Final Report on
COMPETENCY-BASED EDUCATION PILOT
DECEMBER 2018

Ohio | Department of Education

Competency-Based Education Pilot Final Report

Ohio's 131st General Assembly created the Competency-Based Education Pilot in Amended Substitute House Bill 64 by providing $2,000,000 for five selected sites to develop and administer competency-based education (CBE) programs over the course of four school years. Each pilot site received $200,000 per academic year for the first two years of the pilot. The pilot phase of implementation concludes at the end of the 2018-2019 school year.

HB64 requires the Ohio Department of Education to complete the following no later than Dec. 31, 2018:

> ➢ A review of the competency-based education offered by the districts, schools and consortia selected to participate in the program;
> ➢ An evaluation of the implementation of competency-based education by the districts, schools and consortia selected to participate in the program and student outcomes resulting from that competency-based education; and
> ➢ A determination of the feasibility of a funding model that reflects student achievement outcomes as demonstrated through competency-based education.

The Department requested each pilot site complete a final evaluation survey that included questions about pilot participation, pilot goals, progress toward goals, student outcomes (as measured by each site) and additional lessons learned. This report summarizes the pilot sites' work over the past four years and uses their experience to propose a seven-element framework to inform any Ohio district considering competency-based education.

I.   Overview: Competency-Based Education in Context

The four-year CBE pilot coincided with various significant changes in Ohio, including evolving graduation requirements, a new emphasis on simultaneous credit and the expansion of career pathways. In August 2018, the Ohio Department of Education, in collaboration with stakeholders from education, business, and the public and private sectors, completed an 18-month strategic planning process that resulted in a strategic plan for Ohio education called *Each Child, Our Future*.

Each Child, Our Future sets a course for Ohio's education system based on three core principles: **equity**, **partnerships** and **quality schools**. The plan marks a call to action for schools, districts, communities and the Ohio Department of Education to ensure an equitable education for each child in Ohio that prepares him or her with the knowledge, skills and dispositions to be fully career and college ready.

This vision will require a reimagined school system to meet the needs of all learners in new ways, and competency-based education can be one approach toward that end. As one researcher described, "There is a growing consensus that to thrive in our rapidly changing world, students will need an expanded set of competencies that includes the mastery of core academic concepts, as well as analytical thinking and problem-solving skills, intrapersonal and interpersonal skills, and the capacity to transfer learning to new problems and contexts."[1] Competency-based education — a system structure based on self-paced instruction, authentic assessments, real-world experiences and work readiness skills — is a way schools can implement personalized learning in support of more engaging, student-centered instruction. (More information on the relationship between competency-based education and personalized learning is available in Appendix A.)

The goals of Ohio's Competency-Based Education Pilot, as spelled out in HB 64, reflect this conceptual framework. The CBE pilot intended to:

---

[1] Surr, W., & Redding, S. (2017). *Competency-Based Education Staying Shallow or Going Deep?* Lexington, KY: University of Kentucky Center for Innovation in Education.

- Promote innovative learning that has meaning to students, cuts across multiple curriculum areas and extends outside of the classroom;
- Advance students to higher-level work once they demonstrate mastery of competencies rather than advancing based upon seat time in the classroom;
- Give supports to struggling students before they advance and prevent further failure down the road;
- Keep all students on pace to graduate and ensure those below level make rapid progress;
- Graduate students with deeper college- and career-ready skills; and
- Inform future development of statewide competency-based policies and programs.

The competency-based education pilot is an important first step in understanding how broad, malleable concepts that may hold great potential operate in complex school settings. As this report describes, competency-based education has many attractive features, but transformation is a long, difficult process that requires an aggressive commitment to systems change.

THE DEFINITION OF COMPETENCY-BASED EDUCATION

The pilot defined *competency-based education* as a system that:

1) Allows students to move at their own pace;
2) Promotes deeper learning;
3) Addresses the individual needs of students;
4) Promotes innovative instructional models; and
5) Bridges the gap between classroom innovation, authentic assessments and state-required standards.

This definition closely aligns with the definitions promoted by national thought leaders such as iNACOL and Competency-Works. Other Essential Concepts associated with competency-based education and competency-based education funding models can be found in Appendix B.

AN IMPORTANT NOTE: The comprehensive definition used in the CBE pilot greatly differs from the click through at your own pace definition of competency-based education frequently associated with online environments. "Misconceptions about competency-based education," as one writer describes, "develop when only one aspect of the traditional school is challenged — such as pace or grades. In fact, competency-based education is a redesign of the culture and structure of school systems to support effective instruction and learning."[2]

PRACTICAL EXAMPLES

Competency-based education as content-specific, self-paced learning environment: Teacher A chooses to teach angles, parallel lines, and transversals using an online math software that allows her students to take a short quiz at the end of each **well-defined sub-unit of content**. The school defines a "competency" as a well-defined unit. When a student passes the quiz with a certain school- or teacher-defined "mastery" threshold, for example, 80 or 90 percent, the student moves on to perpendicular lines or whatever the next competency is. Until then, the student must continue to work on problems until "mastery" is achieved.

Competency-based education as deeper, integrated content environment: Teacher B chooses to teach angles, parallel lines, and transversals by assigning a group project in which three students work together to design a three-dimensional cityscape in which they label all angles and lines, make a presentation in front of their classmates, and rate the effectiveness of each of their team members. The teacher uses a rubric to evaluate the students' knowledge of angles and lines, creativity, ability to collaborate with partners and project design. The students only reach "mastery" and move on to new material when they achieve a grade percentage on all

---

[2] Sturgis, C., & Casey, K. (2018). *Quality Principles for competency-based education*, Vienna, VA: INACOL. Content in this book is licensed under a Creative Commons Attribution 4.0 International License.

metrics. A student who needs more time may be asked to complete an individual project or supplemental assignments until he or she reaches "mastery."

