acknowledgement, one possible explanation for this is the use of paper surveys during the second survey administration. In the two districts that employed both paper and online surveys, paper survey response rates were 23% higher in the first district and 30% higher in the second.

After the 2020-21 survey administration, researchers calculated response rates by department to display results from the rostering methodology (Appendix C). In elementary schools, departments are equivalent to the grade level of the self-contained classroom the student was rostered to (4th, 5th, and 6th grade, n=1,663). For middle and high schools, department refers to core subjects (math, ELA, science, and social studies, n=4,034) or non-core subjects (music, band, choir, physical education, foreign language, fine arts, or other, n=1,292). Response rates were highest in 4th grade (90%), 5th grade (90%), and 6th grade (87%) and were lowest in ELA (67%) and other (60%) department.

Table 2.2. 2021 Student Response Rates by Department		
Department	**Surveys Administered**	**Response Rate**
5th Grade	697	90%
4th Grade	625	90%
6th Grade	341	87%
Music, Band, Choir	30	87%
Math	1,005	76%
Science	874	75%
Physical Education	179	74%
Social Studies	994	73%
Foreign Language	286	70%
Fine Arts	136	68%
ELA	1,161	67%
Other*	661	60%

**The "Other" department includes subjects and classes not traditionally captured by the departments listed above. Examples of these classes are business, computer science, and engineering.*

Teacher Responses

Overall teacher survey response rates are reported by year in Table 2.1. The overall response rate increased by 6% from 2019-20 to 2020-21. Response rates increased in three of the four districts who participated in both years of survey administration. While teachers were given $10 Amazon gift cards during the 2020-21 school year to administer the survey to students, they were not specifically given monetary incentives to encourage participation in the teacher survey.

Table 2.3. Teacher Response Rates by School Level

Department	Surveys Administered	Response Rate
Elementary	224	68.7%
Middle	108	85.1%
High	182	86.8%

When looking at response rates by school level, elementary schools had noticeably lower response rates than middle and high schools (Table 2.3). One potential explanation for this is that elementary teachers in grades K-3 did not administer the student survey and therefore might have been less engaged with the overall survey administration. Evidence of this is shown in Table 2.4 with teachers in grades K-3 having a smaller response rate than teachers in 4th or 5th grade.

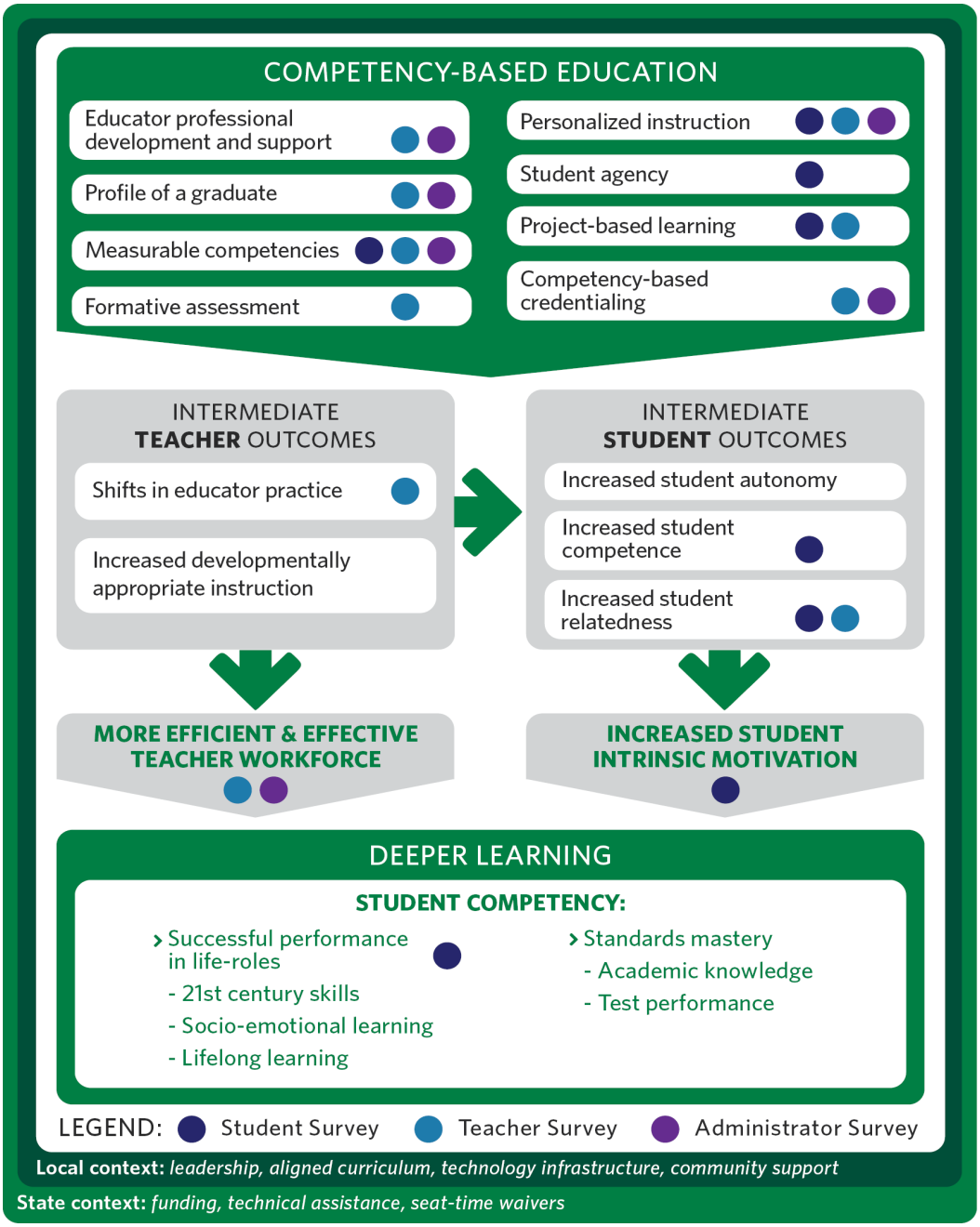
Table 2.4. Elementary Teacher Response Rates

Grade Level	Surveys Administered	Response Rate
4th-5th Grade	59	78%
Kindergarten-3rd Grade	125	65%

Section Three: Theory of Change

The Theory of Change includes eight key components which are supposed to lead to intermediate teacher and student outcomes and long-term outcomes, shown in Figure 3.1. This section defines the components and outcomes as laid out in the CBE literature.

Figure 3.1. Competency-Based Education Theory of Change



Note: Two intermediate outcomes, increased developmentally appropriate instruction and increased student autonomy, were not developed into constructs because items covering these areas overlap with CBE component constructs. Instead of developing multiple similar constructs, we presumed developmentally appropriate instruction could be investigated using questions from the personalized instruction construct. Likewise, increased student autonomy closely aligns with student agency, eliminating the need for an increased student autonomy construct.

EDUCATOR PROFESSIONAL DEVELOPMENT AND SUPPORT

Educator professional development and support is a critically important component of any educational reform that relies on changes to educator practice and is a particularly essential component of the shift to CBE (Evans & DeMitchell, 2018; Scheopner Torres et al., 2018). This component is unique from the other seven specific CBE components in our Theory of Change in that it is not identified as a component of the CBE reform itself in the CBE literature (e.g., Spady, 1977; Steele et al., 2014; Casey & Sturgis, 2018).

However, several elements of educator professional development and support are particularly critical to successful CBE implementation. First, professional development for all educators in the system—teachers, principals, and central office staff—must be ongoing in districts implementing CBE to keep pace with staff turnover and the tendency of teachers to lose a reform's vision and purpose over time (Colby, 2017). Second, CBE reform requires teacher support not only in content but also by freeing up time for teachers to develop competencies and assessments (Colby, 2017). CBE can be particularly demanding of teacher time. Instead of assessments and curriculum being district or state standards like in the traditional classroom, in competencies-based systems, these decisions are placed with educators or teams of educators (Scheopner Torres, Brett, & Cox, 2015). Given these specific aspects of CBE, Colby (2017) identifies teacher collaboration within and across subject/grade teams through professional learning communities as a key to successful CBE implementation.

