



# INSTRUCTIONAL TECHNOLOGY IN THE NEW BEDFORD PUBLIC SCHOOLS

**SY 2014-2015 CEI Impact Report**

**October  
2015**

**Public Policy Center**  
UMass Dartmouth



## **ABOUT THE CENTER FOR EDUCATION INNOVATION**

Friend's Academy established the Center for Education Innovation (CEI) to extend and export their methods and resources to improve teaching and learning in the South Coast region through high-quality teacher training and technology integration. CEI aims to improve teaching and learning by:

- Developing 21st century tools such as critical thinking, problem solving, analyzing, synthesizing, and applying information to new solutions or new problems;
- Shifting the culture of the classroom from teacher-centered to student-centered;
- Providing a new model of urban education that can be exported to other school systems;
- Supporting teachers by providing one-on-one mentoring to help change teachers' practice; and
- Providing professional development to teachers so that they teach for understanding while integrating technology.

## **ABOUT THE PUBLIC POLICY CENTER AT UMASS DARTMOUTH**

The Public Policy Center (PPC) at UMass Dartmouth is the University's applied social science research, technical assistance, and public service unit based in the College of Arts and Sciences. An interdisciplinary applied public policy research and technical assistance provider, the Center seeks to inform evidence-based policymaking at the state, regional, and local level through collaborative engagements with public, private, and non-profit partners.

The Center is supported by a highly experienced team of professionals who leverage the skills and expertise of UMass faculty, staff, and students to meet the needs of our clients and partners. Services provided by the PPC include survey research, program evaluation (summative and formative), economic and workforce analysis, demographic and socioeconomic analysis, technical assistance, and needs assessment. These services are offered in the areas of economic development, community development, education, public health, transportation, housing, and the environment. More about the Public Policy Center can be found at: <http://publicpolicycenter.org/>.

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## EXECUTIVE SUMMARY

The Center for Education Innovation (CEI) at Friends Academy works to increase the effectiveness of New Bedford Public Schools (NBPS) teachers by providing them with high-caliber training, technology, and coaching. In the short-term, this intervention is aimed at improving teaching quality and collaboration at select schools. In the long-term, CEI expects that these improvements will translate to gains in student achievement and school performance. These gains could likely be realized if CEI's program is implemented district-wide.

CEI commissioned the Public Policy Center (PPC) at UMass Dartmouth in spring of 2014 to design and pilot a survey and evaluation plan to measure the impact of CEI programming on teachers and their students at the Campbell and Lincoln elementary schools.<sup>1</sup> PPC was asked to revisit the pilot study in the fall of 2015 to measure change at the Campbell and Lincoln schools and to evaluate CEI-related activities at the Hathaway and Pacheco elementary schools, which CEI partnered with in the 2014-15 school year. The evaluation includes four major parts:

1. A profile of the New Bedford Public Schools and student data including student/teacher ratios, average class size, attendance rates, language spoken at home, and income.
2. An analysis of output measures including a description of professional development activities and the amount and type of technology provided by CEI.
3. A pre- and post-participation survey of teachers at the Hathaway and Pacheco schools aimed at gauging teachers' behavior and perceptions before and after working with CEI.
4. An analysis of school and classroom level data at the Lincoln, Campbell, Hathaway, and Pacheco schools to determine the degree to which student performance may have been influenced by CEI activities.

### Output Measures

In the 2014-15 academic year, CEI engaged a total of 98 teachers in Campbell, Lincoln, Hathaway, and Pacheco elementary schools. Collectively, CEI initiatives indirectly reached 1,742 students with instructional technology and technologically-integrated teaching and learning practices. In addition:

- Nearly all teachers at Campbell, Hathaway, and Pacheco schools participated in 20 hours of CEI professional development workshops.
- Almost all teachers at Campbell, Lincoln, and Hathaway completed the WIDE World course offered by the Harvard Graduate School of Education either in the

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<sup>1</sup> For a copy of the pilot study, see <http://ceiatfriends.weebly.com/evaluation-results.html>

2013-14 or 2014-15 school year (teachers only take the WIDE World course once).

- CEI staff continued to offer instructional technology services throughout the school day that included one-on-one mentoring (Train the Trainer model) and technology support.
- In addition to core professional development programming, CEI has provided a total of 207 desktops, 64 laptops, and 210 iPads to the Campbell, Lincoln, Hathaway, and Pacheco schools.

### Short-Term Outcome: Improved Instruction and Collaboration

Educating teachers on the importance of using data to improve student outcomes is a cornerstone of CEI programming. Results of the pre- and post-participation teacher survey of Hathaway and Pacheco teachers show progress in several areas:

- **Usage of Technology:** Post-participation surveys indicate that the CEI intervention increased daily use of computers and technology in completing schoolwork. The data also show substantial development of a school culture that supports the integration of technology and learning.
- **Value of Data Assessment:** While the frequency with which teachers reviewed assessment data did not increase over the course of the survey period, the percentage of teachers who placed above average value on assessment data increased during the intervention.
- **Teacher Collaboration:** Overall, CEI initiatives have positively affected teacher collaboration, but not in all areas. Survey responses show positive shifts with regard to collaboration in teachers' lounges and faculty meetings. However, the results do not show progress related to experienced teachers collaborating with new teachers.

Other areas where Hathaway and Pacheco teachers overall reported positive change include:

- An increase in the frequency that teachers incorporate software and technology when they deliver lessons, including video clips, live Internet searches, music or audio clips, or similar media.
- An increase in teacher satisfaction levels in terms of their knowledge of how to use technology in the classroom.
- An increase in the belief that technology is essential to teaching and learning.
- An increase in the perception that students enjoy learning more when using technology.
- An increase in the degree to which their school is preparing its students to be literate technology users.

- An increase in the degree to which their school’s culture encourages technology usage for instruction.
- An increase in the belief that professional development has been sustained and coherently focused, rather than short-term and unrelated.

### Short-Term Outcome: Lexia Reading Scores

One of CEI’s short term outcomes is to improve software-based student performance, which is accomplished primarily through Lexia Core5.

- There was a significant increase in the percentage of On Target students at Hathaway and Pacheco, while Campbell and Lincoln experienced a smaller increase.
- There was a reduction in the percentage of students in the Some Risk category across all schools, although it is unclear which groups these students moved into (i.e. High Risk or On Target), or whether there was movement between the On Target and High Risk group as well.
- There were several external factors related to program implementation and adoption that prevented the Lexia program from being implemented with fidelity. Going forward, CEI has made several adjustments to address these issues, including more focused and frequent training with teachers and administrators, who have thus far been very supportive of CEI’s professional development activities in the current school year.