Both Teacher A and Teacher B are delivering various forms of competency-based education. Teacher A's instruction focuses on academic content and self-pacing, while Teacher B's instruction focuses on academic content plus self-pacing, deeper learning, student agency and authentic assessments. Teacher B uses a much more comprehensive approach to competency-based education.

The CBE pilot sought to demonstrate a variety of applications of competency-based education. Through collective inquiry, the pilot investigated requirements for students, teachers, school leaders, policymakers and community partners to create a student-centered and competency-driven culture, the instruction and assessments to support it and the policies needed to make it viable. The CBE pilot logic model describes the expected outcomes.

Applicants assessed their readiness and capacity using the Competency-Based Education Pilot Self-Assessment Tool included in the application. The full application is accessible here and includes all pilot requirements. Selected districts agreed to implement all core competency-based education components defined in the application.

II. Selected Sites

The following section provides a brief description of the primary competency-based education activities at each site.

Chagrin Falls Exempted Village Schools: Realize U

Chagrin Falls launched REALIZE U, a project intended to engage 2,010 students in four Chagrin Falls schools and illustrate competency for all courses in kindergarten through grade 12 by the 2016-2017 school year. The project expanded use of standards-based grading practices for all classes in all grades in the 2018-2019 school year.

The pilot project focused on developing the capacity of teachers to implement personalized instruction. With 36 percent of its students having a gifted identification, district leadership chose to train and certify teachers to teach advanced courses. Doing so enabled students to access higher level courses as they progressed through the curriculum.

Additionally, the site developed summer programming to help students move into more rigorous levels of content in the upcoming school year and created interest-based study through enrichment programming. Beginning in the 2017-2018 school year, all students created a personalized capstone project in grades 3, 6, 8 and 12.

Cincinnati Public Schools (CPS): My Tomorrow

CPS launched the "My Tomorrow" initiative in the start 2014-2015 school year with the goal of creating a college- and career-focused culture promoting eight work-ready principles: higher expectations, engagement, collaboration, real-world connections, technology, social-emotional learning, critical thinking and creativity. For students to achieve work readiness aligned to these principles, My Tomorrow encourages innovative approaches to instruction, such as inquiry-based learning, problem-based learning and authentic learning.

Cincinnati's CBE pilot sought to embed the eight work readiness principles into the middle childhood curriculum at three high schools to create a college- and career-going culture. Working with KnowledgeWorks, the Cincinnati USA Regional Chamber of Commerce, business leaders, higher education partners, community partners, school administrators and teachers, CPS developed a framework for embedding the six C competencies (citizenship, critical thinking, creativity, communication, collaboration and character) in high school core courses. The pilot helped connect academic content with work readiness skills in an authentic way.

Fairfield County ESC: FAST Forward

Fairfield County ESC's FAST Forward competency-based education pilot provided multiple pathways to success in career and college at a student's individual pace. Led by Fairfield County Educational Service Center, the pilot consortium includes Eastland Fairfield Career and Technical Schools, Pickerington Alternative School (Pickerington City School District), Cleveland Construction, Kokosing, Tackett Electric, Fairfield County Board of Developmental Disabilities, the Multi-County Juvenile Detention Center in Fairfield County, local mental health agencies, Fairfield Transit, Columbus State Community College, Ohio University-Lancaster, Hocking College, Central Ohio Technical College and others in Fairfield County. There were four primary goals:

1) To successfully transform three schools into competency-based education models: the first in a career and technical setting that allows students to demonstrate skill attainment through competency-based education; the second in an alternative school blended model that utilizes individual success plans and online learning for credit recovery; and the third in a dropout recovery program that personalized pathways to graduation for youth at high risk of dropping out utilizing experiential learning and online curricula;
2) To grow academic achievement of at-risk/special education youth;
3) To increase attainment of competencies students need for industry credentials and graduation; and
4) To increase the successful transition after high school without need for remediation.

Educational Service Center of Northeast Ohio (ESCNO): Innovation Lab Network Consortium

The Ohio Innovation Lab Network Consortium partnered with Stanford University's Center for Assessment, Learning, and Equity (SCALE) to create competency-based assessments for project-based learning, blended learning, work-based learning and portfolio/capstone projects. The consortium includes the Educational Service Center of Northeast Ohio and six Ohio school districts: Cleveland Heights-University Heights City Schools, Kirtland Local Schools, Maple Heights City Schools, Orange City Schools, Perry Local Schools and Springfield City Schools.

The six school districts will use the competency-based assessments to support systematic and districtwide changes in instruction and curriculum while monitoring student achievement toward desired performance outcomes. The pilot supported professional learning communities that designed, reviewed, piloted and scored performance tasks through combined on-site and virtual training in support of a train-the-trainer approach. The pilot intended to create a scalable professional development model that trains Ohio educators to create trustworthy, valid and reliable competency-based assessments that inform a new assessment system across the state.

Geauga County Educational Service Center: STEM Consortium

Geauga County Educational Service Center led a consortium of four established independent STEM-designated schools. These schools provide students with personalized learning pathways toward college and career success — a foundation of competency-based education. The key focus of the pilot was to test and enhance a performance-based assessment rubric as an alternative to state tests. The four pilot STEM schools are:

- Dayton Regional STEM School, grades 6-12;
- BioMed Science Academy, grades 9-12;
- Global Impact STEM Academy, grades 9-11; and
- iSTEM Geauga Early College High School, grade 9.

These schools collectively serve 1,250 students from 99 districts in 21 counties. Key partners in the pilot included: Ohio Soybean Council, The Ohio State University, Clark State Community College, Springfield Clark Career Technical Center, Northeast Ohio Medical University, Stark State Community College, University of

Akron, Wright State University, Wright-Patterson Air Force Base, Wave Foundation, Auburn Career Center, Lakeland Community College, Geauga Growth Partnership, SIFCO Applied Surface Concepts, Lubrizol Corporation and Battelle Education/Ohio STEM Learning Network.