PROFILE OF A GRADUATE

Profile of a Graduate is a district's vision of the qualities, skills, and dispositions that graduates from the district will possess. Districts establish their unique Profile of a Graduate as the starting point in developing competency-based systems, using it as the blueprint from which they backwards-design grade-level competencies aligned to standards. Although this practice is increasingly widespread in districts that are and are not implementing CBE, the conceptualization of this profile is particularly important in the process of establishing the competencies that students need to be eligible for graduation. The Great Schools Partnership (an organization that provides technical support and resources to states and districts) identifies these graduation competencies as fundamental in their CBE framework. Also, iNACOL, now the Aurora Institute, labels the development of the profile an important first step in the shift towards CBE (Patrick, Worthen, & Truong, 2017).

Spady (1977) provides further rationale for why the Profile of a Graduate is a central element in CBE. In the 1970s, stakeholders were skeptical about traditional education's ability to prepare students for the *life roles* of the era. Thus, a core aspect of CBE is a shift from the standards-based accountability system designed to produce the same discrete cognitive capacities in all students across school systems. Given this departure from the standards-based accountability, the Profile of a Graduate becomes the guiding document that functionally replaces curricular standards for instructional planning and delivery.

MEASURABLE COMPENTENCIES

Measurable competencies are the set of outcome statements a district identifies that articulate what students must be able to do to move on in an educational setting, be that advancing to the next concept, receiving a grade, or meeting the requirements of graduation. The nature and purpose of these competencies vary in practice and in the literature. There are two main approaches taken to developing competencies: Using the Profile of a Graduate as the foundation for competencies or aggregating academic standards into larger essential standards. The first approach represents a more dramatic reimagination of the purpose of schooling insofar as schools focus on developing the skills and dispositions necessary to succeed in the 21st Century. Disciplinary knowledge learning is still likely to be a component of such schools, but it is no longer the focus. The second approach is less radical, in that it maintains the transmission of academic knowledge and standards as the purpose of school while reimagining the instructional approaches necessary to bring students to competence in these standards.

There is some discrepancy in the literature as to the definition of competency. Spady and Mitchell (1977) narrowly define competency as the ability to successfully perform in the life-roles necessary for success in a given community and time, and Block (1978) defines competent students as students with the ability to interact in multiple environments in the socially-dictated and self-selected roles they encounter after graduation. However, Colby (2017) defines competencies, not in terms of life roles, but as grounded in standards and content.

How districts develop competencies varies based on their definition. Districts that see this as a shift in the purpose of education (e.g., Spady, 1977, Block, 1978) develop competencies aligned to their Profile of a Graduate. They might find ways to crosswalk academic standards, but this isn't the focus. Other districts, however, use the standards as the building blocks of their competencies and consider the Profile of a Graduate only peripherally. The distinction may help explain why some districts see

standardized testing as a barrier to CBE implementation while others do not, since Spady and Mitchell (1977) note that typical standardized assessments are particularly ill-suited to measuring life-role competencies.

Both conceptualizations share at least one key component, which is the consideration of transferability as a critical feature of competency. Colby (2017) stresses a competency's ability to "transfer content and skills across content areas" (p. 8), whereas Spady (1977, 1978) emphasizes students being able to transfer classroom learning into life-role contexts.

FORMATIVE ASSESSMENT

Formative assessment is a critical component of CBE systems (Colby, 2017; Scheopner Torres, Brett, & Cox, 2015). To provide personalization, it is important for teachers to engage in regular formative assessment to determine when a student can demonstrate competency. Formative assessment communicates back to students where they are in their learning, moving away from using assessments as a form of behavioral control over students (Spady, 1978). It is common in CBE or mastery learning that even summative assessment should be seen as formative, in that if students don't demonstrate competency on summative assessments, then they are allotted more time for learning (Slavin, 1987; Anderson & Burns, 1987; Spady, 1977). Formative assessments are essential in that a defining characteristic of CBE is the ability to efficiently cycle through learning, assessment, re-learning, and re-assessment (Spady, 1977).

PERSONALIZED INSTRUCTION

Personalized instruction[1] is a key component in most contemporary explanations of CBE (e.g., Colby, 2017; Bramante & Colby, 2012; Casey & Sturgis, 2018; Scheopner Torres et al., 2018; Ryan & Cox, 2017; Haynes et al., 2016; Brodersen et al., 2016; Stump, Doykos, & Fallona, 2016). Pane et al., (2015) identify three common elements of personalized instruction: 1) systems that "accelerate and deepen student learning

[1] We make the distinction between "personalized instruction" and "student agency" purposefully, even though some of the literature seems to consider the constructs together under the umbrella of broader terms like "personalization" or "personalized learning." We consider personalized instruction to incorporate teacher-led decisions to differentiate curriculum, instruction, pacing, etc. based on the needs of individual or groups of students. Student agency, on the other hand, signifies the opportunity for students to take control over pace, content, assessment and even the goals of their learning.

by tailoring instruction to each student's individual needs;" 2) "a variety of rich learning experiences that collectively prepare students for success for the college and career of their choice;" and 3) teachers expanding their role in "providing students with expert guidance and support to help them take increasing ownership of their learning" (pp. 2-3). In addition to the differentiation in content, Spady (1977) notes that there is also an important element of differentiation in timing (pace) and depth of instruction.

The most important aspect of personalized learning, according to most conceptualizations of CBE, deals with time. In CBE systems, all students are expected to become competent, while the amount of time needed to demonstrate competence varies from student to student. Personalized instruction may also involve students who demonstrate competency receiving a deeper level of instruction while other students work to gain competency. Personalized learning could incorporate more flexible student grouping, where groups of students receive different instruction based on their demonstrated competency.

STUDENT AGENCY

Another key feature of CBE is student agency (e.g., Haynes et al., 2016; Ryan & Cox, 2017; Casey & Sturgis, 2018). Student agency involves the choices that students can make about their own educational goals, learning, and the demonstration of that learning. Various scholars and CBE advocates label this concept as student ownership, student choice and voice, or student-centered learning (e.g., Gross, Tuchman, & Patrick, 2018; Spady, 1978; Colby, 2017). Each of these terms relates to student skills and autonomy to shape their own learning goals and experiences (Gross, Tuchman, & Patrick, 2018). Spady (1978) noted that competency-based systems increase the opportunity for students to exercise choice in how they go about pursuing the learning leading to competency, and how they demonstrate that competency, therefore allowing students in CBE systems to be active agents in the process as opposed to being passive.

Although we separate student agency from personalized instruction, it is relevant to note that some CBE theorists discuss learner agency inside the context of personalization (e.g., Colby, 2017). We portray agency in terms of decisions that students make about their learning and how they demonstrate it. We distinguish this from personalized instruction, which we understand to be a set of decisions that educators make to provide differentiated instruction, curriculum, and pacing to students as they progress towards common goals. Agency represents a philosophical shift in granting students the choices over pacing, assessment, and even the goals of schooling.

PROJECT-BASED LEARNING

Project-based learning is an approach that uses interdisciplinary projects that align with educational standards and allow students to demonstrate competence through performance. (Pane et al., 2015). Colby (2017) identifies project-based learning as an important characteristic of CBE schools and classifies it as a subset of "deeper learning opportunities." Projects are how students engage in learning in ways that encourage application of skills and often emphasize cross-subject application of those skills (Spady, 1977). Importantly to CBE, project-based learning provides teachers with meaningful opportunities for performance assessment. Accordingly, studies of CBE systems have identified project-based learning as an important element both of assessment design (Scheopner Torres et al., 2018) and student autonomy (Pane et al., 2015).

