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Making Mastery Work

A Close-Up View of Competency Education

Executive Summary

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The Nellie Mae Education Foundation is the largest charitable organization in New England that focuses exclusively on education. The Foundation supports the promotion and integration of student-centered approaches to learning at the middle and high school levels across New England. To elevate student-centered approaches, the Foundation utilizes a strategy that focuses on: developing and enhancing models of practice; reshaping education policies; increasing the body of evidenced-based knowledge about student-centered approaches and increasing public understanding and demand for high-quality educational experiences. The Foundation's initiative and strategy areas are: District Level Systems Change; State Level Systems Change; Research and Development; and Public Understanding. Since 1998, the Foundation has distributed over $110 million in grants.

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Executive Summary

The traditional system of moving students ahead to the next grade level after nine months of school seems less relevant each year. This is a reason for the growing appeal of competency-based learning, or competency education.

Schools face unprecedented pressure to close achievement gaps and prepare all students for college or careers. The needs of the global economy, the demands of No Child Left Behind, and the requirements of the Common Core State Standards—combined with persistent educational disparities by race and class—cry out for a fundamentally new approach to K–12 education. Teachers are grappling with the need to reach each student with instruction that is more individualized than at any other time in our history. The traditional system of moving students ahead to the next grade level after nine months of school seems less relevant each year. This is a reason for the growing appeal of competency-based learning, or competency education. Today's graduates must be able to apply skills and knowledge in order to succeed in college or land a job, climb a career ladder, and earn a family-supporting income. While just going through the motions of school, getting by with "C" and "D" grades, was never optimum, it is now more than ever a dead-end for students and society as a whole. These are some of the reasons for the growing appeal of competency-based learning, or competency education, in which students progress at their own pace, based on what they can show that they know.

The idea of moving to a system built on demonstration of mastery, rather than a required amount of time in a classroom, is drawing renewed interest from educators and policy makers alike. Competency education is rooted in the notion that education is about mastering a set of skills and knowledge, not just moving through a curriculum. In competency education, students keep working on specific skills or knowledge until they can demonstrate their understanding and ability to apply them; they then move to the next material while continuing to use what they have already learned. Students cannot advance simply by showing up to class on a sufficient number of days and earning a grade just above failing. Instead they must meet standards (also known as competencies, performance objectives, or learning targets) at a pre-determined level of proficiency.

SNAPSHOT: The Project and The Schools

With support from the Bill & Melinda Gates Foundation and the Nellie Mae Education Foundation, the Proficiency-Based Pathways Project awarded grants in March 2011 to seven projects representing a range of competency education models. Two organizations were intermediaries working with more than one school, allowing a total of 11 schools to be studied.

All are small public high schools, with fewer than 600 students. They are located in rural, suburban, and urban areas, including inner-city neighborhoods of Boston and Providence. The schools are listed, with the particular focus of each, in the table below:

Schools	Focus
Big Picture Rochester in Rochester, Vt. and **Big Picture Depot Campus** in Storrs-Mansfield, Conn.	A high school model based on a highly personalized approach to learning. Known for its full-time advisory structure and careful blending of school, workplace, and community-based learning activities.
Boston Day and Evening Academy in Boston, Mass.	An alternative public charter high school serving overage Boston students; fully based on competency education. Well known in region for work on developing a competency education assessment system.
Casco Bay High School in Portland, Maine. (Supported by the Expeditionary Learning Network.)	A high school of choice for 275 Portland students, now in its seventh year, in which Learning Expeditions (in-depth projects) drive instruction.
Champion High School in Brockton, Mass.; **Charlestown High School** in Charlestown, Mass., and **E-Cubed Academy** in Providence, R.I. (Supported by Diploma Plus.)	A national alternative high school/program network designed specifically for struggling students from urban settings, typically overage and under-credited. Longtime leader in competency education-friendly technology systems.
Gray-New Gloucester High School in Gray-New Gloucester (MSAD15), Maine.	The district has been implementing competency education for over four years at the elementary and middle school levels. It is now being piloted at the high school level.
Medical Professions and Teacher Preparation Academy in Hartford, Conn. (Supported by the National Center on Education and the Economy and Capitol Region Education Council)	A dual-themed magnet school serving a diverse group of formerly struggling grade 6–10 students drawn from Hartford and surrounding areas.
Vergennes Union High School in Vergennes, Vt.	A rural grade 7–12 regional school serving 600 students. The middle school uses expeditions and exhibitions to frame student learning. The high school is creating a competency education program, building on the middle school's foundation.