### Long-Term Outcomes: Galileo and DIBELS Assessments

One of CEI’s long term outcomes is to improve student performance as measured by reading scores on the Galileo and DIBELS assessment tests. Teachers in CEI-supported classrooms saw across-the-board growth in their students’ Galileo and DIBELS scores. Although it is not currently possible to attribute this change to CEI directly, it is clear that participating teachers’ students have made meaningful literacy gains during the period of CEI’s involvement.

- **Galileo:** All grades showed improvement from beginning of year (BOY) to end of year (EOY), with the percentage of students reaching benchmark improving by 7 percentage points at Pacheco, 15 percentage points at Campbell, and 7 percentage points at Lincoln.
- **DIBELS:** All grades showed improvement from beginning of year (BOY) to end of year (EOY), with the percentage reaching benchmark improving by 17 percentage points at Pacheco, 9 percentage points at Campbell, and 15 percentage points at Lincoln.

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## 1.0 BACKGROUND

The Center for Education Innovation (CEI) at Friends Academy was founded in 2011 to improve teaching and learning in the Southcoast region and beyond through high-quality teacher training and technology integration. CEI achieves these goals by:

- Developing 21st century tools such as critical thinking, problem solving, analyzing, synthesizing, and applying information to new solutions or new problems;
- Shifting the culture of the classroom from teacher-centered to student-centered;
- Providing a new model of urban education that can be exported to other school systems;
- Supporting teachers by providing one-on-one mentoring to help change teachers' practice; and
- Providing professional development to teachers so that they teach for understanding while integrating technology.

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*The overarching theory behind CEI's program is that high-quality professional development results in teachers who are more effective and collaborative as well as students who are more engaged in their learning.*

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The overarching theory behind CEI's program is that high-quality professional development for teachers – delivered in a collaborative environment and coupled with access to and training for integrated technology in the classroom – results in teachers who are more effective and collaborative as well as students who are more engaged in their learning. This model is supported by research from the University of Chicago Consortium for School Research, which concludes that collaborative teachers, professional development, and ambitious instruction are linked to student achievement, including those measured by test scores. Therefore, the research suggests that if CEI positively influences teacher effectiveness and collaboration, participating students and schools are likely to perform better over the long-term.<sup>2</sup>

CEI's program model includes several specific initiatives to help improve and sustain the levels of teaching and learning in their partner schools. These include:

- **Teacher Professional Development:** CEI offers approximately 60 hours of training and support per teacher related to instructional technology during year one. This is comprised of one CEI-guided professional development day (six hours), completion of the online WIDE World curriculum developed by the Harvard Graduate School of Education (42 hours toward each teacher's Professional Development Plan), six group sessions facilitated by CEI in support

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<sup>2</sup> Source: [http://uei.uchicago.edu/sites/default/files/documents/5E\\_LiteratureReview\\_Research\\_vFINAL.pdf](http://uei.uchicago.edu/sites/default/files/documents/5E_LiteratureReview_Research_vFINAL.pdf).

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of the WIDE World program (two hours each), and one hour of individual mentoring for each teacher.

- **Computer Hardware and Software:** CEI provides laptops and desktops for teachers and tablets for students (along with hardware upgrades as necessary) and a set of software programs with which teachers can implement their coursework. Software includes literacy-focused Lexia Core 5, KidPiX, Timeliner, Kidspiration, and ComicLife2.
- **Continual Instructional Technology Development:** In year two and beyond, CEI staff continues to provide technical support and professional development to support successful technology integration. Support includes both contractual teacher professional development (2 hours every two weeks) and other instructional technology services offered throughout the school day that includes one-on-one mentoring (Train the Trainer model) and technology support.

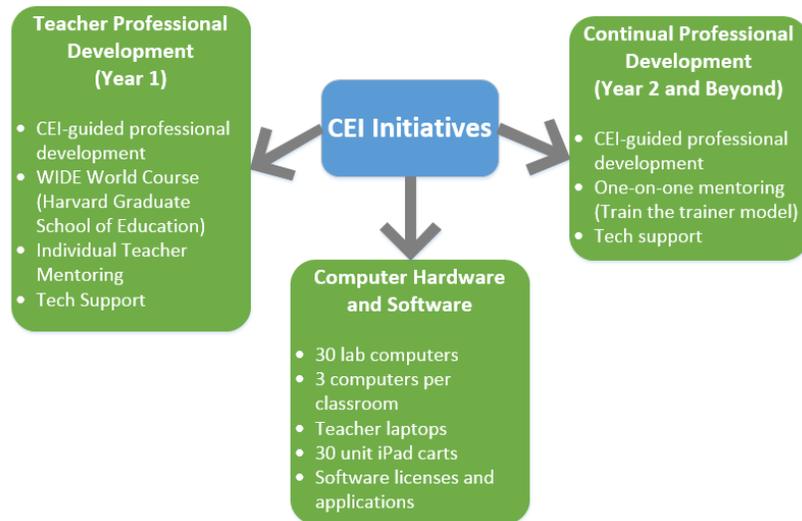
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*Since its founding, CEI has worked with five public elementary schools in the City of New Bedford to pilot, refine, and scale up its model.*