COMPETENCY-BASED CREDENTIALING

When implementing CBE systems, it is important to address competency-based credentialing. Many districts deciding to adopt CBE adjust how they give grades and transcripts to students (Spady, 1977). This may include alternative transcripts with lists of skills students have mastered rather than traditional grades. It may also include efforts to standardize grading practices across grades or content areas and align them with principles of CBE. CBE literature recommends, for example, weighting more recent learning evidence more heavily than past evidence, as *when* something was learned is less important than *that* it was learned (Colby, 2017; O'Connor, 2007). Spady (1977) notes that much of grading in traditional schools is confounded when grades reflect factors external to student competency (e.g., attendance, behavior, effort, seat-time). He goes on to argue that, "when any other criteria such as attendance and other means of compiling 'credit' are used as bases for record keeping and determining graduation status, a program is not fully competency-based" (p. 12).

Therefore, CBE districts may make changes to how they credential, when they credential, what is considered for the credential, and how they communicate that credential to the student and third-party institutions (Brodersen et al., 2016).

INTERMEDIATE TEACHER OUTCOMES

Implementing all or some subset of the eight elements of CBE described above does not guarantee improved student competency. Educators must substantially shift the way they engage with education if CBE reforms are to achieve their desired results.

Intermediate teacher outcomes include shifts in educator practice and increased developmentally appropriate instruction (as shown in Figure 3.1), which should lead to a more efficient and effective teacher workforce.

Shifts in Educator Practice

Implementing the core aspects of CBE requires fundamental changes in how teachers work, shifting from leading classes in a traditional style to facilitating students' learning through student-centered and personalized practices. These elements of CBE necessitate substantial shifts in educators' practices, as they learn to translate standards and content into competencies taught at varying paces and to differing degrees of depth. This may require shifts to practice in the form of increased cross-classroom, department, or grade collaboration; reconfiguring and reconceptualizing learning plans based on the specific students in the class and their own choices and competencies; and understanding how to develop formative assessments to accurately measure where students are and when and how to help them develop. These shifts in practice will likely include changes in teacher engagement and ownership (Sizer, 1984).

Increased Developmentally Appropriate Instruction

A second mechanism through which educators can translate CBE fundamentals into improvements in student outcomes is an increased focus on providing instruction that is appropriate to students' current developmental level. Vygotsky (1978) posited that students learn best when they learn within a "zone of proximal development." The zone of proximal development is the space between a student's actual developmental level (as defined by the student's current independent problem-solving ability) and the students' highest level of potential development (which is the highest level of problem solving the student is capable of with the guidance of an adult or collaboration with a more capable peer). CBE is designed to increase learning inside each student's zone of proximal development as teachers use formative assessments to differentiate instruction based on students' individual developmental levels. It may also increase zone of proximal development learning by increasing the number of situations in which students work with capable peers inside of the same zone of proximal development. Additionally, mastery learning researchers argue that even if instructors do not differentiate instruction, slowing instruction based on the needs of struggling learners can lead to learning gains for the whole class (Anderson & Burns, 1987).

More Efficient and Effective Teacher Workforce

Together, according to the Theory of Change, these shifts in teachers' practice and instruction will lead to a more efficient and effective teacher workforce for schools and

districts engaged in CBE. This happens directly through improved practice targeted squarely at individual students, but also indirectly as competency-based classrooms return control to teachers in curricular, assessment, and planning decisions, which may increase teacher engagement thus improving teacher retention and potentially enhancing CBE districts' reputation amongst teachers, enabling them to attract a more skilled teacher labor force. Given the proven import of quality teaching for student outcomes, these improvements in the teacher workforce lead to improved student competency.

INTERMEDIATE STUDENT OUTCOMES

As CBE is implemented and educators shift their practices and instruction, CBE should, in theory, shift the ways in which students learn and see improvements in student outcomes. Intermediate student outcomes include increased student autonomy, competence, and relatedness (as shown in Figure 3.1), which should promote students' intrinsic motivation.

Increased Student Autonomy

Autonomy refers to the need for individuals to feel a sense of volition in their behavior, which can be promoted through CBE practices (DeCharms, 1968). For example, Spady (1977) notes that CBE necessarily supports student autonomy by recognizing students as "active agents" rather than "passive recipients" in the educational system. Spady and Mitchell (1977) also posit that CBE systems support student intrinsic motivation by removing the use of grading as a mechanism to control students, shifting the focus of everyday learning activities to mastering learning outcomes. They further note in addition to naturally promoting student autonomy, the success of CBE inherently depends on students voluntarily adopting instructional goals as personally relevant and working collaboratively with teachers and peers to achieve these goals. Spady and Mitchell finally note that the most expansive conception of CBE allows students to adopt goals as their own and to actively co-construct the outcome goals of their own education.

Increased Student Competence

Competence involves a sense that one can be effective in important activities and obtain desired outcomes (White, 1959). Promoting student competence is fundamental to CBE systems, where achieving competence is viewed as the goal but the time needed to develop that competence is allowed to vary (Casey & Sturgis, 2018). Block (1978) defines competency in the context of CBE in terms of students "who can, and want to, interact effectively with the three kinds of environments posed by the

socially-ascribed, self-selected, and self-developed roles they face upon graduation from high school" (p. 13). In systems where students are given the time to develop mastery before moving on to other content, student success and competence precedes instructional progression, increasing the pace of learning in the long run (Kulik, Kulik, & Bangert-Drowns, 1990).

Increased Student Relatedness

Finally, the need for relatedness is met when one feels connected or important to others (Baumeister & Leary, 1995). CBE practice may be more supportive of students' sense of relatedness relative to traditional instruction. This can happen in multiple ways. First, the kinds of life-role outcome goals usually championed in CBE systems are more likely to require collaborative problem-solving and social skills (Spady, 1977). For example, project-based learning opportunities give students the opportunity to engage with peers in solving inter-disciplinary problems. CBE may also increase students' sense of relatedness to the teacher to the extent that teachers shift from whole class lecture-based instructional models to more personalized instructional models (Pane et al., 2015).

Increased Student Intrinsic Motivation

Satisfaction of these three needs (autonomy, competence, and relatedness) promotes intrinsic motivation (Ryan & Deci, 2000). Corpus, McClintic-Gilbert, and Hayenga (2009) suggest that intrinsic motivation can positively affect student success, and in turn success can support intrinsic motivation. In CBE, the Theory of Change shows that student engagement in learning activities will shift from being centered in external sources of motivation (e.g., rewards or punishments the environment provides) to more internal (i.e., engagement arising from the students themselves). The goal of increasing student engagement is pervasive in the CBE community.

OUTCOMES OF CBE

Finally, the Theory of Change outlines the *deeper learning* outcomes that CBE districts hope to achieve by implementing CBE in lieu of more traditional educational approaches. Critical to our Theory of Change, these longer-term deeper learning outcomes can only be achieved with the generation of a more efficient and effective teacher workforce, increased student motivation, and the associated shifts in instructional and learning practices discussed above.

Deeper Learning

Implicit in our Theory of Change is the notion that the shift to CBE approaches can benefit students and improve learning outcomes. These outcomes are components of *deeper learning,* which is a term for the skills, disposition, and knowledge students must have to succeed in jobs and civic life in the 21st century (William and Flora Hewlett Foundation, 2013). We frame these outcomes as competency, mirroring the language of CBE. According to the Theory of Change, CBE, when implemented fully, may increase student competency in two ways: (1) increasing their competence to succeed in post-graduation life (Spady, 1977) and (2) becoming more competent in and achieving mastery of the specific academic standards (i.e., performance on state tests).

Successful Performance in Life Roles

Successful performance in life roles may mean different things to different schools depending on the needs and values of communities (Spady, 1978. These specific local graduation competencies are outlined in districts' Profile of a Graduate documents. MDE's Portrait of a Graduate document highlights socio-emotional learning, technology skills, communication/collaboration, argument/reasoning, and problem solving.