III. Key Findings: Implementation Essentials, Student Outcomes and Challenges to Implementation

The pilot sites represented a diverse typology of schools — from independent STEM schools to a large urban district to small suburban districts. Pilot sites administered competency-based education in various ways. This makes any comparative student outcome analysis challenging. Nevertheless, critical themes emerged from the surveys. These themes form a framework of seven key elements any district must address if it wishes to implement competency-based education.
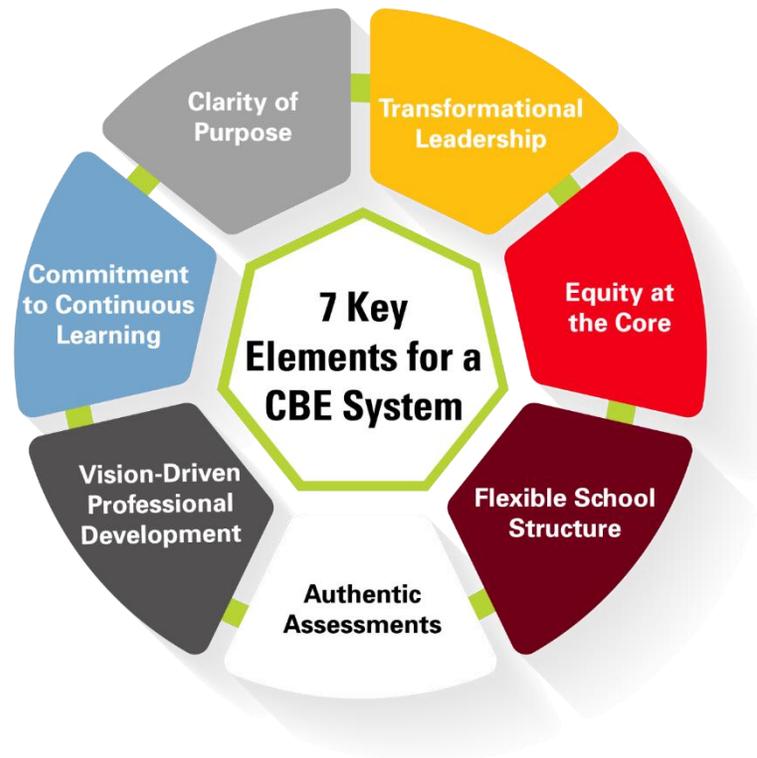
KEY ELEMENT 1: CLARITY OF PURPOSE

What problem do you hope to solve with competency-based education? *What goals are you trying to reach?* "Effective system design starts with a clarity of purpose," according to Sturgis, "or said another way, what are the results we want to get from our subsystem of public education?"[3]

---

[3] Ibid.

- Cincinnati Public Schools focused on the need for students to learn work readiness competencies and focused the pilot's work on fully embedding those competencies in the academic content of several courses.
- The ESC of Northeast Ohio consortium districts utilized the CBE pilot to move their students toward graduate profiles established by several of the participating districts. Global Impact STEM Academy's pilot refocused all systems, including curricula, teacher evaluation, performance assessments, daily schedules and other processes to the inquiry-focused mission of the school.

KEY ELEMENT 2: TRANSFORMATIVE LEADERSHIP

Pilot sites reported that distributed leadership that engaged stakeholders and educators was critically important in shifting school culture.

- "From the consortium perspective, the districts that were more effectively engaged in the pilot were the ones whose district leaders were directly involved in supporting the teachers during the professional development, involved in editing and vetting the PBAs (performance-based assessments) as they went through the process of development and refinement, and in supporting the instructional shifts occurring within districts on a daily basis" (ESCNO).
- Success, in large part, will depend on a leader's ability to **articulate a vision** that others embrace and then create a structure that promotes **collaborative leadership** as a way of carrying out that vision. Brian Verda from the Success Center in the Fairfield County ESC pilot consortium states the vision this way: His school "addresses social, emotional, and educational skills one day, one hour and one child at a time."
- Buy-in is critically important. As Chagrin Falls notes, "It is [also] important to ensure that teachers, students, and staff see the value in this work — how the evidence of growth can benefit all learners."
- Learning in a competency-based system often looks unfamiliar to parents and community members because it does not reflect the system they experienced when they were in school. A leader must be able to share the vision with both internal and external stakeholders to be successful.
- Simply stated, "Districtwide cultural transformation and leadership are necessary for full implementation of a performance-based assessment system" (ESCNO).

KEY ELEMENT 3: FOCUS ON EQUITY

Each Child, Our Future defines equity this way: "Each child has access to relevant and challenging academic experiences and education resources necessary for success across race, gender, ethnicity, language, disability, family background and/or income."

- Ensuring equity in a competency-based system often takes the form of individualized learning plans designed to identify the needs of each student. Pickerington Alternative School, a member of the Fairfield ESC consortium and a school designed to help students with credit recovery, utilized this approach.

  "Students participate in interest inventories, career cluster inventories and one-on-one counseling to provide individualized learning and future planning. Students meet with staff daily to assess progress/discuss plans. Students report they are more successful and motivated in this setting."
- Other sites also recognized the value of personalizing instruction and added a staff member dedicated to college and career preparation. Costs might prohibit additional staff, but in the case of Chagrin Falls, the district recognized the value in personalizing pathways for all students and prioritized the effort across the district.

KEY ELEMENT 4: A REIMAGINED SCHOOL STRUCTURE

"Unlike traditional systems of K-12 education, competency-based structures place an equal emphasis upon academic knowledge, the skills to transfer and apply that knowledge (higher order skills) and lifelong learning skills that enable students to be independent learners."[4]

The pilot sites' experiences revealed three key concepts that any school interested in implementing competency-based education must consider:

1) The definition of "mastery";
2) Embedded work readiness and disposition instruction vs. an "add-on" approach; and
3) A structure that allows for individual discovery, advancement when ready and remediation when necessary.