In contrast to the traditional model of advancing at the end of a unit or course, students move ahead as soon as they are ready, at any point during the year. Supporters say this far more effectively promotes learning and increases achievement. It does so by allowing students to proceed at their own pace in every subject and enabling teachers to respond to individual needs, interests, and challenges in every class.

While competency-based principles have a history in vocational education, a growing number of typical high schools now are adopting competency-based programs. As is typical of any emerging field, a wide array of approaches is currently underway. This report focuses on the experiences of students, teachers, and administrators in a select, but varied, group of schools that are ahead of the curve in implementing competency education (sometimes called proficiency-based pathways).

A team of researchers spent a year and a half examining 11 high schools in New England that already had started this work and wanted to expand their efforts. (See SNAPSHOT: The Project and The Schools.) The authors provide a window into state-of-the-art strategies in New England and across the country. The report documents each school's experiences, highlighting the key components, benefits, and challenges of the work already done and the work left to do.

Key conclusions from this project include:

- Competency-based approaches have two distinguishing characteristics: 1) a clear, measurable definition of mastery, along with procedures and tools for tracking that mastery and 2) the flexible use of time.
- Many students find competency education more motivating and engaging than traditional approaches. The chance to progress at one's own pace is particularly important to struggling students.
- Time-based policies and systems from schedules to contracts to credit systems—at both the district and state level often pose challenges for those implementing competency-based designs. But educators are finding ways to create flexibility, often starting within familiar structures but looking for strategies to support more individualized pacing.
- There is no single blueprint or well-established menu of instructional products geared for competency education initiatives, so teachers often face the benefits and the drawbacks of designing their curriculum and instruction from scratch.
- The biggest logistical challenge to creating competency-based initiatives is the lack of high-quality data and technological tools to assess and monitor student progress that are tailored to each initiative's specific approach.
- The expansion of competency education is likely to benefit from a number of new favorable conditions.

What is Competency Education?

Competency-based programs can and do differ from each other in many respects, from the student populations they serve to the pedagogy they practice. However, two features distinguish competency education from other approaches: 1) A clear definition of mastery, along with systems for tracking student advancement; and 2) A commitment to flexible uses of time and individualized pacing.

In these fundamental ways, competency education challenges the traditional structure of the American school system. For more than a century, U.S. schools have relied on the concept of the "Carnegie Unit," or "credit," to determine student progress. Course credit is awarded for meeting "seat-time" requirements and earning a passing grade of "D" or higher. Students graduate upon completion of a mandated number of hours in a required set of courses aligned with state

SNAPSHOT: Key Characteristics of Competency Education

1 Students progress at own pace

- Transparent system for tracking and reporting progress
- Flexible, learner-centric use of time, often beyond standard school day and year
- Explicit methods for providing additional support or opportunities for learning

2 Graduation upon demonstration of mastery of a comprehensive list of competencies

- Courses designed around set of competencies aligned with Common Core State Standards
- "Credit" awarded upon mastery of competencies associated with course or smaller module, based on summative assessments
- Transparent system for tracking and reporting progress

3 Teachers skilled at facilitating differentiated learning environments

- Frequent formative assessments provide real-time feedback to students and teachers on progress toward competencies and help guide instruction
- Development of robust approaches to supporting students as they move through competencies, especially those who progress slowly

standards and, soon, the Common Core State Standards. Annual school calendars and daily schedules revolve around this basic idea.