Standards Mastery

Standards mastery reflects the kinds of academic knowledge reflected in academic standards (e.g., Common Core State Standards, Next Generation Science Standards). This kind of learning is traditionally measured and reported through state standardized tests and accountability systems.

The student learning outcomes of CBE systems may vary depending on the approaches of an individual district. As discussed earlier, districts may exclusively prioritize life-role competency or standards mastery in their design of competency statements. Some districts may use a hybrid approach. We expect these differing approaches to lead to differences in student outcomes. In some districts, students might improve their life-role competencies at the expense of standards mastery. In others, student academic performance may improve as measured by standardized tests, but students may be no better prepared with the skills necessary to succeed in 21st century roles. It also is possible that students in competency-based schools may improve outcomes in each of these areas.

Section Four: Student Survey

This section will cover the components of the Theory of Change that are addressed in the 2020-21 student survey, which include: measurable competencies, personalized instruction, student agency, project-based learning, intermediate student outcomes, and outcomes of CBE. These are found in the nine survey constructs shown in Table 4.1.

Table 4.1. Student Survey Constructs and Reliability Statistics

Survey Construct	Number of Items	Cronbach's Alpha
Personalized Instruction	13	0.758
Measurable Competencies	3	0.693
Project-Based Learning	8	0.716
Student Agency	7	0.792
Self-Efficacy	2	0.826
Relatedness	8	0.861
Intrinsic Motivation	6	0.850
Critical Thinking	7	0.731
Communication	2	0.780

Note: Item response frequencies may not add up to 100 percent due to rounding.

PERSONALIZED INSTRUCTION

Domain 1: Personalized Content

To what extent do the following statements describe what you think about this class?

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
My teachers consider my interests when deciding what I will work on.	10%	34%	35%	21%	1.400	0.666
My teacher and I decide together what I will work on in this class.	25%	36%	24%	16%	1.048	

Domain 2: Personalized Rigor

To what extent do the following statements describe what you think about this class?

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
If the work is too easy, my teacher will find a way to give me a challenge.	18%	35%	30%	18%	1.058	0.528
Most of the activities in this class are challenging, but not too challenging to complete.	4%	22%	40%	34%	1.048	

Domain 3: Personalized Learning

During this class period, how often do you spend time doing the following activities?

	Never	Less than once per month	At least once per month	At least once per week	Every day	Discrimination	Alpha
Meeting with my teacher to decide what I will work on individually	35%	22%	18%	18%	7%	0.819	0.709

Working on a project or assignment with a group of students	33%	17%	21%	20%	8%	0.650	
Working with a teacher one-on-one	36%	25%	20%	15%	5%	0.916	
Working with a teacher in a small group of students	45%	18%	15%	15%	7%	0.769	
Working with my teacher as a whole class	7%	3%	5%	18%	67%	0.542	

Domain 4: Technology Use

During this class period, how often do you spend time doing the following activities?

	Never	Less than once per month	At least once per month	At least once per week	Every day	Discrimination	Alpha
Work on a project or assignment using a computer or tablet	6%	5%	10%	24%	54%	0.312	0.687
Use technology to learn about new topics or skill areas (for example, watch an educational video online)	5%	7%	15%	36%	38%	0.479	
Use technology to let me move ahead to the next unit, topic, or skill area in a course, even if it is before other students	19%	11%	16%	25%	29%	0.563	
Use technology to help me catch up on a unit, topic, or skill area that I haven't finished yet	45%	18%	15%	15%	7%	0.769	

MEASURABLE COMPETENCIES

Domain 1: Articulated Outcomes						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I know what knowledge and skills I will need to demonstrate in this class.	2%	16%	39%	43%	1.237	0.694
I know exactly what I need to learn to get a good grade in this class.	2%	12%	33%	53%	1.207	
I have to master specific knowledge and skills in order to advance to the next topic.	6%	26%	39%	29%	0.936	

PROJECT-BASED LEARNING

Domain 1: Project-Based Learning						
To what extent do the following statements describe what you do during this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
Most of my time in this class is spent working on a project by myself.	15%	34%	29%	22%	0.158	0.717
I can take ideas I have learned in other classes and use them on my projects in this class.	13%	36%	30%	21%	0.158	
My grade in this class is determined mostly from the projects I work on.	10%	30%	35%	26%	0.502	

The projects I work on in this class also count towards my grades in other classes.	66%	17%	10%	8%	0.608	
I learn in this class by completing projects.	13%	37%	29%	21%	0.949	
I have opportunities to choose how to show my teachers what I have learned.	8%	26%	35%	32%	1.380	
My teacher sets the guidelines for the projects I work on in this class.	4%	15%	37%	45%	0.938	
I know exactly what I am trying to learn when I work on projects in this class.	4%	21%	38%	37%	1.508	

STUDENT AGENCY

Domain 1: Choice Pacing

To what extent do the following statements describe what you think about this class?

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
I can move ahead to the class work if I am ready before other students.	14%	29%	29%	28%	0.786	0.570
I can take extra time to finish a topic or unit if I need to, even if other students have already moved ahead.	9%	33%	32%	27%	0.978	

Domain 2: Choice Goals

To what extent do the following statements describe what you think about this class?

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
I get to set my own goals for my learning in this class.	11%	31%	31%	27%	1.185	

Domain 3: Choice Content						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
In this class, I get to choose what topics I want to study.	50%	33%	12%	6%	0.955	

Domain 4: Choice Depth						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I get to choose the extent to which I investigate each topic.	24%	41%	24%	12%	1.015	

Domain 5: Choice Assessment						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I can decide when I am ready to take an assessment.	48%	30%	14%	8%	0.680	

Domain 6: Choice Learning Activities						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I am able to choose what learning activities I do in this class.	44%	38%	13%	6%	0.951	

INTERMEDIATE STUDENT OUTCOMES

Increased Student Autonomy

Domain 1: Self-Efficacy/Learner Confidence						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I am certain I can master the skills taught in class this year.	4%	21%	36%	39%	1.615	0.826
There are many things in this class that I can do well.	3%	17%	34%	46%	1.525	

Increased Student Relatedness

Domain 1: Teacher Connection						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
My teacher tries to understand how I am feeling.	8%	25%	31%	37%	2.127	0.869
My teacher cares about me.	3%	15%	24%	58%	2.285	
My teacher wants me to do my best work.	1%	5%	18%	77%	1.945	
My teacher cares if I am successful.	2%	9%	23%	66%	2.002	

Domain 2: Peer Connection						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I enjoy working with other students in this class.	11%	22%	28%	39%	1.148	0.805
Students in this class care about each other.	8%	33%	32%	26%	1.428	
Students share their ideas with each other about what they are working on during class.	13%	30%	31%	25%	1.428	
My classmates and I have opportunities to give each other feedback.	18%	30%	26%	25%	1.312	

Increased Student Intrinsic Motivation

Domain 1: Interest

Please indicate how true each of the following statements is for you.

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
I get bored in this class (REVERSED).	16%	15%	42%	26%	1.252	0.796
The things we learn in this class are interesting to me.	11%	32%	35%	22%	1.867	
I like how we learn in this class.	8%	24%	33%	35%	2.179	

Domain 2: Effort

Please indicate how true each of the following statements is for you.

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
I try my best in this class.	2%	11%	31%	56%	1.353	0.620
I try harder in this class because it is interesting to me.	17%	30%	28%	24%	1.770	

Domain 3: Perceived Value

Please indicate how true each of the following statements is for you.