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Figure 1

## CEI PROGRAM MODEL



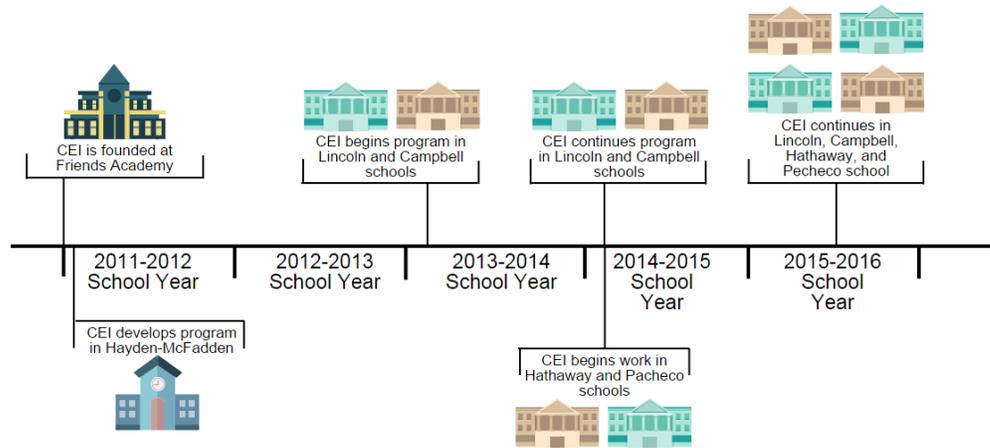
Schools are required to submit an application to be selected by CEI. Since its founding, CEI has worked with five public elementary schools in the City of New Bedford to pilot, refine, and scale up its mode. After working with the Hayden/McFadden elementary school for its first two years, CEI partnered with Campbell and Lincoln elementary schools to offer programing to teachers beginning in the fall and winter of 2013-2014. Following a pilot evaluation of the CEI impact at Campbell and Lincoln, the program was implemented in Hathaway and Pacheco elementary schools during the 2014-2015 school year.

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Importantly, CEI continues to offer instructional technology services in the Lincoln and Campbell schools.

*Figure 2*  
Center for Education Innovation  
Timeline



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## 2.0 EVALUATION METHODOLOGY

The Center for Education Innovation commissioned the Public Policy Center (PPC) at UMass Dartmouth in spring of 2014 to design and pilot a survey and evaluation plan to measure the impact of CEI programming on teachers and their students at the Campbell and Lincoln elementary schools.<sup>3</sup> PPC was asked to revisit the pilot study in the fall of 2015 to measure change over time at the Campbell and Lincoln schools and to evaluate CEI-related activities at the Hathaway and Pacheco elementary schools, which CEI partnered with in the 2014-2015 school year.

The current evaluation includes many of the same elements as the pilot study:

1. A profile of the New Bedford Public Schools and student data including student/teacher ratios, average class size, attendance rates, language spoken at home, and income.
2. A pre- and post-participation survey of teachers at the Hathaway and Pacheco schools aimed at gauging teachers' behavior and perceptions before and after working with CEI.
3. An analysis of school and classroom level data at the Lincoln, Campbell, Hathaway, and Pacheco schools to determine the degree to which student performance may have been influenced by CEI activities.

Because CEI's program model reflects research-based practices, PPC's approach to the evaluation design integrated research-based tools that have been demonstrated to measure the factors related to CEI's short- and long-term goals. Specifically, these tools were designed to measure the impact of CEI on:

- Perceptions and use of technology;
- Perceptions and use of assessment data;
- Indicators of collaborative teaching, components of which include professional development as well as trust, learning, and support among teachers;
- Indicators of ambitious instruction; and
- Student engagement and academic outcomes.

While student-level outcomes can be objectively measured through routine testing conducted by the school district and data collected by a software program used by CEI, measuring teacher-level impacts necessitated self-reporting. Self-reported perceptions and usage of technology, data, and instruction techniques, as well as student engagement

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<sup>3</sup> For a copy of the pilot study, see <http://ceiatfriends.weebly.com/evaluation-results.html>

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were tracked through a survey adapted from tested, research-based tools such as the Chicago Consortium for School Reform's survey on the use of technology in Chicago Public Schools.<sup>4</sup>

## 2.1 Secondary Data – Methods and Measurements

The principals of Campbell, Lincoln, Hathaway, and Pacheco schools provided quantitative data to support PPC's efforts to measure whether and how CEI influenced student achievement. These measures included aggregated scores by grade level and/or classroom from the beginning, middle, and end of the school year on two tests, Galileo and DIBELS.<sup>5</sup>

**Galileo** is a system of benchmark assessments administered in the New Bedford Public Schools at the beginning, middle, and end of the school year to track student progress in reading and math.<sup>6</sup> Galileo scores are seen as an important tool for teachers and schools to identify at-risk students to allow for targeted interventions.<sup>7</sup> Galileo reading scores were provided for grades 2-5 for participating schools.

**DIBELS**, or Dynamic Indicators of Basic Early Literacy Skills, assesses seven measures of literacy in order to identify early students who are struggling in these areas. Like Galileo, it is administered at the beginning, middle, and end of the year to measure whether students have met grade-level benchmarks. DIBELS scores were provided for grades K-2 for CEI-engaged schools.

**Lexia Core5** is a program that offers literacy skill-building exercises tailored to each student's individual needs. Upon first use, students perform a number of assessments to gauge their skill levels in phonological awareness, phonics, structural analysis, automaticity and fluency, vocabulary, and comprehension. The program then offers exercises based on the student's skill level.

For educators, Lexia offers a dashboard that summarizes student progress in aggregate and on the individual level. The program also tracks usage rates to make sure students are utilizing the program as much as recommended for their skill level and needs. If a student is identified to be at risk, teachers can use Lexia to build an "action plan" that outlines which skill areas the student is struggling in and offers exercises, both on and off the computer, to help the student improve.

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<sup>4</sup> "The Use of Technology in Chicago Public Schools 2011," University of Chicago Consortium for School Research, February 2013 Research Brief. Available at: <http://files.eric.ed.gov/fulltext/ED542564.pdf>.

<sup>5</sup> PARCC results by district were not available at the time of this evaluation but will be included as a long-term outcome in future evaluations.

<sup>6</sup> Because CEI's program is currently oriented toward literacy, only reading scores were provided and considered for this pilot evaluation.

<sup>7</sup> Sacks, Lynne. "Galileo and Interim Assessment." *Education Research Brief*, March 2009. MA Department of Elementary and Secondary Education.

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For the purposes of future evaluation of CEI's program, the PPC recommends working with New Bedford Public Schools' administrators to develop a system for requesting and updating these data points, especially if the program continues to expand to more schools and teachers. This issue is addressed further in the Next Steps section.

### 2.2 Primary Data – Methods and Measurements

A number of the outcome measures CEI seeks to influence relate to teachers' behavior and perceptions. A survey was administered in the pilot evaluation to assess indicators of technology integration, collaboration, and instruction methods. A pre- and post-participation survey strategy was employed to link changes to CEI's program.