In competency-based schools, by contrast, students graduate after they are able to demonstrate mastery of a comprehensive list of competencies that are aligned with state standards and/or the Common Core State Standards. Some schools offer multiple opportunities to enroll or graduate each year. Course "credit" is granted for mastering the competencies, or smaller learning targets, associated with a course. Summative assessments are aligned with competencies and may be taken whenever a student is ready to demonstrate mastery. (See SNAPSHOT: Key Characteristics of Competency Education.)

It is important to note that, in practice, competency education models can be understood as existing on a continuum. While the philosophical ideal may be for every student to advance based solely on mastery, not all schools adopting competency-based learning principles do this. Some value group learning and a sense of classroom community as much as purely individualized progression. Schools with different populations, policies, and student needs lead to distinct versions of competency education. However, all of the schools in this project are looking at mastery approaches and considering the benefits for their particular initiatives.

Motivating a Wide Range of Students

One goal of a competency-driven program is to provide an educational model that can spark interest in learning and inspire a wide range of students to reach their potential. In conversations with students at competency-based high schools, the young people were passionate, articulate advocates for their schools.

Students explained that they are engaged and motivated by competency education for a few, clear reasons: They know exactly what is expected of them, and yet exercise a great deal of control over their

own learning. The freedom to set one's own pace and focus on learning gaps is particularly important for students who struggled in previous settings. At schools with highly flexible schedules, the ability to decide when and where to learn can contribute to students' commitment to do their best.

For example, **Boston Day and Evening Academy,** an alternative school for under-credited and over-age students, is designed to provide students with maximum flexibility as they set their course to graduation. Each student has a variety of options for working on learning targets—traditional coursework, online classes, independent studies—and most experiment with different paths and schedules until they find the combination that meets their needs.

The self-pacing allows students to start where they are. This has helped 19-year-old "Luis" to thrive. Taking day and evening courses, he has moved quickly through benchmarks, "testing out" of several classes. "Monique," who has learning disabilities, has been moving much more slowly, particularly in math. However, while retaking several math modules, she can continue meeting learning targets in other subjects.

SNAPSHOT: Learning How to Self-pace

Enabling each student to learn at a comfortable, yet challenging pace is essential to competency education. But it is not easy for everyone to figure out this balance. Some students find the freedom inherent in competency-based programs to be overwhelming at first. The need to self-regulate can pose a challenge to young people who never learned these skills. Several schools have established clear "Habits of Work"—to help guide students in using their time effectively and understanding what accountability looks like in the professional world.

Schools with more traditional populations stirred similar enthusiasm. At **Vergennes Union High School,** 10th graders described a great sense of pride and accomplishment that they always have time to produce work at the highest level possible. Rather than feeling stressed and then forced to stop by arbitrary deadlines, they persist at tasks until they feel they have done their best work.

Casco Bay High School students, who use an Expeditionary Learning framework, which focuses on community-based learning and "authentic" real-world experiences, are particularly excited about their "intensives." Twice a year, students complete a week-long intensive study of a single subject and then present their work to classmates in a public "exhibition." The topics are as varied as student passions and are shaped by student learning needs. Last year, one performing arts group wrote songs and performed them in their band. Another group learned about textiles, undertaking sewing, knitting, and other hand-work projects. The presentations were humorous, compelling, and connected to the real world, and emphasized the school's commitment to sharing learning experiences. The students were confident and fully engaged.

At Casco Bay, as in the other schools discussed here, students have authentic opportunities to lead, make decisions, manage their own learning, and facilitate the learning of others. The words and actions of these students reveal that competency education is not just a theory promulgated by adults, but a powerful factor in student experience, one in which they are deeply invested and engaged.

Finding Flexibility in Traditional Schedules

All of the schools have wrestled with the relationship between time and learning. Some reorganize the school year and school day. Despite their many differences from traditional schools, most competency-based programs actually work within the familiar constructs of daily bell schedules and two or three terms per year. The rigidity of district, state

Table 1: What Distinguishes Competency Education?