	Not at all true	Somewhat true	Mostly true	Very true	Discrimination	Alpha
What I am learning in this class is important to know in life.	11%	30%	27%	32%	1.555	

OUTCOMES OF CBE

Successful Performance in Life Roles

Domain 1: Problem Solving						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I know where to go for help with a problem in school.	3%	13%	30%	53%	1.308	0.598
I get the help I need with assignments before they are due.	7%	26%	35%	33%	1.512	
If it is difficult for me to get an assignment done on my own, I know strategies I can use to get the work finished.	11%	28%	36%	25%	1.163	

Domain 2: Critical Thinking						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
In this class we have to figure things out instead of being told exactly what to do.	21%	39%	26%	13%	0.441	0.632
My teacher asks me to explain how I get my answers.	11%	29%	31%	28%	0.846	
My teacher asks questions in class that really make me think.	7%	33%	38%	21%	1.411	
My teacher wants us to use our thinking skills, not just memorize things.	4%	19%	34%	42%	1.485	

Domain 3: Communication						
Please indicate how true each of the following statements is for you.						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
I have had opportunities in this class to present what I have learned to other students.	16%	36%	28%	20%	1.513	0.780
This class has helped me learn how to explain my ideas to others.	16%	36%	28%	21%	2.014	

Section Five: Teacher Survey

The components of the Theory of Change that are covered in the teacher survey are: professional development opportunities, Profile of a Graduate, measurable competencies, formative assessment, personalized instruction, project-based learning, competency-based credentialing, intermediate teacher outcomes (i.e., shifts in educator practice, more efficient and effective teacher workforce), and intermediate student outcomes (i.e., increased student relatedness). These are found in the 10 survey constructs shown in Table 5.1.

Table 5.1. Teacher Survey Constructs and Reliability Statistics

Survey Construct	Number of Items	Cronbach's Alpha
Professional Development	22	0.945
Profile of a Graduate	1	-
Formative Assessment	8	0.783
Personalized Instruction	12	0.826
Measurable Competencies	3	0.322
Project-Based Learning	9	0.871
Competency-Based Credentialing	3	0.719
Shifts in Educator Practice	20	0.671
More Efficienct and Effective Workforce	6	0.852
Relatedness	3	0.732

Note: Item response frequencies may not add up to 100 percent due to rounding.

EDUCATOR PROFESSIONAL DEVELOPMENT AND SUPPORT

Domain 1: Professional Development Opportunities

Please indicate how often you received each of the following supports this school year.

	Did not receive	Less than once per month	At least once per month	At least once per week	Almost every day	Discrimination	Alpha
Time to work with a mentor or coach	40%	20%	22%	11%	7%	0.212	0.683
Release time to observe other teachers	83%	10%	5%	1%	1%	0.075	
Observation of and feedback on a lesson by another teacher	78%	16%	4%	2%	1%	0.220	
One-on-one meeting with an administrator to discuss my teaching	36%	55%	7%	1%	1%	0.132	
Work in common planning groups, PLCs, or cohort-based professional development group	7%	26%	46%	15%	7%	0.597	

Domain 2: Professional Development Satisfaction

	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied	Discrimination	Alpha
Overall, how satisfied are you with the professional development and support you received this school year?	10%	26%	56%	8%	0.749	-

Domain 3: Professional Development Focus							
How useful were the following topics in your professional development this year?							
	Not at all useful	**Somewhat useful**	**Mostly useful**	**Very useful**	**Not addressed**	**Discrimination**	**Alpha**
Setting personalized learning goals for students	14%	31%	19%	11%	26%	2.689	0.964
Strategies to challenge your high-achieving students	16%	27%	15%	8%	35%	2.783	
Strategies to support low-achieving students	10%	34%	28%	13%	15%	2.434	
Strategies for teaching [socio-emotional skills/non-academic skills and behaviors]	10%	35%	23%	20%	13%	1.400	
Implementing Learning Management Systems (e.g., Blackboard)	13%	32%	22%	22%	10%	1.063	
Learning new approaches to instruction	12%	31%	25%	15%	16%	2.527	
Differentiating instruction	13%	32%	25%	10%	19%	3.358	
Using assessment data to identify my students' learning needs	16%	27%	23%	14%	20%	2.621	
Classroom management	15%	23%	23%	11%	28%	3.008	
Teaching state standards	18%	25%	16%	10%	31%	3.077	
Project-based learning	17%	27%	17%	10%	29%	2.891	
Scaffolding instruction and assignment	14%	25%	24%	12%	25%	3.712	
Integrating technology to facilitate learning	9%	28%	28%	26%	9%	1.453	
Strategies for promoting student autonomy over their learning (e.g., executive functioning)	13%	28%	26%	14%	20%	2.401	
Developing performance assessments	18%	28%	19%	10%	25%	2.598	

PROFILE OF A GRADUATE

Domain 1: Profile of a Graduate							
	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**I don't know**	**Discrimination**	**Alpha**
My district has a clear vision of what students should know and be able to do upon graduation from high school.	7%	14%	58%	21%	0%	0.536	-

FORMATIVE ASSESSMENT

Domain 1: Formative Assessment						
How important are the following assessment practices to your instruction?						
	Not at all important	**Somewhat important**	**Important**	**Very important**	**Discrimination**	**Alpha**
Have students make a presentation.	20%	34%	36%	10%	0.216	0.784
Have students formally assess their own work.	11%	34%	41%	15%	0.238	
Have students assess their peers' work.	25%	45%	26%	4%	0.193	
Meet individually with students to discuss their academic progress in your course.	4%	22%	39%	34%	0.269	
Have students take a practice test or quiz to see if they are ready to take a final exam or assessment.	16%	30%	37%	17%	0.353	
Review students' progress in completing a long-term project.	16%	21%	37%	25%	0.355	

Review a students' results of a computer-based assessment/software.	22%	38%	27%	13%	0.289	
Students taking diagnostic tests.	29%	36%	24%	10%	0.167	

PERSONALIZED INSTRUCTION

Domain 1: Personalized Pacing

Rate your level of agreement with each of the following statements about your instruction:

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
Students can move on to the next topic, unit, or competency area along with their classmates regardless of whether they achieved mastery.	10%	51%	31%	8%	0.160	0.224
Students who show that they understand a topic, unit, or competency area can move ahead of other students.	8%	30%	51%	11%	0.323	
Students continue to work on a topic, unit, or competency area until they have shown mastery of it.	5%	28%	57%	10%	0.676	

Domain 2: Personalized Content

Rate your level of agreement with each of the following statements about your instruction:

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
Students are provided the opportunity to choose several topics they work on in class.	9%	32%	50%	9%	0.309	-

Domain 3: Personalized Rigor

Rate your level of agreement with each of the following statements about your instruction:

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
I know when to give each student more challenging material.	3%	11%	65%	20%	0.172	0.646
For each student, I understand which learning objectives in this course are more difficult for them.	3%	11%	67%	20%	0.084	
I frequently adapt course content to meet students' needs by providing additional supports.	2%	5%	60%	33%	-0.017	
All students are required to complete the same assigned coursework.	7%	45%	44%	5%	-0.054	

Domain 4: Personalized Assessment

Rate your level of agreement with each of the following statements about your instruction:

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
I work individually with each student to determine how he or she will demonstrate mastery of learning targets.	10%	33%	46%	11%	0.129	-

Domain 5: Personalized Learning Experiences

Rate your level of agreement with each of the following statements about your instruction:

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
During class, I often provide students with more than one learning activity that they can choose from.	7%	29%	49%	15%	0.379	0.719

I give a wide range of assignments, matched to students' needs and skill level.	7%	28%	55%	11%	0.139	

Domain 6: Classroom Layout						
Rate your level of agreement with each of the following statements about your instruction:						
	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Discrimination**	**Alpha**
Students in this class have access to flexible learning environments (adaptable for use of resources such as staff, space, time, and technology).	9%	24%	49%	17%	0.370	-

MEASURABLE COMPETENCIES

Domain 1: Articulated Outcomes						
Please indicate how often you use the following practices in your classroom [for the selected course].						
	Never	**Some of the time**	**Most of the time**	**Always**	**Discrimination**	**Alpha**
I require students to show that they understand a topic before they can move on to a new topic.	10%	44%	37%	9%	0.320	0.366
Students are given a set of specific learning targets, competencies, or proficiencies for the course.	2%	15%	37%	46%	0.168	