The survey tool (included in Appendix B) was adapted from the University of Chicago Consortium on School Research's 5 Essentials survey—a tested, research-based instrument that is currently used to survey all Chicago Public Schools teachers. This survey focuses on five areas that are linked directly to student achievement: effective leaders, collaborative teachers, involved families, supportive environment, and ambitious instruction.<sup>8</sup> Because CEI's program theory links its intervention to two of these areas, collaborative teaching and ambitious instruction, the survey used questions from the 5 Essentials survey that address these areas. Survey questions related to technology use and perceptions were integrated from other tested, research-based sources.<sup>9</sup>

The survey was administered to CEI teachers in the fall of 2014 and again in the spring of 2015.<sup>10</sup> A total of 44 teachers completed the pre-participation survey and 37 completed the post-participation survey. As part of the CEI teacher survey, teachers were assigned a random, three-digit number to serve as their CEI identification number. This approach was intended to measure individual-level changes in behavior and perceptions between the pre- and post-participation survey.

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<sup>8</sup> Source: <http://ccsr.uchicago.edu/surveys>.

<sup>9</sup> Ehrlich, Stacy B., Susan E. Spote, Penny A. Sebring, Penny Bender Sebring. "The Use of Technology in the Chicago Public Schools 2011: Perspectives from Students, Teachers, and Principals." Consortium on Chicago School Research.

<sup>10</sup> The pilot study included a control group that consisted of all elementary school teachers in the district to determine whether CEI-trained teachers were fundamentally different from their New Bedford Public Schools peers to begin with, which could later explain changes measured by the post-participation survey. The control survey was not administered in 2014-2015 due to logistical constraints, but it is recommended that this survey be administered in future years.

## 3.0 CONTEXT - NEW BEDFORD PUBLIC SCHOOLS PROFILE

Like other older industrial cities in Massachusetts, New Bedford has suffered from the decline of manufacturing activity and has not experienced many of the benefits that arose from the Boston metro area's knowledge-based economy. Consequently, the city is disproportionately impacted by poverty and low educational attainment levels. In New Bedford, 29.8 percent of families with children live in poverty, and only 15.0 percent of the adult population has earned a Bachelor's or higher, while 29.5 percent never completed high school. Comparatively, 12.8 percent of families with children statewide live in poverty, 39.4 percent of the adult population has earned at least a Bachelor's degree, and just 10.6 percent never completed high school. Educators in New Bedford face the challenges associated with reaching children impacted by these deficits, such as a lack of college awareness, low likelihood of academic support at home, and the acute and chronic stressors associated with living in poverty.

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*Educators in New Bedford face the challenges associated with reaching children impacted by chronic stressors associated with living in poverty.*

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The obstacles facing New Bedford are evident in the current state of the city's school system. The Massachusetts Department of Elementary and Secondary Education (DESE) has categorized the New Bedford Public School (NBPS) district as Level 4. This categorization means that more than one New Bedford school is among the lowest achieving statewide in terms of student test scores and overall performance. Performance is measured by a school's ability to narrow academic proficiency gaps, improve the core areas of English and mathematics, reduce dropout rates, and increase cohort graduation rates. With regard to meeting targeted improvements in 2014, the majority of students fell below the target level.

As a Level 4 district, NBPS is implementing a turn-around plan to satisfy state mandated goals for its under-performing schools. Indeed, the district faces many challenges in educating its students. More than half of NBPS students are economically disadvantaged (55.6%) and over two-thirds (69.1%) are "high needs," meaning they are from a low-income household, a current or former English Language Learner (ELL), or disabled. Additionally, the district has a high school dropout rate more than double the state average. Although a state review recently praised the outreach efforts of the district, educators have long cited the lack of parental involvement as an obstacle.

DESE also ranks performance at the school level. New Bedford has one Level 5 school (Parker Elementary), which indicates the school is a chronic underperformer. Parker is one of four Level 5 schools in the state. The city also has two Level 4 schools (Hayden/McFadden Elementary and New Bedford High School), which have recently failed to meet minimum performance standards. Additionally, 12 of the 26 schools in the district are Level 3, meaning that they rank in the lowest 20 percent of schools statewide in terms of performance.

Given this low performance, NBPS stands to benefit from innovative ideas and novel approaches for engaging students. To this end, CEI has acted to fill the technology gap for

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students and instructors in New Bedford’s elementary schools. The program equips teachers in these urban classrooms with technology designed for engaging students on their level and improving academic skills. Due to limited resources, the schools would not have had access to this technology outside of participation in the program. The same can be said for the hours of additional professional development made available through CEI. Thus the program addresses a technology gap that, due to the outstanding basic needs facing the district, cannot always be filled regardless of the level of interest in this approach.

The following analysis presents school-level profiles for schools that received a CEI intervention, compared to the average for NBPS elementary schools, using information from the DESE.

### 3.1 CEI Intervention Schools

Although not all indicators reflect a negative environment at the CEI schools, it is clear from the data below that educators in these institutions face many obstacles in reaching every student and crafting lesson plans to fit the unique needs of these diverse, urban elementary schools. CEI provides instructional technology and professional development in an attempt to improve student outcomes and enhance teacher collaboration.

Overall, NBPS elementary schools are at a Level 3. Comparatively, Lincoln and Hathaway are Level 3 schools, while Campbell and Pacheco are Level 2. Level 2 schools still do not meet all their gap-narrowing goals, but they do not fall into the lowest performing 20 percent of schools, as indicated by a Level 3 designation. Table 1 shows the level assigned to each CEI school by DESE and the average level for all NBPS elementary schools, and the performance percentile for each school, which shows student performance at that school in relation to all other schools in the state.

*Table 1*  
Accountability & Assistance

School	Level	Percentile
Campbell	2	29
Hathaway	3	3
Lincoln	3	8
Pacheco	2	40
All NBPS Elementary	3	-

*Source: Massachusetts Department of Elementary and Secondary Education*

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*New Bedford teachers are challenged to reach every student and to craft lesson plans to fit the unique needs of a diverse, urban elementary school.*

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Lincoln is New Bedford’s largest elementary school—whose 801 students comprise 11 percent of all NBPS elementary students—and has more students per classroom and higher student/teacher ratios than the City’s schools as a whole (see Table 2).