- "Mastery" is a key concept in a competency based system. The definition of mastery is an essential decision if students are to progress when ready rather than by a predetermined schedule. Definitions of mastery varied across sites. For some schools, it meant a student had to demonstrate 90 percent success on any assessment. For others, the bar was somewhat lower. Regardless of the accepted percentage, it was important to determine whether there would be a schoolwide policy or a teacher-determined benchmark.

  At Global Impact, however, one teacher used a different definition of mastery. While there may have been a required threshold for each student to meet, the teacher encouraged each student to achieve varying levels of "mastery" based on his or her own ability level.

- Perhaps one of the trickiest concepts for schools is whether to embed work readiness skills (for example, soft skills or 21st century skills) in course content or teach them as additional lessons or projects. Cincinnati's My Tomorrow Project focused on the "six C's" (citizenship, critical thinking, creativity, communication, collaboration and character) across the district. The pilot focus narrowed to three schools in which the school teams, in partnership with KnowledgeWorks, added the six C language to core content and curriculum maps as a means of building those dispositions into the instruction. This work is intensive and often requires teachers to re-conceptualize their approaches to instruction. Doing so, however, elevates the relevance of those skills and may prove to be more effective according to participating teachers.

- A competency-based school structure must allow students the flexibility to move at their own pace. At the classroom level, teachers in several pilot sites designed their classrooms to allow students who demonstrated mastery more quickly to move ahead through the course material while allowing those who needed more time to have it. Such was the case at the STEM schools where students have the chance to resubmit work and additional assessment opportunities after receiving instructor feedback.

  Culture determines the approach to the flexible schedule. While it is not uncommon for students to use flexible periods to catch up, make up or repeat work, a competency-based education structure that encourages students to move ahead promotes student voice and choice to pursue projects or interests of their own choosing. Chagrin Falls stands out as an example — faculty and administrators encouraged students to take ownership of their own learning and utilize flex time to further pursue their interests.

---

[4] Ibid.

Ohio | **Department** of **Education**

KEY ELEMENT 5: AUTHENTIC DEMONSTRATIONS OF LEARNING

Competency-based education bridges the gap between classroom innovation, authentic assessments and state-required standards. Performance-based learning advocates argue that students who demonstrate their knowledge and skills through authentic learning demonstrations also gain the work readiness skills missing in standardized test-driven systems.

- The ESCNO pilot demonstrated that creating performance tasks and assessments that stand up to empirical scrutiny in a valid and reliable system is remarkably challenging. Equally challenging is ensuring a level of professional development for teachers that ensures implementation and execution is as sound as the well-tested assessment. Nevertheless, a school, district or state must contend with these issues to fully embrace an equitable, transformed assessment system.
- Ohio's STEM schools have performance assessments and authentic demonstrations of learning built into their model. Professional development for teachers is necessary, particularly for new hires, but STEM school leaders do not face the uphill climb of culture shift.
- Over the course of the pilot, Chagrin Falls recognized the need for additional progress monitoring for its students and implemented the use of adaptive assessments across grades K-12 to support student progress monitoring and guide the need for real-time intervention in both math and English language arts. Although these were typically online assessments and not performance-based assessments, it did reflect a bigger shift toward a more personalized approach to identifying and meeting the needs of its students.

KEY ELEMENT 6: VISION-DRIVEN PROFESSIONAL DEVELOPMENT

Focused professional development is important for all districts. Effective professional development during a transition to competency-based education proved to be as much about school culture as it is about specific skills. A new reading program, for example, might utilize different or new methodologies, but teachers are familiar with the core practices of literacy. Competency-based education, however, challenges them to think about their instruction in a completely different way, and it must align to the broader vision of the school.

- As reported from Chagrin Falls, "So often, our focus upon student needs forgets about additional training needs for staff to best equip them to meet the new and changing needs of our students."
- For the STEM schools in the pilot, the challenge wasn't to sell a vision but rather to reinforce a vision, provide opportunities for practice, develop consistency in implementation across the school and, ultimately, promote excellence.
- Schools such as STEM schools built on these models seemed to have an easier time implementing competency-based education models than traditional districts. As noted by the ESCNO in referring to performance-based assessments, "Significant time is required for good professional development leading to deep understanding among teachers about the instructional shifts required to implement well."
- Additionally, the third year of the pilot surfaced a paradox in which starting small made implementation manageable, but without a total school-level system change, the necessary culture shift was not present. Several sites made the decision to begin small — a competency-based education pathway in one or two classes with the most forward-thinking teachers or, in the case of the ESCNO, a select group of 60 or so teachers across six districts.

  They found scaling up to be a very difficult process that, "… requires time to bring about a culture shift required by district leaders and educators." In other words, implementing a competency-based education system is more than just an engineering problem. A new system must reflect a culture shift, with all efforts, including professional development, aligned to it and building toward its success. And in some cases, participating administrators recognized not every teacher is ready to make the leap.

Ohio | Department of Education

KEY ELEMENT 7: CONTINUOUS IMPROVEMENT

All participating pilot sites told their own continuous improvement stories prompted by logistical challenges or unexpected structural barriers. Most also spoke of implementation changes resulting from reflection on practice and evolving thinking.

