



POLICY BRIEF

Competency-Based Education in Michigan's 21J Pilot Districts: An Early Analysis of Implementation and Innovation

Jesse Nagel, *Michigan State University*

Tara Kilbride, *Michigan State University*

Katharine O. Strunk, *Michigan State University*

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DISCLAIMER

The Education Policy Innovation Collaborative (EPIC) at Michigan State University is an independent, non-partisan research center that operates as the strategic research partner to the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI). EPIC conducts original research using a variety of methods that include advanced statistical modeling, representative surveys, interviews, and case study approaches.



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BACKGROUND

Competency-based education (CBE), at its most general, is a system of schooling in which students advance based upon demonstrated mastery of content and skills. Whereas in more traditional systems of K-12 education, progress is determined based on seat-time requirements and end-of-year assessments, CBE is designed to personalize education and base learning on individual students' experiences, goals, and preferences (Colby, 2019). Then, once students and their teachers believe they have mastered a skill or standard, they can advance to the next one. In so doing, CBE marks a shift in focus for states as they consider how districts might adopt innovative practices to enable students to move through educational content in different ways.

Michigan has made substantial fiscal investments in CBE. In 2018, Michigan invested \$2 million in grants to districts to support CBE and related programming as part of then-Governor Rick Snyder's Marshall Plan for Talent Development. Additionally, Section 21j of the 2017-2018 School Aid Act allocated \$500,000 in grants to seven pilot districts for the design and implementation of competency-based education programs, with an additional \$500,000 in the 2018-19 school year. The pilot program afforded participating districts flexibility in instructional requirements, allowing them to implement CBE practices instead of the traditional standards-based curriculum.

Although Michigan has yet to invest additional dollars in CBE programming, both Michigan’s current and previous legislative sessions have seen bills introduced which would expand access to 21j flexibilities for districts that submit the requisite application(s) and are approved by the Michigan Department of Education (MDE). As states, including Michigan, begin to consider how to implement learning recovery and acceleration programming in the wake of the COVID-19 pandemic, there has been renewed interest in the use of CBE and personalized learning.

In this brief, we review CBE implementation at the local level, using an analysis of surveys administered in five of the seven 21j pilot districts. With survey responses from students, teachers, and administrators in participating districts, we explore components of a preliminary theory of change developed through a review of the CBE literature, interactions with CBE practitioners and school system leaders in Michigan, and conversations with the Michigan Department of Education.