*Table 2*  
Teacher Data and Enrollment Data

School	% of NBPS Teachers	Students per teacher	Average Class Size	Total Students	% NBPS Elementary Students
Campbell	2.0%	16.5	18.4	260	3.0%
Hathaway	2.0%	16.5	18.6	276	4.0%
Lincoln	4.5%	19.8	22.4	801	11.0%
Pacheco	3.0%	16.6	19.9	384	5.0%
All NBPS Elementary	49.1%	17.6	20.0	7,617	100.0%
Massachusetts	37.7%	13.3	18.1	-	-

*Source: Massachusetts Department of Elementary and Secondary Education*

As a whole, NBPS elementary schools are majority nonwhite and nearly a quarter of all students have a first language other than English. However, only ten percent of all NBPS elementary school students have been identified as English Language Learners (ELL), meaning they need special attention to bring their English up to the level of their classmates. At Hathaway, almost half of the student population is an ELL student, which is the only CEI school to have more ELL students on average the district as a whole (see Table 3).

A significant number of ELL students and students whose first language was not English may seem to indicate a large immigrant population in NBPS, yet 70.6 percent of all ELL students were born in the United States.<sup>11</sup> Cape Verde is the second most common country of origin, accounting for seven percent of all ELL students. In terms of language, Spanish is the most common first language for ELL students, with Portuguese being the second highest. DESE does not report information below the second most common country of origin or first language.<sup>12</sup>

<sup>11</sup> A portion of these students may have been born in Puerto Rico or other U.S. territories.

<sup>12</sup> DESE DART for English Language Learners, 2014-15 Enrollment

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Table 3  
Student Data

School	Attendance Rate	Retention Rate	% Minority Students	% Lang. Not English	% English Language Learners
Campbell	94.9%	2.2%	45.8%	15.4%	2.6%
Lincoln	95.4%	5.9%	46.6%	16.4%	2.5%
Hathaway	95.0%	1.3%	68.8%	51.1%	49.6%
Pacheco	95.1%	3.8%	68.5%	23.2%	7.7%
All NBPS Elementary	95.0%	5.3%	52.3%	22.4%	10.0%

Source: Massachusetts Department of Elementary and Secondary Education

With the exception of Campbell Elementary, all CEI schools have greater portions of high need students than the district average.

With the exception of Campbell, all CEI schools have greater portions of high need students than the district average. Lincoln has the most students repeating a grade out of any CEI school. In 2014, 5.9 percent of all Lincoln students went on to repeat the grade they started that year, making it the only CEI school with a retention rate above the state average. Hathaway and Lincoln have stability rates below the district average, where stability is determined by the number of students that leave the district in any given year. In 2014, 13 percent of Hathaway students and 11.5 percent of Lincoln students left the district during the school year (see Table 4).

Table 4  
Student Data

School	% Low Income	% W/ Disability	% High Needs	% Stability
Campbell	70.0%	21.5%	63.5%	91.7%
Lincoln	83.3%	17.6%	85.0%	88.5%
Hathaway	80.4%	18.8%	86.2%	87%
Pacheco	89.6%	19%	91.9%	90.6%
NBPS	75.6%	22.5%	83.6%	90%

Source: Massachusetts Department of Elementary and Secondary Education

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## 4.0 OUTPUT MEASURES

In the 2014-15 school year, CEI engaged a total of 98 teachers in Campbell, Lincoln, Hathaway, and Pacheco elementary schools. Collectively, CEI initiatives indirectly reached 1,742 students with instructional technology and technologically-integrated teaching and learning practices (see Table 5).

Nearly all teachers at Campbell, Hathaway, and Pacheco schools participated in 20 hours of CEI professional development workshops, while Lincoln teachers did not participate. In addition, nearly all teachers at Campbell, Lincoln, and Hathaway completed the WIDE World course offered by the Harvard Graduate School of Education either in the 2013-14 or 2014-15 school year (teachers only take the WIDE World course once). Participation in scheduled professional development activities was relatively lower for schools in their second year of CEI programming (Hathaway and Pacheco) due to new district-wide professional development requirements that negatively affected teacher availability for CEI trainings (see Table 5).

*In the 2014-15 school year, CEI engaged a total of 98 teachers in Campbell, Lincoln, Hathaway, and Pacheco elementary schools and indirectly reached 1,742 students.*

Table 5  
Output Measures, 2014-15 School Year

	Campbell	Lincoln	Hathaway	Pacheco	Total
Number of participating teachers/administrators	16	39	20	23	98
Number of students reached indirectly	231	765	345	401	1,742
% of teachers attending CEI workshops (20 hours)	94%	0%	100%	100%	-
* of teachers completing WIDE World (42 hours)	96%	100%	83%	49%	-

\* Data for Campbell and Lincoln is for the 2013-2014 school year, which is the first year these schools were engaged by CEI and offered the WIDE World course (teachers only take the WIDE course once). Relatively lower teacher enrollment in WIDE World and CEI workshops for Hathaway and Pacheco is primarily due to new mandated professional development courses, which did not permit all teachers the time to participate in the WIDE World course.

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In addition to core professional development programming, CEI provided 177 desktops, 49 laptops, 120 iPads, 4 iPad carts, and 5 software programs to teachers in their first year of CEI programming at Hathaway and Pacheco schools. Since 2013-14, CEI has provided a total of 207 desktops, 64 laptops, and 210 iPads to the Campbell, Lincoln, Hathaway, and Pacheco schools (see Table 6).

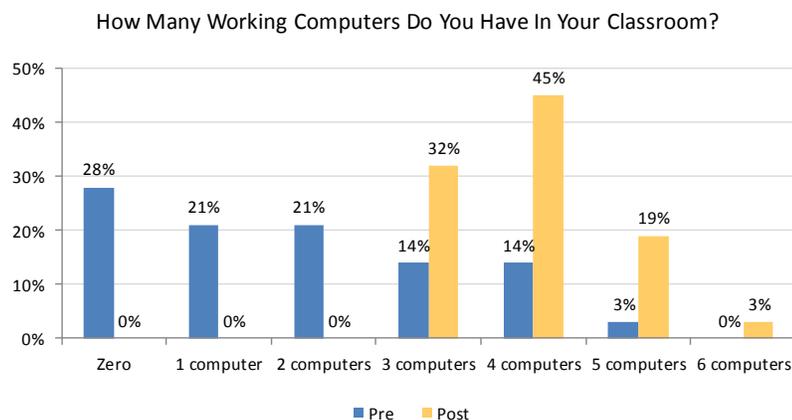
*Table 6*  
Hardware & Software Provided By CEI

	2013-14: Campbell & Lincoln	2014-15: Hathaway & Pacheco	Total
Desktops	30	177	207
Laptops	15	49	64
iPads	90	120	210
iPad carts	3	4	7
Software programs	5	5	10

Since 2013-14, CEI has provided a total of 207 desktops, 64 laptops, and 210 iPads to the Campbell, Lincoln, Hathaway, and Pacheco schools.