- The Realize U project focused on teacher capacity building to ensure student access to advanced coursework through Advanced Placement (AP) courses or College Credit Plus. According to the pilot administrator, faculty members realized they also weren't serving their other students in an individualized way during a training focused on individualized learning plans for gifted students. The district implemented learning plans for all students.
- Cincinnati started with the goal of teaching the six C's to all students in the district. However, as the pilot progressed and the pilot administration went through several leadership changes, the program narrowed and embeded the six C's only into curriculum in Dater High School and Shroder High School. Consequently, those skills became a part of the curriculum and were taught in authentic ways rather than as add-ons. The district essentially took a deeper, more focused approach rather than a broader, shallower approach.
- School leaders at Global Impact STEM Academy said it is essential to continue to clearly revisit and define terms so that all faculty and staff fully understand the vision. "We have and continue to revise how we approach 'Mastery' learning and develop standards for student advancement that is not rooted in seat-time in a specific course or class."

IMPLEMENTATION CHALLENGES RAISED BY PILOT SITES

The following are reflections on a variety of implementation challenges as shared by the pilot sites.

- **Culture Shift**: Culture shift is the most critical and most difficult element of school transformation, according to pilot leaders. Culture shift requires attention to all seven key elements listed above and the structure, protocols and organization needed to make it happen.
- **Time**: Several participants lamented the exceptional need for the time to execute transformation. Like culture shift, making time for completing all the tasks associated with transformation is difficult.
- **Competencies and Standards**: Pilot districts raised concerns about the relationship between competencies and standards. Competencies are "the knowledge, skills and/or behaviors students must master in a specific content or performance area," whereas *standards* refer to the knowledge a student should have or attain at each grade level in each content area.[5] The seminal difference is the application and demonstration of knowledge. As discussed earlier in the report, competencies may contain work readiness skills along with content and often, as demonstrated by New Hampshire's PACE program competencies, envelop many standards captured by one *big idea* in a competency. The relationship between standards and competencies must be clear, the Fairfield County ESC noted. Then local districts must create course-level competencies mapped to the broader competencies, and the competencies must be created before the project begins.
- **Clear Definitions**: Fairfield County ESC also suggested the need for much clearer definitions and guidance at the state level for parts of the system that allow for student learning in the way promoted by competency-based education. The ESC noted, "Work-based learning, for example, is not clearly defined in terms of how to award credit outside of a competency-based education program or credit flex. Because of this lack of clarity, it is difficult to create a program that is built around work-based learning and career pathways if ODE does not have clear definitions and guidance."
- **Seat Time Requirements**: Three of the five pilot sites reported seat time requirements are an absolute challenge to a competency-based education system, which echoes national research in competency-

---

[5] Sturgis, C. (2012). *The Art and Science of Designing Competencies. A CompetencyWorks issue Brief*. International Association for K-12 Online Learning.

based education implementation. Seat time requirements are perceived to constrain self-pacing and experiential learning in settings in which students utilize online instruction and workplace learning that may not require a student's attendance in a brick-and-mortar site. Because competency-based education models vary, the Department should examine where flexibilities exist in the current system and communicate those more clearly to schools and district.

- **ESCs and Career-Technical Education Funding**: Fairfield County ESC highlighted an incongruence regarding the frequent needs of students in alternative settings and the requirements of students taking courses at career-technical centers. Although students in an alternative setting are eligible to participate in courses at a career-tech center, they may only do so once they complete their core courses, a high hurdle for students who are often in the alternative setting for credit recovery. The pilot leadership suggested a system by which students could simultaneously take credit recovery courses in an alternative setting housed at an ESC and work toward workforce credentials in a program also administered by the ESC. Currently, ESCs are not eligible to administer career-tech programs or receive career-tech funding.

- **Teacher Certification**: Two sites reported teacher certification problems, particularly regarding the gifted endorsement in project-based environments in which teachers group students according to project rather than ability level. The school's philosophy is to encourage students at all ability levels to work together, perhaps, with their regular teacher.

- **Teacher Evaluation** and **Test-based Accountability**: Two sites raised implementation challenges posed by the teacher evaluation system. From the school's point of view, the evaluation system encourages traditional practices and discourages innovation according to the ESCNO. Global Impact chooses to modify its teacher evaluation process to ensure teaching practices align with the school's vision.

    One pilot site stated, "Report cards do not reflect this model," and, therefore, serve as a barrier to broad implementation in two primary ways. First, personalized learning and competency-based education target content plus work-ready skills and deeper learning; therefore, implementation frequently means going deeper rather than broader with students demonstrating learning in soft skill areas not included on the state report cards. To date, competency-based education has not been associated with higher test scores on state standardized tests. Some teachers involved in the pilot indicated concern over whether all the standards included on state tests can be adequately covered in a system that emphasizes depth and mastery.

    Secondly, as beneficial as personalized learning and competency-based education could be for educating the whole child, there is little evidence, to date, that it produces higher test scores.[6] Therefore, a risk-taking culture is required that honors work readiness skill acquisition as equal to content knowledge.

- **Assessments**: All pilot sites reported annual state testing negatively impacted competency-based education implementation. The ESCNO site noted the challenges with implementing performance-based assessments when the state requires standardized assessments. Teachers may feel that performance-based assessments are "one more thing" to do rather than an integral part of deeper learning. Performance-based assessments may be too time consuming and too narrowly focused for the expected outcomes on standardized tests.

    Global Impact leaders suggested the two systems could potentially work together, but to do so, students must take the tests when ready to take them. Leaders asked, "How can we promote a learn-at-your-own-pace system that only tests within a narrow window?"

---

[6] Pane, J. (2018). *Strategies for Implementing Personalized Learning While Evidence and Resources Are Underdeveloped.* RAND Corporation (PE-314).

IV. Pilot Outcomes: Does Competency-based Education Improve Student Outcomes?

The evidence from across the country is unclear whether competency-based education produces better student academic outcomes. Ohio is no exception. Although research institutes and organizations such as KnowledgeWorks are researching student outcomes data in competency-based education systems, to date, only one empirical study has taken an in-depth look at competency-based education implementation. In its aptly titled report, "In theory it's a good idea": *Understanding implementation of proficiency-based education in Maine*, Jobs for the Future Student-Centered Learning Research Collaborative finds contradictory conclusions, including higher levels of student engagement for students with more competency-based education exposure but lower SAT scores.[7]

Although difficult to definitively attribute outcomes to a comprehensive competency-based education model, pilot sites did collect data in various ways to measure student progress. The methods varied considerably from site to site. Varying implementation and measurement methodology precluded any valid comparability analysis; nevertheless, positive signs in some leading indicators existed.