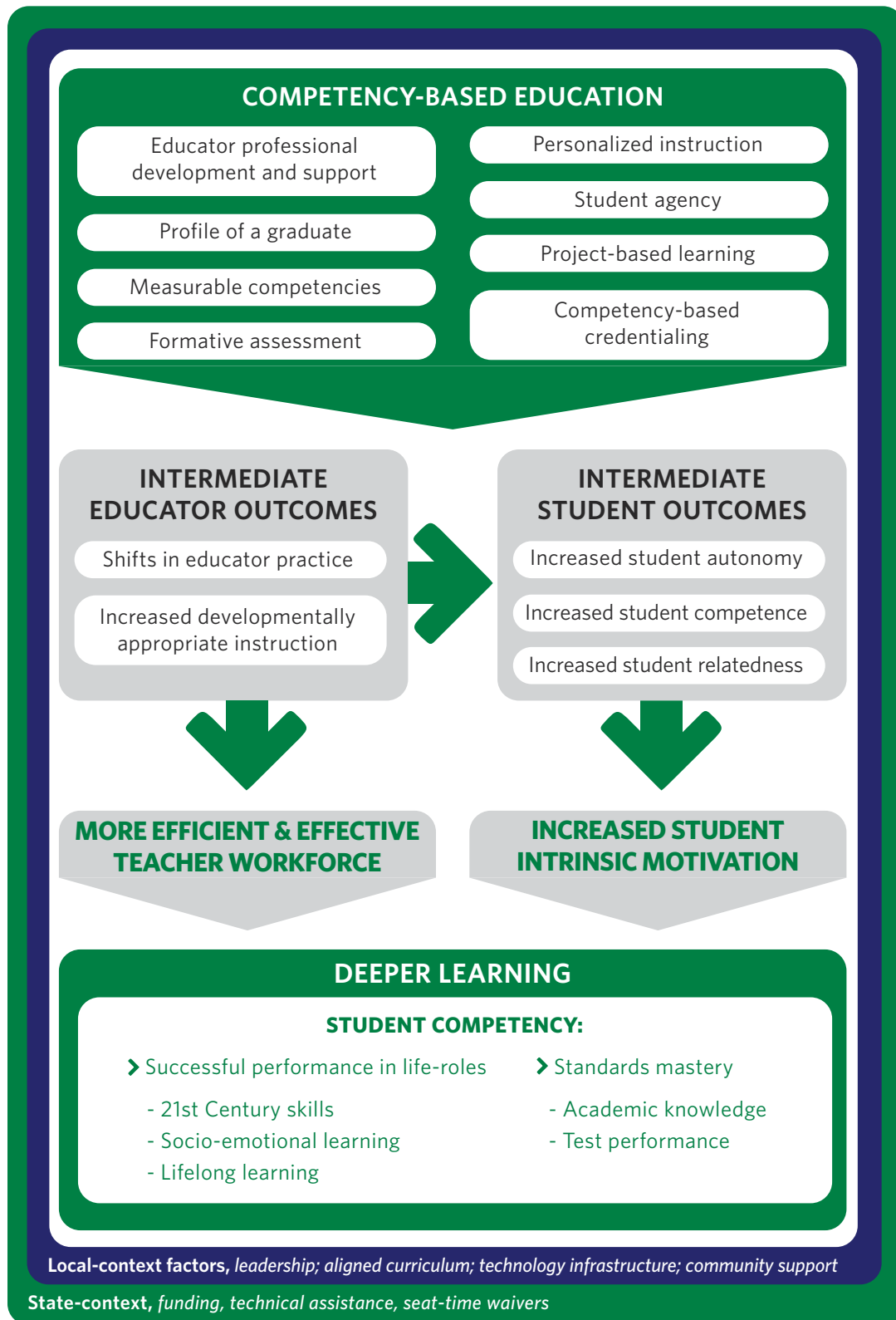
THE THEORY OF CHANGE UNDERLYING COMPETENCY-BASED EDUCATION IN MICHIGAN

Figure 1 provides the preliminary theory of change on which the Education Policy Innovation Collaborative (EPIC) based its study of CBE implementation in Michigan. Stemming from the literature, interactions with system leaders in Michigan’s 21j districts, and MDE officials central to CBE support and implementation, we identified eight core components of competency-based education, which we show in the top box of Figure 1. At the bottom of Figure 1 is a large box containing the deeper learning outcomes theorized to result from CBE implementation. Below those core components are the mechanisms through which CBE should, in theory, lead to the desired learning outcomes.

We depict the importance of local and state contextual factors in CBE implementation by the boxes surrounding the core theory of change. Fundamental to the theory of change is the notion that CBE implementation is essentially a local enterprise, shown by the blue box labeled “local context.” In particular, successful CBE implementation relies on local implementation in the form of supportive local leadership, the use of aligned curriculum and materials and instructional shifts on the part of teachers, support from the surrounding community, and access to technology. Lastly, without the support of MDE and the state, including the 21j pilot program, technical assistance, and administrative flexibility, CBE would not be able to move forward (shown by the green “state context” box).

EPIC is conducting a multi-year study of the implementation of CBE in the 21j pilot districts. In this brief, we focus on the degree to which the eight CBE components are present in 21j pilot districts.

FIGURE 1. Michigan’s Competency-Based Education Theory of Change



SURVEY DESIGN AND SAMPLE

To understand CBE implementation in Michigan, EPIC partnered with Basis Policy Research to administer surveys to students, teachers, and administrators in five of Michigan's 21j pilot districts in the fall of 2019. In this brief, we focus on responses to student and teacher surveys. Given the limited number of administrators in the sample, we use administrator responses to supplement findings from the other two groups.

Each survey question is associated with a specific component of the theory of change. Some components are only addressed in the student or the teacher surveys, whereas others are addressed in both survey instruments, allowing for comparisons between teacher and student perceptions of the same topic. Student surveys focused on engagement, satisfaction, and students' perception of instructional practices and learning outcomes. Elementary and middle school students received a slightly different survey instrument than high school students, as some questions were only relevant to one of these groups. Teacher surveys captured details about teacher satisfaction, instructional practices, and levels of support for the CBE practice. As CBE has not been implemented across all grades and subjects in all 21j districts surveyed, our survey samples include a subset of students not explicitly receiving competency-based instruction and a subset of teachers not administering competency-based instruction. In future work, we hope to use these students and teachers as comparison groups.

We calculated response rates based on rosters of students, teachers, and administrators that participating schools provided prior to survey administration. Student response rates varied by school level, with a response rate of 72 percent for elementary and middle school students, and 47 percent for high school students. In total, 5,054 of the 8,485 rostered students participated in the survey, with an overall student response rate of 60 percent. Of the 609 rostered teachers, we received 444 responses for a response rate of 73 percent. Sixty-nine percent of the 42 rostered administrators (29 in total) participated in the survey.¹