Competency Education	Traditional Education
Students graduate after they are able to demonstrate mastery of a comprehensive list of competencies (also broken down into learning targets or benchmarks).	Students graduate upon completion of a mandated number of hours in a required set of courses.
Courses are designed around a set of competencies or learning targets that are aligned with state standards and the National Common Core Standards.	Courses are designed to align with state standards and the National Common Core Standards.
Course "credit" is received by mastering the competencies associated with the course or a smaller module.	Course credit is received by meeting seat-time requirements.
Each competency is assessed on a rating scale (such as letter grades, or terms such as "Highly Competent," "Competent" and "Not Yet", or "Exceed", "Meets" or "Doesn't Yet Meet" the standard). Where effort or work habits are reported, they are typically maintained as a separate grade.	Course completion is assessed with a culminating grade composed of weighted averages of completed assignments (such as tests, homework, quizzes, labs), "effort" (organization, preparedness, and "attitude" are typically included in this component) and timeliness (students are typically penalized for turning in work late, arriving to class late, or missing school).
Students progress at their own pace.	Students complete coursework together.
Students are placed in courses based on the data mined from diagnostic assessments.	Students are placed in courses based on their age, grade-level and/or prior performance.
Assessments are aligned with competencies, and may be taken whenever a student is ready to demonstrate mastery.	Assessments are aligned with course calendars, and are taken when units of study are complete.

and federal regulations on the subject, combined with the conventional wisdom that "this is how it's always been done," make it difficult to make major structural changes. However, educators at each site have figured out creative ways to use time flexibly within broader constraints.

Big Picture Learning, which provides a fully personalized program under the mission "the education of a nation, one student at a time," has developed the most flexible schedules of the schools studied. The model evolved from the belief that students learn best when they are learning about phenomena that intrigue them, and that what intrigues them should be explored where—and when—it occurs. Each student's daily schedule is unique, designed with support from a faculty Advisor, and includes out-of-school internships, independent studies, support from out-of-school mentors, and projects. The yearly school calendar also is unique, with time reserved for quarterly student exhibitions in front of a public audience in order to demonstrate mastery of learning targets.

Each grade at Casco Bay has extended block periods daily to make it possible for students to do fieldwork for expeditions (long-term, in-depth studies of a single topic that explore vital guiding

SNAPSHOT: Instant Performance Tracking

Diploma Plus has made a large investment in developing a customized learning management system. It is designed to provide both students and teachers with up-to-the-moment data about student progress on competencies: each time a teacher posts an activity or project for students, she also identifies the DP competencies that are embedded in the task. Then, as students complete work, teachers assess student mastery of each competency. Students can log on at any time to see which tasks are complete, which targets have been met, and even, what the data trends are in their mastery of each target.

questions) and other outside-the-classroom learning. The calendar is unique, organized around two or more annual expeditions that each last four to eight weeks, in addition to the twice-yearly "intensives." There is also a Mud Season School in March and a Summer School in July for students who have not successfully completed coursework to work on specific learning targets.

Staff at **Medical Professions and Teacher Preparation Academy,** which has a relatively traditional schedule, are struggling to find flexibility. They have set up structures like a daily "X" block and Saturday school for students who need extra instruction to master difficult material. They also are planning a summer component. However, the principal talks openly about the difficulty of breaking away from time-based student progression.

Designing Curriculum and Instruction From Scratch

In competency education schools and programs, administrators and teachers find themselves continually retooling both their curriculum and their practice, as they not only face the issues all teachers face, but also attempt to accommodate the specific learning needs of their students and the demands of competency education. There is no single blueprint for competency education initiatives, so it is virtually impossible to find a published curriculum that fits any individual program's often customized design needs. Rather than buying textbooks or "off-the-shelf" online courses, some teachers are designing their curriculum from scratch while others are building on existing materials. The benefit of a homemade approach is that curriculum can be customized to meet the needs of each classroom, teacher, and student. The drawback is that it requires a tremendous amount of work, especially for those committed to continuously reflecting on and improving the curricular designs.