- Teacher surveys conducted by the ESCNO with participating teachers in the performance-based assessment design professional development indicated that students engaged in deeper learning with the performance-based assessments implementation in the classrooms.
- In Cincinnati's survey of participants, 89 percent of students reported that the six C's helped them to be more prepared for college and career. More than 24 percent of students reported they were more engaged than usual during the six C's curriculum. Additionally, schools that implemented the six C's consistently reported a reduction in behavior incidents during team meetings and other informal conversations.
- In Chagrin Falls, "Student participation in AP courses has increased significantly, while the passage rates have been maintained," as a result of pilot-associated teacher training. Through the district's bridging program, 100 additional students were able to advance to more rigorous math and science courses.
- Tool building, as much as student outcomes, was the focus of much of the pilot work. Cincinnati built a six C crosswalk tool to share throughout the K-12 curriculum. Geauga's STEM school consortium developed a common rubric for competencies available to other competency-based education-focused schools. Chagrin Falls built the capacity of teachers to better individualize instruction and have the credentials necessary to better allow students to move at their own paces, and the performance tasks created by the ESCNO consortium are targeting nothing less than a system of assessments that are valid, reliable and comparable to the outcomes produced by the state's standardized testing system.

As a researcher from Rand Corporation says, "U.S. proficiency rates on the National Assessment of Educational Progress are too low, dropout rates are too high, growing achievement gaps between the highest-performing and lowest performing students suggest substantial inequities in educational opportunity along the lines of race or ethnicity or socioeconomic status." Perhaps the biggest argument for personalized learning and competency-based education is that challenging problems persist and our current system has not fixed them. The system needs competency-based education, even in the absence of student outcome data.[8]

SUMMARIZING LESSONS LEARNED FROM IMPLEMENTATION

A recent paper by Getting Smart and XQ asks, "Why is competency-based so hard?" The authors list challenges ranging from competency development to building common reporting mechanisms and the interoperability of data systems.[9] Ohio's pilot districts identified many of these issues beginning with the very

---

[7] Shakman, K., Foster, B., Khanani, N., Marcus, J., & Cox J. (2018). *"In theory it's a good idea": Understanding implementation of proficiency-based education in Maine.* Student-Centered Learning Research Collaborative.
[8] Pane, J. (2018).
[9] Getting Smart. (2018). *Show What You Know: A Landscape Analysis of Competency-Based Education.* XQ Institute.

Ohio | Department of Education

definition of competency-based education. Each district interpreted, translated and implemented each competency-based education element in completely different ways. A clear purpose, transformational leadership and vision-driven professional development secured buy-in for successful schools.

A culture shift is essential, and that shift takes a transformative leader with the propensity for shared leadership to ensure the new system is embraced from top to bottom. The **culture must encourage trusting relationships and support risk-taking** by students, teachers and administrators. Local systems, protocols and professional development must reinforce and support the transformative vision. Equity must infuse the system to ensure all students have opportunities and access, and a transformed system must allow for authentic demonstrations of learning to encourage student engagement and work readiness.

Finally, and perhaps most importantly, trust is a prerequisite for a significant transformation. Students must trust their teachers, teachers must trust their principals, principals must trust district leadership, and all must trust the state to enable and support innovative practice.

V. Funding

Competency-based education and personalized learning offer a reimagined vision for public education built on student voice and choice and advancement upon mastery. How might a funding system capture the previously-identified seven core elements and ensure equity and fairness across districts? Four primary issues must be considered: purpose, costs, portability, and performance and incentives.

A CLEAR PURPOSE

The design of a funding approach must be informed by a clear sense of what result is desired. "Current structures for school funding assume that every child will attend a single, brick-and-mortar school in their district, will do so full-time, and will advance through educational programming in lock-step with their age-based peers."[10] Further, student performance and school funding remain disconnected removing any financial incentive to improve student outcomes.[11]

The statements above highlight two very notable and different criticisms of current school funding models. They also raise difficult questions policymakers must resolve when considering a competency-based system. *Should the state create a new system that aligns to student outcomes. Overall performance or student growth? To reward schools that increase performance and punish those that do not? Should a new system simply reflect the changing experience of education — where students take some classes at a home school, some online and sometimes earn credit out of school all together?*

One design approach simply looks at the state wanting to increase the number of schools using competency-based education. If Ohio believes that a competency-based approach will allow a student to learn more at a faster pace and wants to incentivize such a faster pace, then another design might be suggested. If Ohio believes that only high-quality competency-based education should be funded, then the design should include certain features that support that goal. (See the Performance and Incentive funding discussion below.)

The competency-based education approaches that are the subject of this report took place in traditional classrooms and traditional schools. These projects were motivated by educators who had achieved an understanding of competency-based education sufficient to motivate them to want to try it — in the interest of it being a better way to learn and support more students in acquiring deeper knowledge and skills in the subjects addressed. Arguably, the grant funds received were not the primary motivator for these projects but rather a catalyst that let schools and districts experiment with competency-based education designs. In reality, the vision for the outcome of the competency-based education experience was not different from the vision for

---

[10] Poon, J. (2017). *Funding Student Success: How to fund personalized, competency-based learning.* CIE National Center for Innovation in Education.
[11] Getting Smart. (2018). *Show What You Know: A Landscape Analysis of Competency-Based Education.* XQ Institute.

traditional education — to challenge students, prepare them for their future success and empower them to be lifelong learners.