FINDINGS

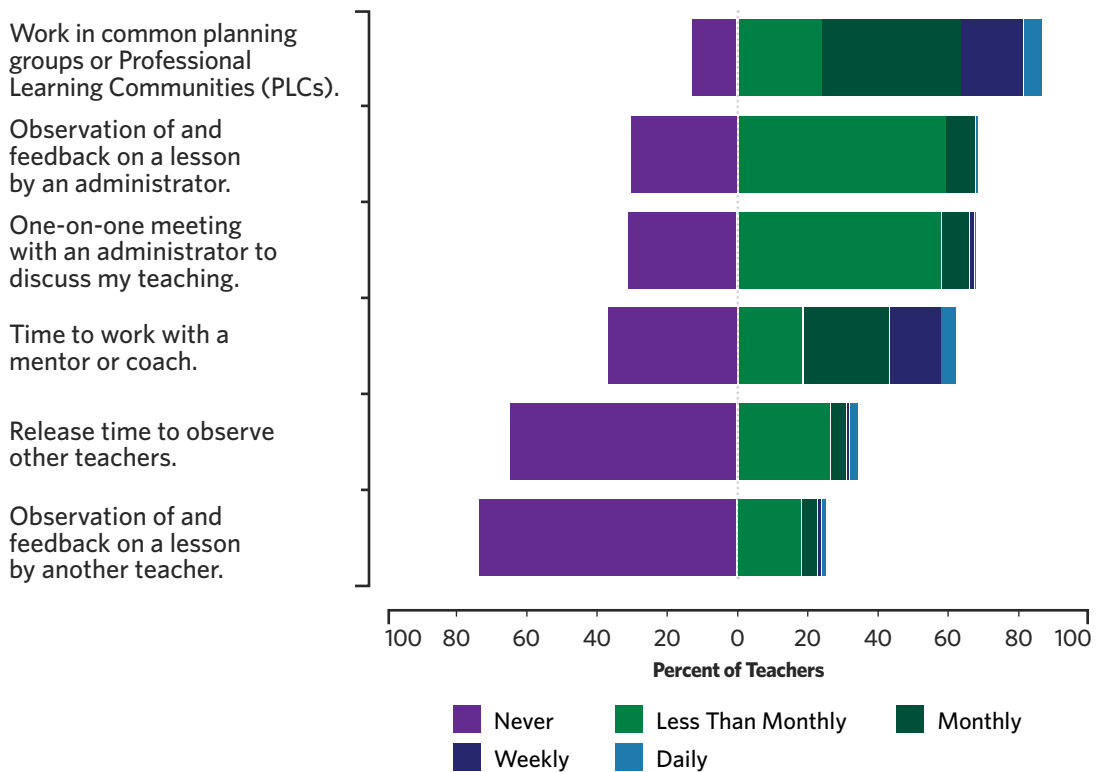
Educator Professional Development and Support

Because CBE represents a substantial shift in providing education, it is crucial that ongoing professional development (PD) and support be given to educators. This is particularly true for CBE even as compared to other instructional reforms because many decisions that are traditionally made at the building, district, or state level now fall on the shoulders of the instructor (Torres, Brett, & Cox, 2015). Decisions regarding standards, curriculum, and assessments become, in large part, the responsibility of the teacher or a team of teachers, ideally with their students who are exhibiting greater agency in their own learning.

Teachers' responses to survey questions, shown in Figure 2, shed light on the availability and accessibility of a range of professional development opportunities and supports. First, while

teachers report that they frequently meet with their professional learning communities—typically a group of educators that meets regularly, shares expertise, and works collaboratively to improve teaching skills—it appears that other professional development opportunities are rare or not afforded at all. This is most strongly seen through responses to survey items related to peer observation. When asked to report the frequency with which they were provided release time to observe other teachers, over 60 percent reported that such an opportunity was never afforded to them. Similarly, nearly two-thirds of teachers reported that they at no point received from another teacher observation of and feedback on a lesson. Moreover, administrator feedback appears to be infrequent in the 21j districts; only 9.2% and 9.4% of teachers reported receiving an observation and feedback about a lesson from an administrator or meeting one-on-one at least monthly with an administrator to discuss their teaching.

FIGURE 2. Educator Professional Development Opportunities



Note: Teachers were asked, “How often have you received each of the following kinds of supports during this school year (2019-20)?”

Nonetheless, although not shown in Figure 2, 70 percent of teachers report that they are satisfied with the professional development they have been offered in the past year. In other words, many teachers are satisfied with their professional development despite reporting limited availability of most development opportunities mentioned in the survey. This suggests that there may be unobserved components of professional development influencing teacher satisfaction.



A NOTE ON INTERPRETATION

In Figures 2, 4, and 6, we present frequencies of survey responses as diverging stacked bar charts (Heiberger & Robbins, 2014). Each stacked bar has a total width of 100 percent*, partitioned into sections representing each possible response to the survey question. The vertical line at zero separates “negative” response categories from “positive” response categories. Thus, the total percentage of a stacked bar to the left of this line represents the share of “negative” responses and the percentage to the right represents the share of “positive” responses.

** Note: if some participants did not respond to a question, the total width of a stacked bar may be less than 100 percent.*

Profile of a Graduate

As districts begin to implement competency-based systems of education, it is important that they identify a set of qualities, skills, and dispositions that a student should possess upon graduation. It is this “profile of a graduate” around which districts develop their CBE plan—a blueprint through which they can reverse engineer grade-level competencies tied to necessary standards.

Instead of providing instruction based on state-level standards, a CBE system would orient its instruction around the district’s unique graduate profile. The profile should represent components necessary for a student to be prepared for a meaningful role in society—something early CBE proponents argue traditional education was ill-suited to do (Spady, 1977).