At Boston Day and Evening Academy and Diploma Plus, teachers must develop the curriculum themselves, because it grows out of the need for self pacing and meeting the wide range of academic levels from third-grade to grade 11 or 12.

At **Expeditionary Learning** and Big Picture Learning, there is a long mission-driven tradition of teacher-created curriculum, evolving out of the specific interests of the students and the resources available in the community. But even these intermediaries with years of experience recognize their inherent limitations. Most notably, not all great teachers are great curriculum designers; the jobs require different skill sets.

Despite many variations, two things characterize successful competency-based classrooms. First, teachers explicitly teach students what the learning targets mean and provide examples of mastery. Second, teachers develop extensive formative assessment practices that they use frequently—sometimes multiple times a day—to measure each student's progress.

Assessing Mastery and Monitoring Progress

There are many logistical challenges to implementing competency-based programs. The biggest appears to be the lack of tools to assess and monitor student progress, especially anything tailored to a particular initiative's needs.

Medical Professions and Teacher Preparation Academy adopted an existing mastery framework, the Cambridge International Examinations system, as part of 21 pilot schools participating in Excellence for All. Students must meet or exceed qualification scores on a series of end-of-course exams in ELA, math, science, history, and the arts.

However, at most schools in this project, staff have invested many hours defining and refining their mastery system and building assessment and data systems from scratch, just as with their curriculum. They have created learning targets, performance-based assessment rubrics, and database applications to track progress and report to students.

Meanwhile, Big Picture Learning is just starting its efforts to introduce common proficiency-based assessments at all of its sites that will validate the quality and rigor of the work BPL students do, not just in class, but in internships, community projects, and other domains.

While competency education can be managed effectively in low-tech ways, school leaders and staff are eager for database systems to support their work. When each student is mastering competencies at their own pace, and often pursuing different pathways toward that goal, data can easily become overwhelming as teachers try to track where every student stands on each learning target. Furthermore, most schools have a commitment to ensuring that the information is transparent—available to students as well as school administrators and parents.

Some of the schools use "low-tech" methods such as wall charts, stickers, and students initialing their progress on standards, while others have developed customized database software. Competency education schools are hopeful that fast-paced improvements in technology to assess, track, communicate with other systems such as district software, and even suggest activities and curriculum modules, means that high quality solutions may not be very far away.

Coming to a School Near You?

Competency education is evolving across New England and the United States. While few models have reached maturity, educators and policy makers have much to learn from the work schools have begun. The expansion of competency-based programs is also likely to benefit from a number of new favorable conditions.

Experienced educators and intermediary organizations are providing a variety of essential training and support to newcomers to the field. The Quality Performance Assessment Initiative, for example, trains practitioners in designing Common Core-aligned, valid, performance assessments. Boston Day and Evening Academy has launched the Responsive Education Alternatives Lab, the only intermediary exclusively devoted to supporting the development of competency-based models.

The establishment of friendly policies at the federal, state, and district levels is making it possible to develop coherent competency-based programs. Thirty-six states have adopted policies that allow districts or schools to "provide credits based on students' proficiency in a subject," opting out of seat-time requirements. The adoption of the Common Core State Standards by almost every state will encourage consistency in developing competencies that are grounded in high quality college-readiness standards, and the assessment systems being developed by multi-state consortia will support the need to measure the kinds of complex knowledge and skills embedded in many competencies. It is easy to foresee that technological innovation, much of it already underway, eventually will lead to curriculum, data systems, and assessments designed around competencies, rather than class time.

Competency education has a long history, but its widespread adoption is far from certain. As personalization occurs in every aspect of modern life, it will no doubt permeate education more fully, and the idea that every student should learn at the same pace may seem as old-fashioned as typewriters do today. In the meantime, we can learn a great deal from the pioneers of competency education, including the 11 schools highlighted in this report.

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