Domain 2: Measurable Competencies					
	Not true	**True**	**Not sure**	**Discrimination**	**Alpha**
My school has a written set of learning objectives that articulate the skills and knowledge students are expected to have mastered in each grade and subject area.	12%	67%	21%	0.148	-

PROJECT-BASED LEARNING

Domain 1: Project-Based Learning						
Please indicate how often you use the following practices in your classroom [for the selected course].						
	Never	**Some of the time**	**Most of the time**	**Always**	**Discrimination**	**Alpha**
Students work on projects that combine more than one subject (for example, science and math).	19%	52%	24%	4%	0.126	0.872
I assign projects that extend over several weeks or months.	30%	49%	15%	6%	0.045	
Students work on projects with a small group of classmates (team projects).	22%	61%	15%	2%	0.249	
I integrate my instruction into students' project work.	14%	46%	31%	10%	0.272	
My students' projects are driven by open-ended questions.	17%	46%	30%	7%	0.194	
There are real world applications and context to my projects.	6%	32%	40%	21%	0.316	
The goal of projects I assign is to emphasize process and product.	10%	32%	40%	17%	0.350	
I design the focus and deliverables for each project.	12%	34%	38%	16%	0.171	
Please indicate how often you use the following practices in your classroom [for the selected course].						
	Never	**Some of the time**	**Most of the time**	**Always**	**Discrimination**	

Student projects are an important factor in their overall grade in this class.	11%	26%	46%	17%	0.161	

COMPETENCY-BASED CREDENTIALING

Domain 1: Competency-Based Credentialing						
To what extent do the following statements describe what you think about this class?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
Students at this school have to master specific competencies [skills, knowledge, abilities] in order to graduate from high school.	16%	24%	32%	28%	0.332	0.719
What students learn in this class counts towards a credential/degree/certificate/license/badge.	31%	18%	23%	28%	-0.024	
Students' [report cards/transcripts] show the [credentials/licenses/certificates/badges] they earned.	25%	20%	26%	28%	0.090	

INTERMEDIATE TEACHER OUTCOMES

Shifts in Educator Practice

Domain 1: Time	
During a typical class, for what percentages of the time do you utilize the following activities with students? [Time must add to 100%].	
	Percent
Delivering instruction to the entire class or a large group (more than 10 students)	35%
Delivering instruction to small groups (2-10 students)	17%
Working one-on-one with individual students	15%

Supporting students as they use software or other digital content for learning	9%
Administering assessments (e.g., tests, quizzes)	7%
Using technology-based systems to customize support for students	9%
Communicating with students and families about their basic needs and resources	7%

Domain 2: Autonomy

How much actual control do you have in your classroom over the following areas of your planning and teaching?

	No control	A little control	Moderate control	A great deal of control	Discrimination	Alpha
Selecting instructional materials (e.g., textbooks)	20%	26%	19%	35%	0.125	0.804
Selecting content, topics, and skills to be taught	21%	28%	23%	28%	0.095	
Determining the criteria used to determine students' grades	13%	26%	28%	33%	0.019	
Disciplining students	2%	13%	44%	42%	0.153	
Determining the amount of homework to be assigned	4%	6%	24%	67%	0.250	
How I use my time within my classroom	2%	11%	32%	55%	0.184	
To what extent do you agree with the following statements?						
	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Discrimination**	
I have the freedom to teach the way I want to teach.	6%	17%	49%	28%	0.247	

Domain 3: Teacher Collaboration Across Subjects and Grades							
On average per week, including planning time and outside of school hours, how often do you collaborate with other teachers to do the following:							
	Never	**Less than once per month**	**At least once per month**	**At least once per week**	**Every day**	**Discrimination**	**Alpha**
Design lessons/units across subject areas/departments	22%	24%	22%	23%	10%	0.277	0.821
Work in common planning groups or Professional Learning Communities (PLCs)	8%	24%	41%	22%	5%	0.505	
Ensure our curriculum is aligned across grade levels	26%	43%	19%	8%	4%	0.465	
Design lessons with the right level of challenge for our students	18%	27%	23%	19%	13%	0.222	
Design assessments	23%	32%	27%	14%	4%	0.268	

Domain 4: Teacher Collaboration to Reconfigure Learning Plans/Assessments/Curriculum						
	Very little	**Some**	**Most**	**Almost all**	**Discrimination**	**Alpha**
How much of the learning materials used in your classroom did you curate on your own?	19%	24%	23%	33%	0.163	-

More Efficient and Effective Teacher Workforce

Domain 1: Teacher Satisfaction

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
Overall, I enjoy working in this school.	2%	10%	51%	38%	0.377	0.771
The expectations for teachers in this school are realistic.	9%	26%	50%	15%	0.414	

Domain 2: Teacher Sense of Support

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree	Discrimination	Alpha
I feel supported by my colleagues.	1%	3%	53%	43%	0.121	0.794
I receive adequate support from my school's administrators.	7%	17%	53%	23%	0.398	
I feel respected by the principal.	2%	7%	42%	49%	0.299	
The principal at this school is an effective manager who makes the school run smoothly.	2%	13%	42%	42%	0.310	

INTERMEDIATE STUDENT OUTCOMES

Increased Student Relatedness

Domain 1: Peer Connection						
How true are the following statements?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
Students in this class care about each other.	1%	6%	69%	24%	0.086	-

Domain 2: Teacher Connection						
How true are the following statements?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**Discrimination**	**Alpha**
Students in this class respect me.	0%	2%	61%	37%	0.110	0.631
I can tell when something is bothering a student.	0%	2%	55%	43%	0.076	

Section Six: Administrator Survey

The administrator survey addressed the following components of the Theory of Change: educator professional development and support, Profile of a Graduate, measurable competencies, personalized instruction, competency-based credentialing, and intermediate teacher outcomes. These are found in the six survey constructs shown in Table 6.1.

Note that due to a limited sample size (n=22), we were unable to calculate the discrimination factor for the administrator survey.

Table 6.1. Administrator Survey Constructs and Reliability Statistics

Survey Construct	Number of Items	Cronbach's Alpha
Professional Development	10	0.712
Profile of a Graduate	2	0.429
Personalized Instruction	6	0.590
Measurable Competencies	4	0.328
Competency-Based Credentialing	2	0.046
More Efficient and Effective Workforce	8	0.834

Note: The administrator survey does not include item discrimination due to an insufficient number of survey responses. Item response frequencies may not add up to 100 percent due to rounding.

EDUCATOR PROFESSIONAL DEVELOPMENT AND SUPPORT

Domain 1: Professional Development Opportunities						
Indicate which of the following types of professional development and supports for teachers are part of your school's professional development plan for the year.						
	Did not provide	**Less than once per month**	**At least once per month**	**At least once per week**	**Every day**	**Alpha**
Mentorship and coaching	5%	18%	55%	23%	0%	0.7665
Release time to observe other teachers	27%	59%	14%	0%	0%	
Observation of and feedback on a lesson by another teacher	36%	50%	14%	0%	0%	
Observation of and feedback on a lesson by an administrator	14%	64%	23%	0%	0%	
One-on-one meeting with an administrator to discuss their teaching	14%	73%	9%	5%	0%	
Common planning time (formally scheduled) with other teachers	9%	9%	23%	59%	0%	
Access to a professional learning community to discuss concerns or engage in instructional planning with other teachers	5%	24%	48%	24%	0%	

Domain 2: Professional Development Focus						
	Never	**Less than once per month**	**At least once per month**	**At least once per week**	**Every day**	**Alpha**
How often do administrators in your school meet with teachers one-on-one to discuss their instructional practice?	5%	77%	18%	0%	0%	0.019
	Yes	**No**				
Have you received any formal training on competency-based education practices in the past two years?	68%	32%				