Teachers were asked the extent to which they agree with the statement, “My district has a clear vision of what students should know and be able to do upon graduation from high school.” In response, 80 percent of teachers agreed, suggesting that, in large part, districts implementing CBE in Michigan have developed their unique profiles of a graduate. Surveys given to administrators reflected a similar sentiment, with over 90 percent of leader respondents rating the statement mostly or very true.

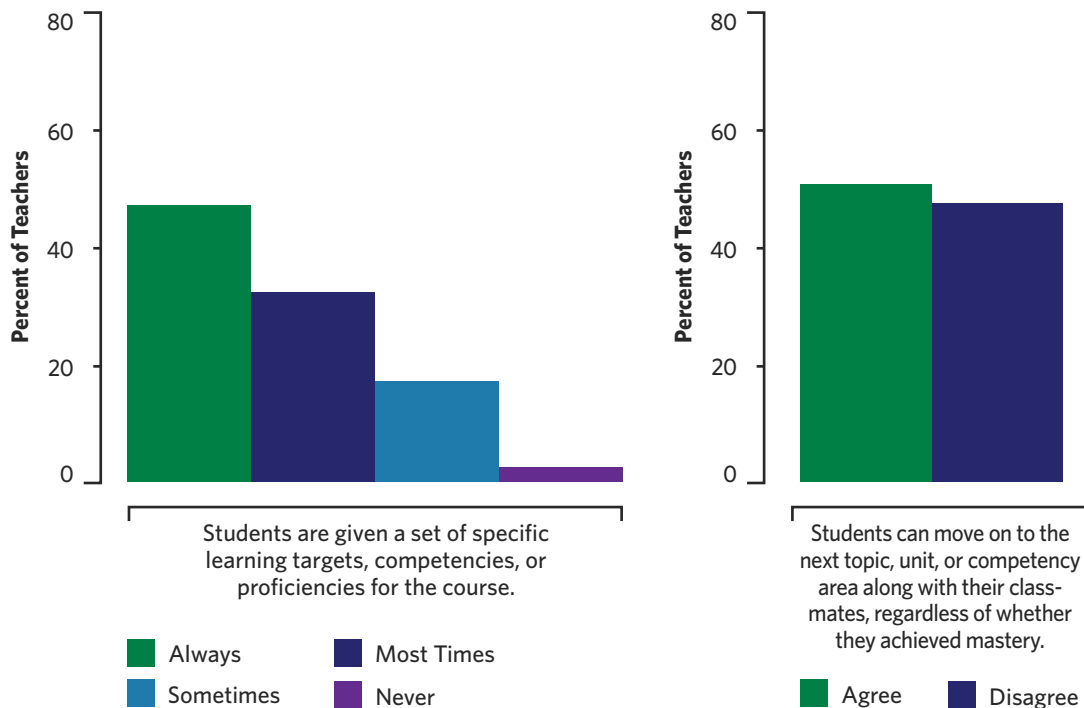
Measurable Competencies

Central to competency-based education is the establishment of and adherence to a set of measurable competencies. These competencies serve as a set of outcomes that determine what students must be able to do before advancing through the educational system. The literature varies on how to define a competency, with early research carrying a narrow definition tied to the ability to successfully fill a life-role in a given community and time (e.g. Spady & Mitchel, 1977), and more recent research grounding competencies in standards (e.g. Colby, 2019). A district’s interpretation of what defines a competency will inherently affect the role of competencies in their

CBE implementation—whereas some districts may develop competencies based on their profile of a graduate, others may interpret a competency to be similar to current standards being taught.

Survey responses, shown in Figure 3, suggest that Michigan districts are including measurable competencies in their CBE implementation. Approximately 80 percent of teachers report most of the time or always giving students competencies to master for the given course, while only three percent of those surveyed don't establish specific learning targets at any point.

FIGURE 3. Measurable Competencies



Beyond establishing competencies for their classrooms, however, our evidence suggests teachers are not necessarily requiring students to demonstrate mastery before advancing to the next topic. As seen in the right-hand graph in Figure 3, more than half of the teachers surveyed agreed that students could move on to the next topic, unit, or competency area regardless of whether they achieved mastery. This suggests that in CBE districts, students are being given competencies to master, but those competencies do not necessarily affect advancement. In those situations, established competencies serve more as goals to strive for than requirements to which students are held.