Results of the teacher survey reflect the tangible result of CEI's provision of hardware to the schools; at the beginning of the school year, 70 percent of teachers at Hathaway and Pacheco elementary schools reported having only 2 or fewer working computers in their classroom, while all teachers reported having at least three working computers in their classroom when they completed the post survey in May of 2015 (see Figure 3).

*Figure 3*



# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

## 4.1 Teacher Use and Perceptions of Technology

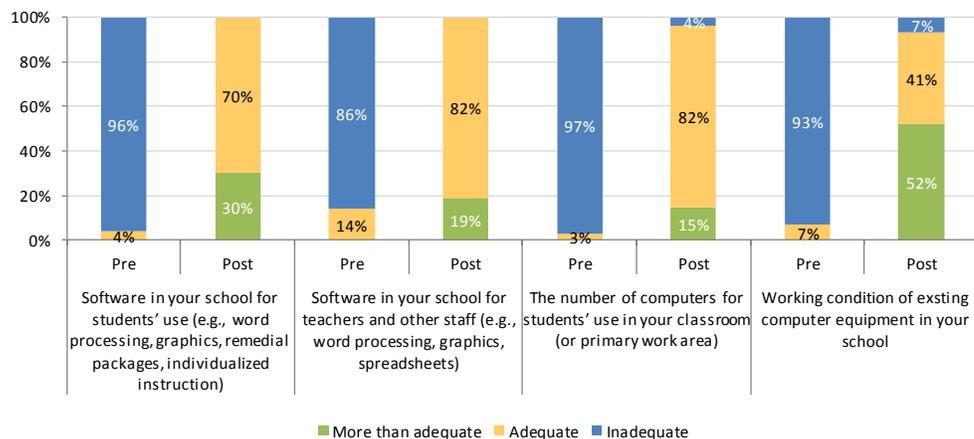
The provision of hardware and software by CEI is reflected in results of the teacher survey. In nearly every instance, teachers in CEI-supported classrooms report significantly higher levels of technology and tech support resources over the school year. This holds true across nearly all the technologies and resources. For instance, teachers overwhelmingly reported at baseline that their software was inadequate, but after CEI intervention the same teachers reported that 100 percent of their software was adequate for their classroom needs or better. Similar patterns can be seen when comparing baseline and final assessments for technical assistance, hardware, and training (see Figure 4 through Figure 7).

*In nearly every instance, teachers in CEI-supported classrooms report significantly higher levels of technology and resources over the school year.*

Only two categories did not experience significant gains: Internet connectivity, and the time to plan for integrating technology in the classroom. CEI has little control over these issues. While CEI provides technical support to troubleshoot issues relating to hardware, software, and internet connectivity – a Technology Integration Specialist works in each CEI school one day a week, and CEI staff have the flexibility to troubleshoot critical issues in other buildings – Internet access is not always reliable due to various technical issues at the school and district level. Likewise, while CEI provides training and professional development to improve teachers’ understanding of the resources it provides, the program cannot add additional time to the day for teachers to plan. In some instances, district-mandated professional development requirements replaced time that would normally be allotted to CEI.

Figure 4

Please Rate The Adequacy of The Following Technologies And Resources In Your School (Chart 1)



# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

Figure 5

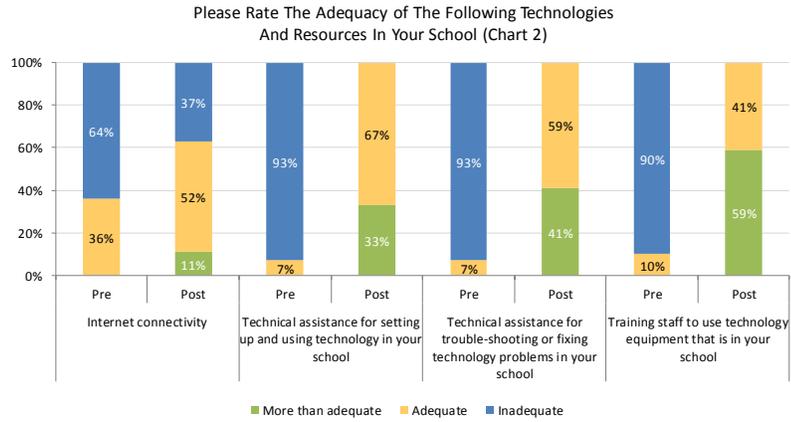


Figure 6

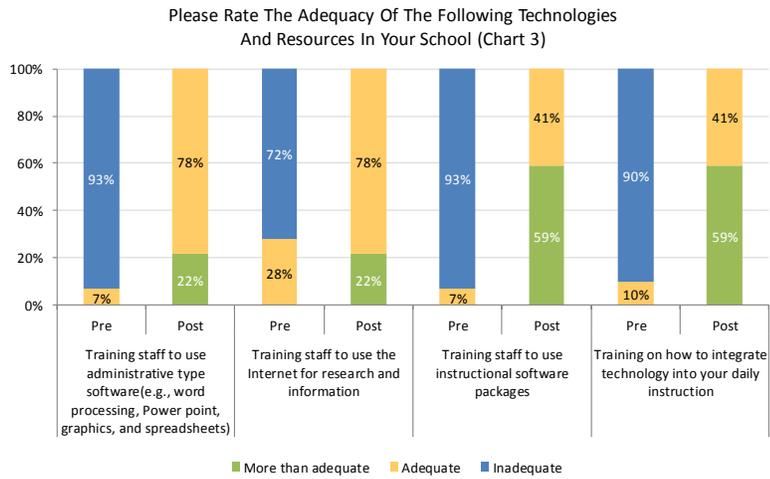
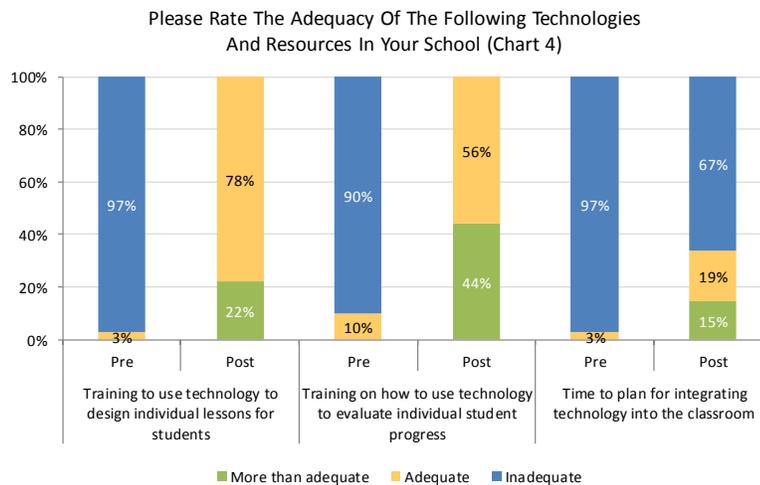