COSTS

First and foremost, funding systems must be considerate of the costs of providing education. Perhaps the most critical question is whether a competency-based system would cost more or less than the traditional comprehensive education system? A thorough cost analysis is beyond the scope of this report and may warrant further study and simulations. Although the competency-based education grant funded pilot initiatives and catalyzed the transition toward a mastery-based system, the reality was such that there was no reason to believe the ongoing operating costs of the competency-based approaches used in the pilots would cost any more than a typical classroom. Nevertheless, Ohio's pilot reveals two significant cost categories impacted by the transition to a competency system: 1) human capital (professional development and administration, equitable instructional practices, performance assessments, personalized learning, plans, etc.) and 2) technology (support services via LMS software and administration). Much of these additional costs are incurred as start-up expenses.

Expenses related to human capital are, by far, the larger component. Reflecting on the seven key elements listed above, human capital captures vision setting, training for current teachers, onboarding new teachers and developing partnership.

With regard to technology, sites reported several types of technology-related expenses, including the acquisition of software applications such as Naviance that support career pathways and exploration, applications that support online academic instruction, and learning management systems for data tracking to enable teachers and administrators to track student progression through content competencies.

Professional development and technology integration, however, are included in any school's budget and, as such, existing funds could be repurposed to launch competency-based education. Comprehensive implementation, however, may require more visioning and more training than schools are accustomed to or have historically budgeted for. The overall cost difference could reflect the scale of the transformation and the place from which the transformation begins.

That said, in the interest of catalyzing greater utilization of a competency-based education approach, a funding system might include support for start-up costs for a competency-based education approach. It is not uncommon for schools that undergo a restructuring of their academic approaches to incur additional costs at the beginning of the process to cover professional development, technology purchases and other initial implementation supports.

The table below summarizes pilot site grant expenditures:

Activity Type (Total Year 1 and Year 2)	Total Grant Funding
Salaries/Fringe Benefits	$219,402.18
Purchased Services (consulting services, training and professional development, software licenses, etc.)	$1,449,996.56
Supplies (instructional materials)	$141,718.66
Total	$1,811,117.40

PORTABILITY

While not prominently featured in the pilots that are the subject of this report, one vision of competency-based education would include a feature that allows students to consume educational services from more than one provider. The ideas of *portability* and *divisibility* are important considerations in designing a funding model

that supports students receiving services from multiple providers. Ohio's current funding system has some features that accommodate portability — allowing funding for courses taken at the home school or the career-technical education center and College Credit Plus courses. There also are some elements of portability (although not full portability) with regard to community schools and open enrollment.

A key decision in addressing the issue of portability is the extent to which the state is willing to fund greater than a 1.0 full time equivalency for any student. For example, a student who is enrolled full time in a traditional school but also wants to take college classes during evenings and the summer would require more than 1.0 FTE funding. Ohio's current system does not support this level of flexibility. Nevertheless, if promoting greater flexibility was a key goal of the funding system, such a design element could be created.

PERFORMANCE AND INCENTIVE FUNDING

Another design feature worthy of considering is the extent to which funding should be tied to performance — that is, that actual achievement of competency by a student rather than the completion of a course. A performance approach might be included in the funding design if there was a desire to use the funding system to motivate academic accomplishment. However, such funding system design features can create undesirable unintended consequences.

Performance funding design features are most commonly found in funding systems for online or virtual schools. Student pace is a primary focus of these model as students move through course progressions based on successful completion of embedded assessments. This approach highlights two important questions for policymakers as they consider a performance-based funding model.

> *Defining Competency*: Should the funding system be based on *completion* or *competency*? Is an online system that only includes quizzes and tests at the end of every module primarily focused on completion or is it focused on competency?

> *Defining Readiness:* More broadly, is course *completion* adequate in a system focused on content knowledge and work readiness skills? If the goal is to ensure students are truly competent and not simply completing their coursework, how does the state, district or school define competency?

The research and practical examples of competency-based funding, mastery funding, performance-based funding, student-centered funding and others primarily focus on virtual schools that allow students to complete work (demonstrate competency) at their own pace. Florida and New Hampshire have nationally recognized statewide virtual schools heralded for their innovative approaches to learning and funding. Unlike Ohio, a single state-led entity operates these virtual academies rather than many private providers. Nevertheless, the lessons learned can be useful.

New Hampshire created the Virtual Learning Academy Charter School (VLACS) in 2008. VLACS courses are divided into *competencies* that equal **well-defined sub-units of content**. VLACS offers four pathways to competency: Projects, Teams, Experiences and College in which students demonstrate learning in ways beyond online assessments.

Florida instituted a performance-based funding formula for Florida Virtual School (FLVS) in 2003. FLVS receives payments at the beginning of the year based on enrollment estimates and then several times throughout the year based on student count.[12] Additionally, FLVS ensures course quality by requiring all courses to include clear standards and benchmarks for student progressions using standard rubrics to maintain consistent quality.

---

[12] Patrick, S., Meyers, J., Silverstein, J., Brown, A., & Watson, J. (2015). *Performance-Based Funding & Online Learning: maximizing Resources for Student Success*. International Association for K-12 Online Learning.

By dividing courses according to competencies in this way, not only can students and teachers better understand remediation and progression, but the state subdivides funding in ways whole course completion cannot. In Florida, a student must earn an 85 percent "mastery" in order to determine competency and earn credit. *Completion* differs from *competency.*

The state funds FLVS via course completion, but competencies are the basis of the accountability system.[13] The performance threshold is lower for completion. As Miller, et al, describe, a system based on completion increases funding certainty for the school. Additionally, a competency-based system could provide a perverse incentive for teachers to lower their standards to help students achieve the necessary 85 percent mastery.[14]

VI. Conclusion

Ohio's pilot defined *competency-based education* as a system that: 1) allows students to move at their own pace; 2) promotes deeper learning; 3) addresses the individual needs of students; 4) promotes innovative instructional models; and 5) bridges the gap between classroom innovation, authentic assessments and state-required standards.