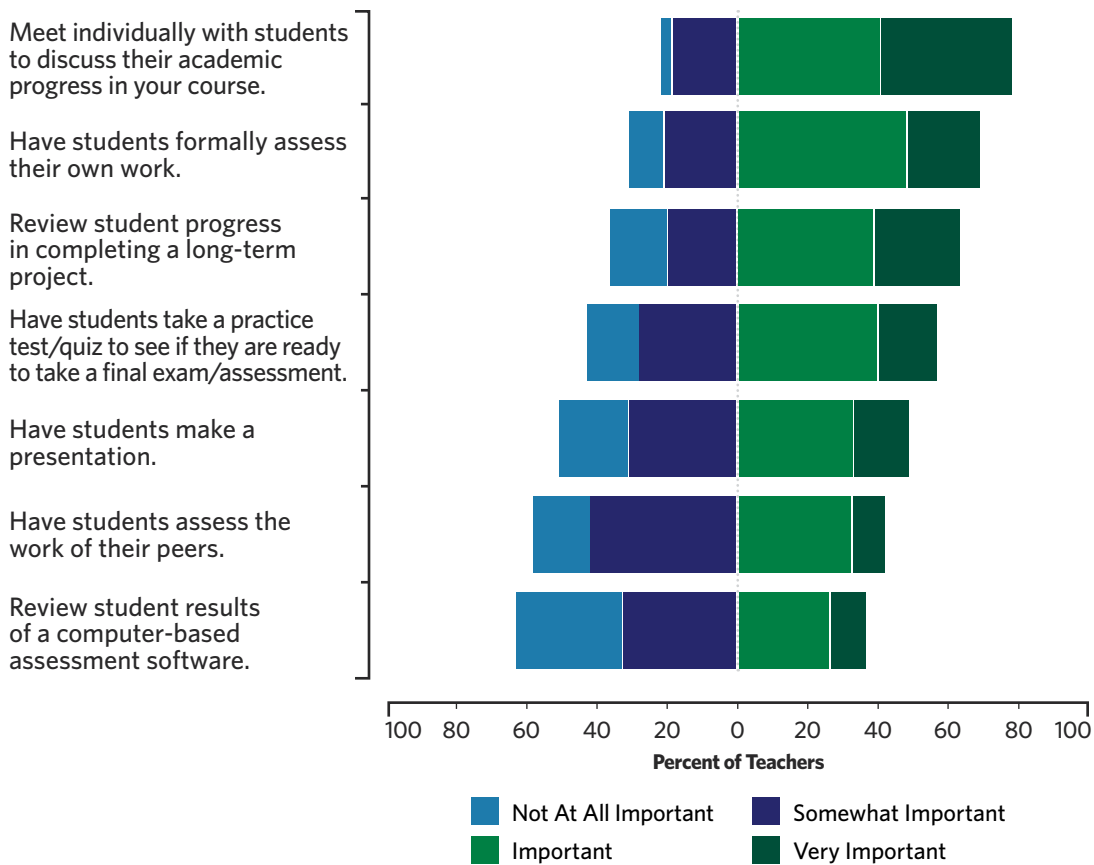
Formative Assessment

The CBE literature identifies the use of formative assessment as critical to CBE systems (Colby, 2019; Torres, Brett, & Cox, 2015). Within CBE, formative assessment facilitates differentiation of learning and is implemented through a wide variety of classroom practices. These practices may be informal—for instance, short one-on-one discussions or reflection periods—or they may be more structured and formal, such as the use of standardized benchmark assessments. Educators

regularly monitor students through formative assessments, and they use that information to guide instructional practices and communicate with students regarding progress toward competency. Even assessments that are traditionally summative may serve a formative purpose in CBE, providing students unable to demonstrate competency on a summative assessment time for re-learning and re-assessment (Slavin, 1987; Anderson, & Burns, 1987; Spady 1977).

The perceived importance of formative assessment practices as reported in our teacher survey responses varies based on the type of formative assessment practice in question. For instance, almost all teachers report that individual meetings with students were important or very important, while fewer than half reported the same regarding the review of a student’s results on computerized assessments. Responses for the range of formative assessment practices can be found in Figure 4.

FIGURE 4. Formative Assessment Practices



Note: Teachers were asked, “How important are the following assessment practices to your instruction?”

Personalized Instruction

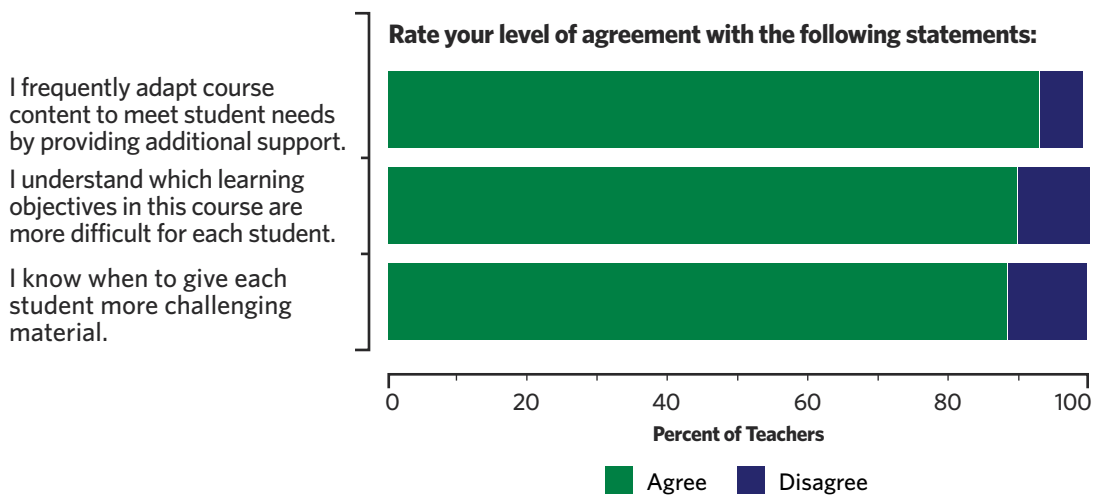
In an educational system that determines advancement by the demonstration of content or skill mastery instead of instructional time—as is generally understood in a CBE framework—it is imperative that instruction is personalized for each student (e.g. Colby, 2019; Casey & Sturgis,

2018; Torres, Brett, Cox, & Greller, 2018). This personalization requires differentiation of content, delivery, and pacing for the individual student, with most conceptualizations of CBE centering on the significance of time.