PROFILE OF A GRADUATE

Domain 1: Profile of a Graduate						
How true are the following statements?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**I don't know**	**Alpha**
My district has a clear vision of what students should know and be able to do upon graduation from high school.	0%	0%	40%	60%	0%	0.429
Students at this school have to master specific competencies [skills, knowledge, abilities] in order to graduate from high school.	10%	20%	20%	50%	0%	

PERSONALIZED INSTRUCTION

Domain 1: Personalized Pacing

Rate your level of agreement with each of the following statements about your school's instructional practices:

	Strongly disagree	Disagree	Agree	Strongly agree	Alpha
Students can move on to the next topic, unit, or competency area along with their classmates, regardless of whether they achieved mastery.	0%	36%	64%	0%	-

Domain 2: Personalized Credit

Rate your level of agreement with each of the following statements about your school's instructional practices:

	Strongly disagree	Disagree	Agree	Strongly agree	Alpha
Students can earn credit for courses or activities they take outside of school (e.g., summer courses, college courses, volunteer opportunities).	18%	32%	50%	0%	0.635
Students can earn course credit for doing an independent study (i.e., an educational activity customized for an individual student and supervised by a teacher).	10%	20%	50%	20%	
Students can earn credit by completing an online course (in lieu of an in-person course).	0%	0%	40%	60%	
Students can earn credit by completing an internship.	0%	20%	60%	20%	
Students can earn credit by completing a job shadow experience.	20%	20%	60%	0%	

MEASURABLE COMPETENCIES

Domain 1: Mastery

How true are the following statements?

	Not at all true	Somewhat true	Mostly true	Very true	I don't know	Alpha
My [school/district] has a written set of [learning objectives/standards] that articulate the skills and knowledge students are expected to have mastered in each [grade and subject area, course].	5%	5%	32%	59%	0%	0.112
Students can move on to more advanced content whenever they have mastered the material.	14%	45%	27%	14%	0%	

Domain 2: Articulated Outcomes

How true are the following statements?

	Not at all true	Somewhat true	Mostly true	Very true	I don't know	Alpha
The amount of credit students earn in each class is primarily based on the amount of seat time (class hours) required per semester.	21%	26%	21%	32%	0%	0.009
Students must demonstrate that they have met ALL required course-specific learning targets to pass and get credit.	14%	23%	32%	32%	0%	

COMPETENCY-BASED CREDENTIALING

Domain 1: Competency-Based Credentialing						
How true are the following statements?						
	Not at all true	**Somewhat true**	**Mostly true**	**Very true**	**I don't know**	**Alpha**
Our school offers courses where students can earn credits that count towards a professional certificate or licensure (e.g., dental assistant, automotive servicing, certified nurse assistant).	40%	20%	10%	30%	0%	0.046
High school graduates' transcripts include information on the [credentials/licenses/certificates/badges] they earned.	78%	22%	0%	0%	0%	

INTERMEDIATE TEACHER OUTCOMES

More Efficient and Effective Teacher Workforce

Domain 1: Teacher Support					
To what extent do you agree with the following statements?					
	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Alpha**
There is an atmosphere of trust and mutual respect within this school.	0%	14%	55%	32%	0.431
Teachers receive the support they need to be successful with their students.	0%	5%	82%	14%	

Domain 2: District Support

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree	Alpha
I receive adequate support from district leadership in my role as a school leader.	5%	5%	82%	9%	0.545
My school receives sufficient resources to successfully implement our vision for instruction.	5%	18%	73%	5%	

Domain 3: Staff Capacity

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree	Alpha
Teachers in this school work hard to make sure all students are learning.	5%	5%	62%	29%	0.851
Teachers in this school have high expectations for all students.	5%	5%	68%	23%	
Teachers in this school are prepared to effectively implement the competency-based education program.	9%	27%	59%	5%	
Our school has adequate staffing to effectively implement the CBE program.	5%	32%	50%	14%	

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Appendix A: Cognitive Interview Protocol

STUDENT COGNITIVE INTERVIEW PROTOCOL

1. Greet the student upon his or her arrival. Once the student is seated, read the following statement:

   Today I'll be asking you some questions about one of your teachers. The reason we are doing this is to make sure we have good questions on this survey. No one will know your name or the name of the teacher you are answering this about. If you do not want to participate or if you do not want to answer any of the questions you do not have to and we can stop at any time. We will be recording your answers so we can go back and improve the survey questions. Do you have any questions before we begin?

2. At this point, instruct the student to read each item aloud. Say:

   a. **Ok, let's begin. I would like you to answer questions about _____ _____.** (Insert relevant teacher position.). **Now I would like you to read the first question out loud.** (Note: you should start with question #1. If the previous student did not get through all of the items, you can start at the next one on the list they didn't get to.)

      i. Make a note if they have any trouble reading the item (hesitation, reads a word wrong, etc.).

3. Once they have finished, ask the following questions after each item:

   a. What do you think this statement means?

      i. Note: If student says "I don't understand the question" or "This doesn't make any sense" or something similar, follow-up questions are not required. You could probe to say, "What

part of the question didn't make sense?" or "What part of the question could we change to make it easier to understand?"

ii. If student uses the majority of the item as their response, you can follow up with "Can you say that in a different way?" or "Can you say that in your own words?"

b. Can you describe an example of what this looks like in your school?

i. Note: Student may describe adequate examples in question a.) If so, this question is not needed.

c. How would you answer this question?

d. Please explain why you chose that answer.

Probe: Can you tell me a little more about why you chose that answer?

Probe: How many times per week does the teacher do this?

4. Continue asking about as many survey items as possible within 30 minutes.

5. When finished, thank them for their participation and either escort them back to class or release them.

Appendix B: Teacher Focus Group Protocol

TEACHER FOCUS GROUP PROTOCOL

Focus Group Procedures

1. Introduce the project and provide basic background info on the survey development process.
    a. We are creating a customized survey… (insert desired info about survey).
    b. We are looking for teacher input to make sure we have the right questions.
    c. Survey is being administered this spring.
2. Give out the survey feedback document and read the script below.
3. Once the group is finished with the survey feedback document, go through the group questions on the items listed in Section 1.
4. Be sure to collect the survey feedback document from all participants after the discussion.

Script for Step 2: *There are 3 columns on your survey feedback document. The first column lists the items that have been created. The second column is for you to add in any notes or feedback you have about how well the item fits the instruction that happens within your school. The final column is for you to add in any notes, edits, or feedback about the wording of the item (e.g., It is not clear, I would say it like this…) that can help improve it.*

Section 1: Group Questions on Items

1. What items did you feel were not a good fit with the instruction that takes place within your school?
2. What were some of the revisions you noted that would make the item easier for teachers to understand?
3. What else would like for us to know as we create and administer the survey?

Appendix C: Survey Sampling Methodology

2021 COMPETENCY-BASED EDUCATION STUDENT SURVEY ROSTERING METHODOLOGY

Executive Summary

Basis Policy Research (Basis) requested data elements from school districts participating in the 2021 Competency-Based Education Survey. Basis gave districts a template in Excel and were asked to return data in long form. Basis used this information to roster, or assign, students to one class and teacher to reference throughout the survey.

The primary goal of survey rostering was to maximize the number of students rostered to core subject teachers—math, ELA, science, social studies—and traditional self-contained elementary teachers, by ensuring core subject teachers had one full class of students rostered to them. If it was not possible to assign an entire class to a core subject teacher, the secondary goal was to roster a minimum of 10 students to each core subject teacher. The third and final goal of the rostering process was to assign at least 10 students per non-core subject teacher.

A total of 391 4th through 12th grade teachers were eligible for student assignment. Of those, 329 teachers (84%) were assigned least one student and 63 teachers (16%) were assigned none. displays the number and percent of teachers with no students rostered by department.