Figure 7



## 5.0 SHORT-TERM OUTCOME: IMPROVED INSTRUCTION AND COLLABORATION

A pre- and post-participation survey of teachers at the Hathaway and Pacheco schools was administered to gauge teachers' behavior and perceptions before and after working with CEI. The pre- and post-participation teacher surveys administered for this evaluation spanned six subcategories, which include:

1. Use and perceptions of technology.
2. Use and perceptions of assessment data.
3. Leadership, as measured by program coherence and continuity.
4. Teacher collaboration, as measured by quality professional development, trust, learning, and support among teachers.
5. Student engagement, assessed by the degree to which students meet teacher expectations.
6. Ambitious instruction, indicated by reported instructional strategies, along with specific methods employed to teach English and Math.

Few significant conclusions can be drawn from changes in the categories of leadership (#3), student engagement (#5), and ambitious instruction (#6), which is partly the result of a low sample size. However, more significant trends were evident for the use and perceptions of technology, use and perceptions of assessment data, and teacher collaboration, results of which follow.

### 5.1 Usage and Perceptions of Technology

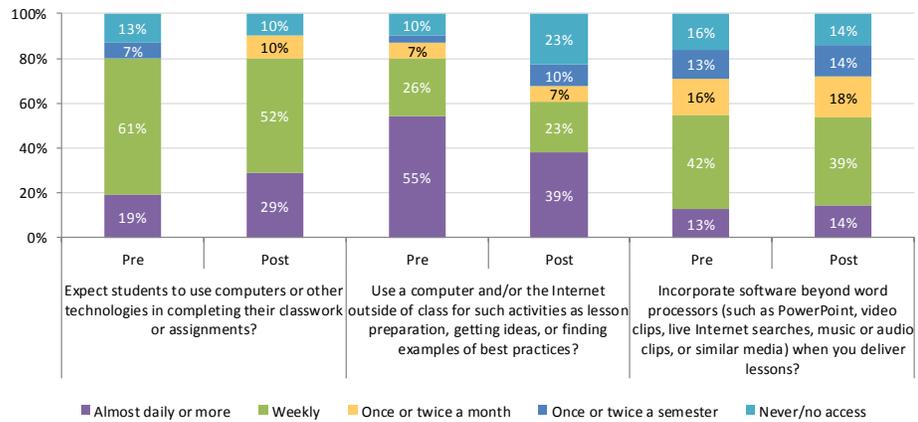
#### Usage of Technology

Post-participation surveys indicate that the CEI intervention increased daily use of computers and technology in completing schoolwork, though reduced computer and internet use was observed outside the classroom, and survey data showed little change in use of non-word processor software (see Figure 8). With respect to use of technology outside the classroom, it may be the case that better access in the classroom led to less need for use outside the classroom.

# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

Figure 8

How Often Do You:



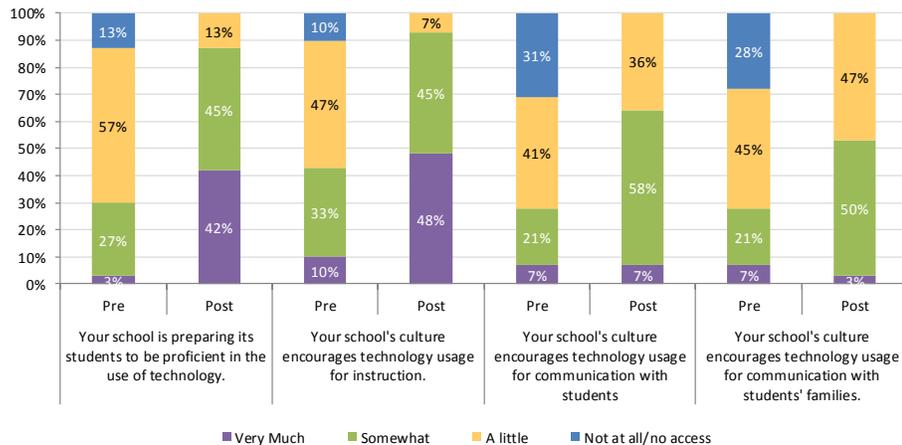
Following CEI's first year of programming in Hathaway and Pacheco schools, the data show substantial development of a school culture that supports the integration of technology and learning.

### School Culture

Following CEI's first year of programming in Hathaway and Pacheco schools, the data show substantial development of a school culture that supports the integration of technology and learning (see Figure 9). Specifically, respondents who felt that school culture encouraged technology use and proficiency in technology either 'very much' or 'somewhat' increased across the board. Those that agreed only 'a little' or 'not at all' decreased or dropped off completely. These results indicate a clear and consistent change over the course of the intervention that is very likely a result of CEI initiatives at Hathaway and Pacheco schools.

Figure 9

Please Indicate The Degree To Which:



**5.2 Usage and Perceptions of Assessment Data**

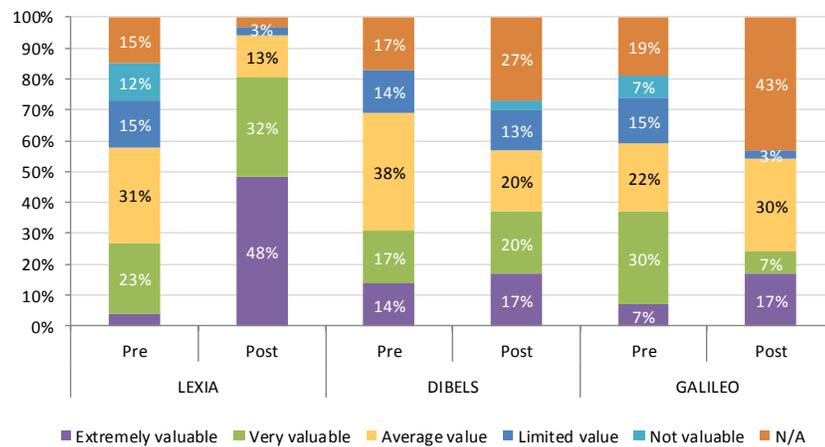
**Value of Data Assessment**

Educating teachers on the importance of using data to improve student outcomes is a cornerstone of CEI programming. This is particularly true of the Lexia software, which allows teachers to conduct real-time monitoring of student progress.