Personalization is an educator-driven enterprise, and should include three common elements (Pane, Steiner, Baird, & Hamilton, 2015, pp. 2-3): 1) systems that “accelerate and deepen student 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.”

Figure 5 shows teachers’ survey responses regarding personalized instruction. Teachers overwhelmingly report that they know when to give a student more challenging material, know which learning objectives are difficult for a particular student, and frequently adapt their course to meet students’ needs. When presented with these statements individually, over 90 percent of teachers agreed with each one. The majority of teachers also report that they provide students with multiple learning activities and assignments matched to individual students’ needs and skill levels. Together, these responses suggest a high prevalence of personalized instruction throughout CBE districts.

FIGURE 5. Personalized Instruction



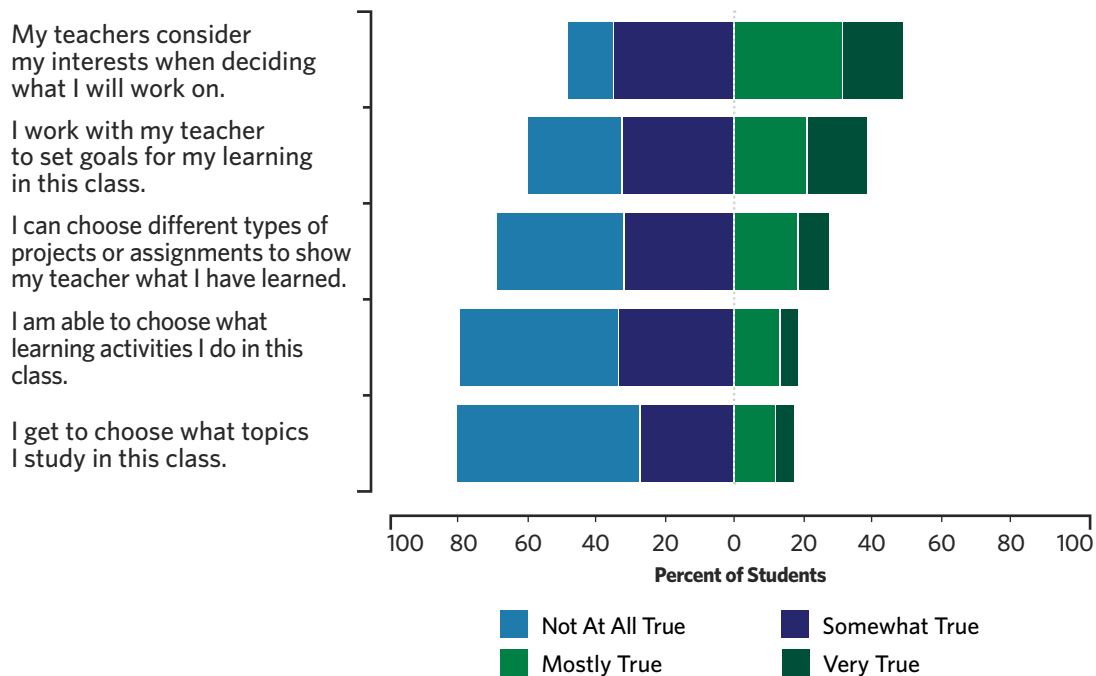
Student Agency

Student agency is another core component of CBE and is closely tied to the personalization of education necessary to meet student needs. However, whereas we identify personalized instruction as the set of decisions an educator makes to differentiate instruction among students, we identify student agency in terms of decisions students make about their learning. In a competency-based system, students are expected to take ownership of their learning, shaping their experiences and becoming active agents in education as opposed to passive recipients (Spady, 1978). This represents a notable shift from the status quo, as students would express

agency by making choices over content, assessment, and even the goals of schooling—choices typically made by teachers, administrators, or higher-level officials.

Figure 6 shows students’ responses to survey items related to student agency. Responses were consistent across grade levels, showing little variation between elementary and secondary students. Thus, for simplicity, the results in this figure represent the combined sample of elementary, middle, and high school students. It is clear that student agency is not as prevalent in Michigan’s CBE pilot districts as would be implied by its presence in the literature and by teachers’ responses when asked about personalization (discussed above). When asked to rate the degree to which it is true that teachers consider students’ interests when deciding what they work on, only half of students responded that the statement was mostly or very true. Moreover, students’ survey responses show a lack of student choice; only 20 percent of students reported being able to choose topics to study or activities to participate in. If CBE is meant to provide for students to become active agents in their schooling, it is not playing out prominently in the 21j pilot districts.