Table D.1. Number and Percent of Teachers with No Students

Department	Total Teachers	Teachers With No Students Rostered
Other	62 (16%)	22 (6%)
Music, Band, Choir	15 (4%)	11 (3%)
Physical Education	18 (5%)	8 (2%)
Fine Arts	13 (3%)	7 (2%)

English Language Arts	56 (14%)	5 (1%)
4th Grade	32 (8%)	3 (1%)
Foreign Language	15 (4%)	2 (1%)
Math	52 (13%)	2 (1%)
Science	39 (10%)	1 (0%)
Social Studies	43 (11%)	1 (0%)
6th Grade	16 (4%)	0 (0%)
5th Grade	30 (8%)	0 (0%)
Total	**391 (100%)**	**63 (16%)**

Prioritizing core-subject teachers in rostering led to higher coverage in student responses for teachers in core subjects compared to non-core subjects.
displays coverage rates in both rostering and responses. The data reveal higher percentages of teachers with 10 or more responses for core subjects than non-core subjects, with the exception of foreign language.

Table D.2. Teacher Coverage Rates

Department	Total Teachers	Teachers with 10+ Rostered Students	Teachers with 10+ Student Respondents
5th Grade	30	30 (100%)	30 (100%)
6th Grade	16	15 (94%)	15 (94%)
4th Grade	32	28 (88%)	28 (88%)
Social Studies	43	39 (91%)	37 (86%)
Foreign Language	15	12 (80%)	12 (80%)
Math	52	43 (83%)	40 (77%)
Science	39	34 (87%)	27 (69%)
English Language Arts	56	44 (79%)	37 (66%)
Fine Arts	13	5 (38%)	5 (38%)
Physical Education	18	6 (33%)	6 (33%)
Other	62	21 (34%)	17 (27%)
Music, Band, Choir	15	1 (7%)	1 (7%)
Total	**391**	**278 (71%)**	**255 (65%)**

Rostering Process

Basis tested five different rostering methods using a school's roster before deciding to use the following five-step process for all participating high schools, with exception of one. This particular school sent a completed roster with students already assigned

to one course, eliminating the need for Basis to assign students to teachers and courses. A separate process was necessary for high schools, middle schools, and elementary schools to ensure smooth administration of the survey.

High School Rostering Process

Step 1. Clean data. Data was first cleaned to ensure there were no issues that would require Basis to send a follow-up data request to districts. We then removed courses which typically do not or cannot employ CBE practices from the roster. This helped increase the percentage of rostered students to core subjects. Courses removed include, but are not limited to, dual enrollment and college courses, advisory course periods, study halls, shop courses, physical education courses, and play and theatre courses.

Step 2. Roster all students to their teacher and class in the survey administration class period. Basis or districts chose one class period at each school to administer the survey. All students who had an eligible course (i.e., not removed from Step 1) during this period were added to the roster. Table D.3 shows the number of students rostered during this step. Students without a class during this period, or students who were not rostered due to their course being removed in Step 1, were rostered in Steps 3, 4, and 5.

Table D.3. Number of Students Rostered in Step 2

	Students	Rostered
All High Schools	2,650	(79%)

The method for selecting the administration course period was different for each district. For one high school, who administered the survey asynchronously online, Basis selected the class period when the most students had CBE courses. One district administered the survey synchronously online and the rostered course matched the survey administration course period. Two districts administered both paper surveys synchronously and online surveys asynchronously. Both districts selected a single course period for paper administration during which paper and online students were rostered to their teacher from that class period.

Some students who took the survey on paper in-person were in classes removed during Step 1. Those students still took the survey at the same time as everyone else but were asked questions about a different teacher and course than the one they were in.

Step 3. Roster remaining students to teachers with less than 10 students currently rostered. Step 3 attempts to roster the remaining students to teachers who were

assigned less than 10 students in Step 2. This step mainly applied to teachers with a prep hour, lunch break, or small class during the selected administration period. For every teacher with less than ten students rostered to them, their class period with the most not-yet-rostered students was selected and all not-yet-rostered students in that period were assigned to the teacher.

Step 4. Randomly roster students to teachers based on the number of students taught. Step 4 begins by counting the not-yet-rostered students' left over after Steps 2 and 3. Teachers not yet assigned 10 students are assigned students in this step based on the percent of not-yet-rostered students they teach. The teacher with the highest percentage of students remaining is assigned their students first, then the second highest percentage, and so on until there are no matches remaining.

For example, there may be 20 students not yet rostered, who have two eligible classes each, and 3 teachers with less than 10 students rostered. Teacher A teaches 15 (80 percent) of the students between the remaining classes, Teacher B teaches 5 (20 percent), and Teacher C teaches 5 (20 percent). Since Teacher A teaches the highest percent of remaining students, Teacher A is assigned 15 students. Teacher B is assigned 5 students and Teacher C is assigned none because there are no students remaining. This scenario assumes the five students assigned to Teacher B were not assigned to Teacher A as one of their 15. There is a possibility Teacher B and Teacher C's students were first assigned to Teacher A. In this case, Step 5 is needed.

Step 5. Assign all remaining students to their first class. In Step 5, not yet rostered students are assigned to their first teacher and course of the day not removed by Steps 1-4. These students' teachers were all assigned more than 10 students in Step 2. Less than 10 students from each high school were assigned during this step.

Middle School Rostering Process

Step 1. Clean data. Data was first cleaned to ensure there were no issues that would require Basis to send a follow-up data request to districts. In the two larger districts, we removed courses that do not employ CBE practices, such as physical education and music classes. For the smaller district, we kept all classes to provide adequate coverage of all teachers.

Step 2. Roster students based on class period. Each district with a middle school selected to administer the survey synchronously during one class period. We rostered students to the teacher and course they had during this period.

Over 75% of middle school students were rostered during Step 2.

Step 3. Roster remaining students to teachers with less than 10 students currently rostered. Step 3 attempts to roster the remaining students to teachers who were assigned less than 10 students in Step 2. This step mainly applied to teachers with a prep hour, lunch break, or small class during the selected administration period. For every teacher with less than 10 students rostered to them, their class period with the most not-yet-rostered students was selected and all not-yet-rostered students in that period were assigned to the teacher.

Step 4. Assign remaining students to their first class. Remaining students were assigned to their first teacher and course of the day. These students' teachers were all assigned more than 10 students in Step 2.

Elementary School Rostering Process

Step 1. Clean data. Data was first cleaned to ensure there were no issues that would require Basis to send a follow-up data request to districts.

Step 2. Roster students to their nuclear classes. Elementary students were assigned to their self-contained classroom teacher. Unlike the middle and high schoolers, elementary students were only asked to respond to questions about their teacher and not a specific class or subject.

Appendix D: Survey Administration Protocol

ADMINISTRATION PROTOCOL: COMPETENCY-BASED EDUCATION STUDENT SURVEY

Michigan State University's Education Policy Innovation Collaborative (EPIC) is conducting this survey to study how districts across Michigan are implementing competency-based education (CBE) practices. Results of this survey will be used to provide technical assistance to the Michigan Department of Education (MDE) and local school districts. EPIC partners with Basis Policy Research (Basis) to assist with survey creation and administration.

This document outlines the administration protocol for the 2021 Competency-Based Education Student Survey.

All students must complete this survey by **Friday, February 5th**.

Thank you in advance for making this survey a success!

Survey Administration Protocol

1. In your first hour class, please hand out the surveys to the student listed on the top of the first page. Then, read the *Student Survey Instructions* document aloud to the class before they begin.

2. If there is not a name-labeled survey for a particular student or the student is no longer in the course listed on their survey, please have them complete a generic survey. If needed, there are additional generic surveys in the CBE survey box where you picked up your classroom's survey folder.

3. If any students are absent on the day the survey is administered, please be sure to have them complete the survey at an appropriate time prior to the above

deadline. Note, students who are learning virtually this semester will be given an online survey.

4. When finished, please place the completed surveys into the folder labeled "completed" and return it to the CBE survey box to await pick up. Student survey responses are confidential and should not be viewed by any school staff.

Again, thank you for your help in making the 2021 Competency-Based Education Survey a success. We would like to make this process as easy as possible for you. Please direct any questions you may have to helpdesk@basispolicyresearch.com.