This comprehensive approach requires a schoolwide commitment to sustainable change. Although still in the early stages of their journey to competency-based education, Ohio's competency-based education pilot sites made important strides in demonstrating the usefulness of competency-based education. Pilot participants found competency-based education to promote college and career readiness through problem-solving, deeper learning and authentic demonstrations of knowledge and skills. Continued interest in competency-based education warrants further exploration of student outcomes and potential funding models in competency-based education systems.

---

[13] Miller, L., Just, M., & Cho, J. (2016). *Low-stakes completion-based funding: What can we learn from the school that invented it?* Lexington, KY: University of Kentucky Center for Innovation in Education.
[14] Ibid.

Ohio | Department of Education

Appendix A: Personalized Learning and Competency-Based Education

Personalized learning has gained significant interest to better engage and prepare students. Personalized instruction has a long history in public education. From individualized education plans in special education to supplemental tutoring to formative assessments and remediation, educators frequently customize, differentiate and individualize approaches to teaching. As one researcher puts it, "Personalized learning can be viewed as a schoolwide integration and intensification of these ideas across all grades and subject areas."[15]

Students have agency over their learning in personalized environments in contrast to a traditional "assembly line" approach to instruction.[16] "In schools using personalized learning, students are active learners with:

- Choice in how they learn;
- Voice to co-create learning experiences that express their own ideas;
- Options to personalize their pathways; and
- Leadership opportunities in which they can shape or contribute to their own environment."[17]

Personalized learning and ***competency-based education*** often are used synonymously, but there are important distinctions. Personalized learning is a student-centered approach made actionable by a competency-based system that shifts structures. If personalized learning is the hardware, competency-based education is the operating system. As noted by CompetencyWorks, "Personalized learning relies on the competency-based structures that produce consistency in validating proficiency based on student work, and careful monitoring of pace and progress."[18]

Personalized learning is the full expression of equity-infused instruction. Competency-based education is a central vehicle for actualizing personalized learning.

---

[15] Pain, J. (2018). *Strategies for Implementing Personalized Learning While Evidence and Resources are Underdeveloped*. Rand Corporation, Perspective.

[16] Patrick, S., Worthen, M., Frost, D., & Gentz, S. (2016). *Promising State Policies for Personalized Learning*. Vienna, VA.: iNACOL.

[17] Sturgis, C., & Casey, K. (2018). *Quality Principles for competency-based education*. Vienna, VA: iNACOL.

[18] Ibid.

Ohio | Department of Education

Appendix B: Essential Concepts

- **Authentic learning:** Refers to a variety of instructional methodologies, such as **problem-based learning** and **inquiry-based learning**, that are based on students applying academic content knowledge and work readiness skills as they address "real-world" problems.[19]

- **Competencies**: The knowledge, skills and/or behaviors students must master in a specific content or performance area.[20]

- **Competency-based education**: A system of academic instruction, assessment, grading and reporting where students receive credit, not as a function of how much time they spend studying a subject but based on demonstrations and assessments of their learning.[21]

- **Competency-based funding**: A funding system that ties school funding to a student's "mastery" of competencies.[22]*

- **Completion-based funding**: A funding system that compensates schools when students complete predefined milestones.[23]*

  *Note: **Completion-based funding** and **competency-based funding** are not synonymous. Consider the case of a student who earns a "D" in a course. The school would receive funding for completion, but the student did not achieve "mastery" and may require additional practice before moving to the next topic or competency.

- **Portability:** Dollar amounts are allocated per student and "follow" students wherever they enroll.[24]

- **Divisible**: "A student can allocate some funding to a primary school then take courses with other providers and use [portions] of his or her allocation to pay tuition and fees.[25]

- **Assignable**: Families determine where to allocate funds. (Also known as the funding "Backpack.")[26]

- **Performance-driven funding**: A school finance model that links funding to measurable student performance outcomes.

- **Standards-based grading practices**: Grading based on how well a student progresses toward proficiency of concepts rather than by a single summative grade. In a standards-based system, students are assessed according to clear learning objectives typically included on a performance rubric.

- **Student-centered funding**: Funding based on how each student's needs are met.[27]

- **Weighted student funding**: Student-based funding that provides more funding for students from certain socioeconomic groups, English language learners, students with disabilities, etc.[28]

- **Work readiness skills**: The knowledge, skills and dispositions, including higher-order thinking skills, mindsets and behaviors students need to be successful in college and career. (Also known as 21st century skills or soft skills.)[29]

---

[19] Paraphrased from Edglossary.com. Retrieved from https://www.edglossary.org/authentic-learning/.

[20] Sturgis, C. (2012). *The Art and Science of Designing Competencies*. A CompetencyWorks issue Brief, International Association for K-12 Online Learning.

[21] Ibid.

[22] Miller, L., Just, M., & Cho, J. (2016). *Low-stakes completion-based funding: What can we learn from the school that invented it?* Lexington, KY: University of Kentucky Center for Innovation in Education.

[23] Ibid.

[24] Poon, J. (2017). *Funding Student Success: How to fund personalized, competency-based learning*. CIE National Center for Innovation in Education.

[25] Ibid.

[26] Ibid.

[27] *Student-Centered State Funding: a How-to Guide for State Policymaker*s. (2017). ExcelinEd.

[28] Poon, J. (2017).

[29] Council of Chief State School Officers. (2013). *Knowledge, Skills, and Dispositions: The Innovation Lab Network State Framework for College, Career, and Citizenship Readiness and Implications for State Policy*. Retrieved from https://ccsso.org/sites/default/files/2017-10/ILN%20Knowledge%20Skills%20and%20Dispositions%20CCR%20Framework%20February%202013.pdf.

Ohio | **Department** of Education