FIGURE 6. Student Agency



Note: Students were asked, “To what extent do the following statements describe what you think about and do in class?”

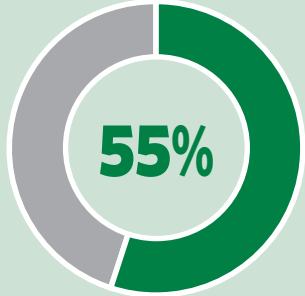
Project-Based Learning

Within CBE, the use of project-based learning (PBL) acts as a tool to increase student engagement and ownership over learning. By engaging students through performance tasks

that emphasize the application of skills across disciplines, teachers can monitor a range of competencies and promote student autonomy (Spady, 1977).

While PBL is critical to the implementation of CBE, it is hard to measure on a survey. The questions we highlight below describe the extent to which students engage in projects, but do not shed light on the extent to which this project work is connected to other elements of CBE, such as personalized learning objectives, or whether it is driven by student inquiry rather than by teacher decisions.

It is clear, however, from both the teacher and student survey responses that performance tasks and projects play a notable role in the 21j districts. More than half of teachers — 55 percent — agreed that projects constitute an important component of a student’s overall grade in the course. This corresponds very closely to student responses at both the elementary and secondary levels (Figure 7), where approximately two-thirds of students report working on solo projects at least weekly. That number is slightly lower — approximately 50 percent — when considering group projects.



TEACHERS FEEL PROJECTS ARE AN IMPORTANT FACTOR IN OVERALL GRADES

55% of teachers agreed with the prompt, “Student projects are an important factor in their overall grade [in this class].”

FIGURE 7. Project-Based Learning – Students



Note: Students were asked, “During this class period, how often do you work on a project/assignment?”

Our surveys also yield insight into the types of projects on which students are working. For instance, students were asked whether they worked on projects incorporating material from multiple subjects. Less than half of elementary and middle school students, and only 35 percent of high school students, responded in the affirmative. This suggests that project-based learning in Michigan's 21j CBE districts often may be siloed and may not require students to apply cross-disciplinary knowledge or skills.

Competency-Based Credentialing

Transitioning to a competency-based framework affords districts opportunities to modify how they give grades or credentials to students. In foundational CBE research, Spady (1977) claims that grading within traditional schooling is not necessarily reflective of student competency, given that grades often include considerations for things like attendance or participation. Instead, he argues, credentials should be assigned exclusively upon demonstration of competency. To this end, districts may consider transcripts that identify content and skills students have mastered as opposed to traditional letter grades.

Beyond what a student's credentials look like, this component also explores the decisions behind how credentials are awarded. For instance, the assigning of grades may be standardized to align with CBE principles, with different scale measures relating to different levels of mastery. Marzano and colleagues (2017), in their handbook on CBE, suggest the use of proficiency scales, which attempt to measure the level of performance on a given task the student has mastered.

While added information on the use of competency-based credentialing within pilot districts is expected in future work as districts move further along in CBE implementation, our initial surveys can give a small glimpse into the practice even at early stages. Teachers were asked in their survey if the content of their class would count toward a certificate, degree, or other credential. Of those that responded, just under half reported their work would lead to a credential. Additionally, 40 percent of teachers noted that students' report cards or transcripts show the credentials they earned throughout the school year. Combined, these suggest that competency-based credentialing is present in pilot districts, although it is not adopted as uniformly as the CBE theory of change would suggest.

KEY FINDINGS

CBE is Necessarily a Local Enterprise

How CBE practices are implemented and the extent to which various components of CBE were acted upon within pilot districts varied across districts. Local priorities directly influence CBE implementation. Where one district may spend a significant amount of time and effort focusing on professional development or the development of competencies, other districts prioritized the use of project-based learning.

Professional Development Opportunities Are Provided to Teachers, but There is Room for Increased Peer-to-Peer and One-on-One Administrator Feedback

Teachers reported general satisfaction with the professional development they were provided, and teachers reported ample opportunities for collaboration among professional learning communities. However, relatively few teachers reported opportunities to learn from their peers or their administrators. This suggests that while teachers are rarely given formal observation and feedback, regular professional development opportunities are taking place in other ways.

21j Districts Are Still Relatively Nascent in Their Implementation of CBE Practices

Although teachers in the 21j pilot districts we surveyed report the adoption of many of the core elements of the CBE theory of change, responses from teachers and students suggest that districts are still working to fully implement these innovative structures. For instance, although teachers are setting measurable competencies, they are not asking students to adhere to them in order to progress through course content. Similarly, teachers overwhelmingly report personalizing instruction to meet individual student needs. However, students do not perceive that teachers' efforts to personalize instruction include attention to their own interests, as students generally report little or no agency in their learning decisions. In addition, both student and teacher surveys show that project-based assessments and tasks are widespread throughout 21j districts. However, our evidence shows that only rarely do those projects serve as cross-disciplinary demonstrations or fully incorporate student agency.

POLICY IMPLICATIONS

Maintain Flexibility in the Implementation of CBE Across Districts

CBE, as it has been implemented in our pilot districts, is heavily influenced by local factors and interests. No two districts implement and act on CBE components in the same way. Given the need to allow for localization to meet community needs, it will be important for state policymakers to allow for flexibility in CBE implementation. However, at the same time, it will be important to help local districts move beyond adoption to consistent implementation of CBE practices. This can be supported by providing continued training opportunities and resources to ensure that educators and leaders share a deep understanding of CBE and its associated practices.

Consider Whether Standardized Assessments Are Aligned With Competency-Based Education Practices and Structures

In many ways, the local nature of CBE implementation diverges from the standardized nature of current state and federal accountability practices. Current practice traditionally uses measures of student achievement on standardized assessments as a factor in high-stakes decisions about

schools and districts. In a CBE system, assessments are designed to be flexible and personalized, drawing on the needs and goals of the individual student; shifting to a CBE framework may result in prioritizing different skills and practices than those conducive to performing well on a standardized assessment. In moving forward with CBE, policymakers will need to consider whether current methods of measuring district performance are adequately aligned with CBE practices.

Districts That Are Well-Versed in Competency-Based Education May Fare Better During the Pandemic

Additional considerations must be made for the implementation of CBE in the midst of a global pandemic. As COVID-19 led to nationwide school building closures in the interest of public health, any policies that may abate the potential negative implications of remote instruction should warrant closer examination. Several of the key components of CBE are relevant to virtual instruction, and to the ability of teachers and schools to personalize instruction to meet students where they are and accelerate their learning in the aftermath of the pandemic. Schools that have rigorous professional development, particularly around the use of software and student engagement in the virtual space; or schools that have prioritized student agency and personalized instruction; or schools that have prepared concrete, clear competencies; may have an advantage when attempting to manage educating students amidst and beyond the COVID-19 pandemic.

In particular, districts implementing CBE practices should be better equipped to handle the exacerbated inequalities that stem from virtual learning. Student access to educational resources is undoubtedly going to vary among districts' populations, and a given student's ability to follow a standardized curriculum from afar or amidst frequent interruptions and schedule changes is going to be different from that of their peers. In this way, personalized instruction, student agency and involvement in the learning process, and a teaching staff trained in personalized, self-paced, and project-based instruction, could ease districts' ability to navigate education during and after the COVID-19 pandemic.

ENDNOTES

1. During survey administration, several issues affected the collection or analysis of survey responses. First the surveys were not conducted in a way that allowed the consistent and reliable linking of students to classrooms. That is, there were cases where a given teacher would administer the survey to several classrooms, or cases in which links between teachers and students were inaccurate. Additionally, technical issues led some students to be unable to respond. Namely, server timeouts and unclear links to the survey inhibited data collection in some classrooms. Lastly, the survey was to be administered within a specific window of time, during which some districts were unable to provide the time to complete administration. As such, data is missing for those cases. Of note, respondents choosing the same answer for every survey item were dropped, as were those who did not respond to the majority of items.

REFERENCES

- Anderson, L. W. & Burns, R. B. (1987). Values, evidence, and mastery learning. *Review of Educational Research*, 57(2), 215-223.
- Colby, R. L. (2019). Competency-based education: A new architecture for K-12 schooling. *Harvard Education Press*.
- Heiberger, R.M. & Robbins, N.B. (2014). Design of diverging stacked bar charts for Likert scales and other applications. *Journal of Statistical Software*. 57(5): 1-32. <https://www.jstatsoft.org/article/view/v057i05/v57i05.pdf>
- Pane, J.F., Steiner, E. D., Baird, M.D. & Hamilton, L.S. (2015) Continued progress: Promises evidence on personalized learning. *RAND Corporation*.
- Slavin, R. E. (1987). Mastery learning reconsidered. *Review of Educational Research*, 57(2), 175-213.
- Spady, W. G. (1977). Competency based education: A bandwagon in search of a definition. *Educational Researcher*, 6(1), 9-14
- Spady, W. G. (1978). The concept and implications of competency-based education. *Educational Leadership*, 36(1), 16-22.
- Spady, W. G. & Mitchell, D. E. (1977). Competency based education: Organizational issues and implications. *Educational Researcher*, 6(2), 9-15.
- Sturgis, C. & Casey, K. (2018). Designing for equity: Leveraging competency-based education to ensure all students succeed. CompetencyWorks final paper. *iNACOL*.
- Torres, A. S., Brett, J., & Cox, J. (2015). Competency-based learning: Definitions, policies, and implementation. *Regional Educational Laboratory Northeast & Islands*.
- Torres, A. S., Brett, J., Cox, J., & Greller, S. (2018). Competency education implementation: Examining the influence of contextual forces in three New Hampshire secondary schools. *AERA Open*, 4(2), <https://journals.sagepub.com/doi/10.1177/2332858418782883>

CREDITS

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Education Policy Innovation Collaborative

MICHIGAN STATE UNIVERSITY
236 Erickson Hall | 620 Farm Lane
East Lansing, MI 48824

(517) 884-0377
EPICedpolicy@msu.edu
www.EPICedpolicy.msu.edu