Teachers who placed above average value on assessment data generally increased during the intervention (see Figure 10). The largest increase related to the use of Lexia in classrooms and DIBELS score data. However, it should be noted that there was a net decrease in number of respondents who indicated that Galileo data has above average value, which may be partly due to large increases in the percentage of respondents who believe that Galileo data is ‘not applicable.’

*Figure 10*

How Valuable Do You Find The Following Types Of Assessment Data?



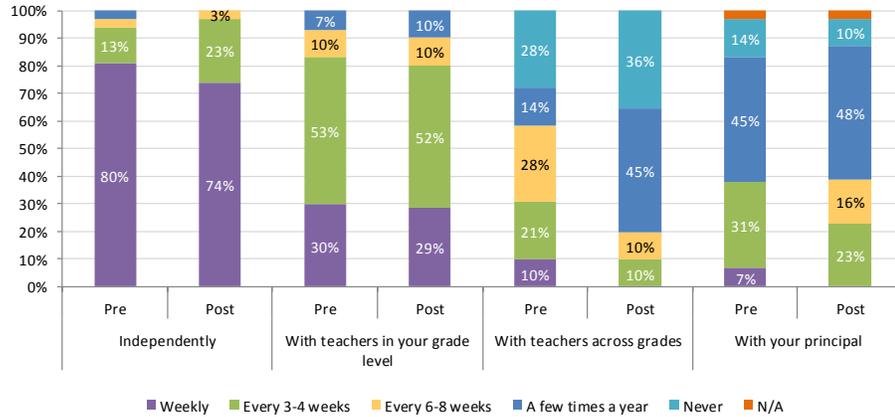
**Frequency of Data Assessment**

Overall, the frequency with which teachers reviewed assessment data did not increase over the course of the survey period (see Figure 11). Most changes were small and negative. In the post-intervention survey, the ways in which teachers reviewed assessment data—independently, with teachers in the same grade level, with teachers across grades, and with their principals—were reported to occur slightly less often than reported in the pre-intervention survey. However, it should be noted that this question did not prompt teachers to consider Lexia when reflecting on how frequently they review assessment data. Rather, it refers to department-wide and standardized tests.

# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

Figure 11

How Frequently Do You Review Assessment Data  
(e.g. Department-Wide Common Assessments, Standardized Tests)?

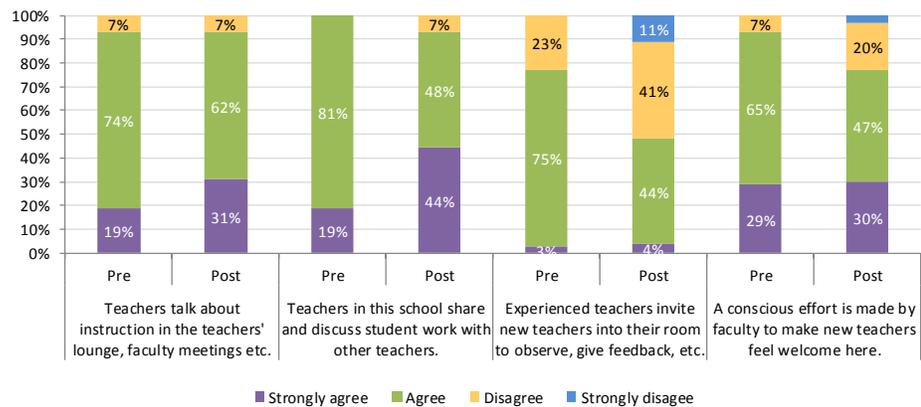


## 5.3 Teacher Collaboration

Overall, CEI initiatives have positively affected teacher collaboration, but not in all areas. Survey responses show positive shifts with regard to collaboration in teachers' lounges and faculty meetings. However, the results do not show progress related to experienced teachers collaborating with new teachers (see Figure 12). Strengthening relationships between these two teacher groups could aid newer teachers in developing stronger curriculum and more effective instruction techniques. To this end, teachers at Hathaway and Pacheco schools may benefit from a teacher-to-teacher mentoring program.

Figure 12

To What Extent Do You  
Disagree Or Agree With Each Of The Following:

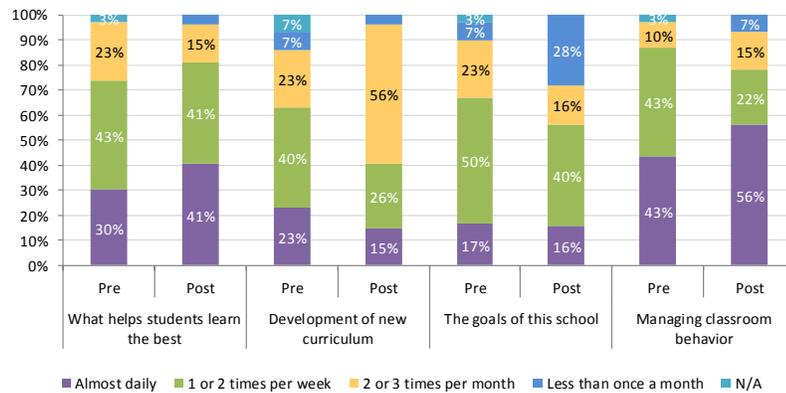


## Frequency of Collaboration

Survey results show positive trends in most areas in terms of the frequency with which teachers converse about various teaching-related topics, with conversations about what helps students learn best and about managing classroom behavior increasing the most (see Figure 13). Alternatively, conversations about developing new curriculum and the goals of the school trended downward. The percentage of teachers who selected ‘not applicable’ in any of the areas fell to zero in all cases, indicating a slight shift in how relevant or important teachers believe these types of collaborative conversations are.

Figure 13

This School Year, How Often Have You Had Conversations With Colleagues About:

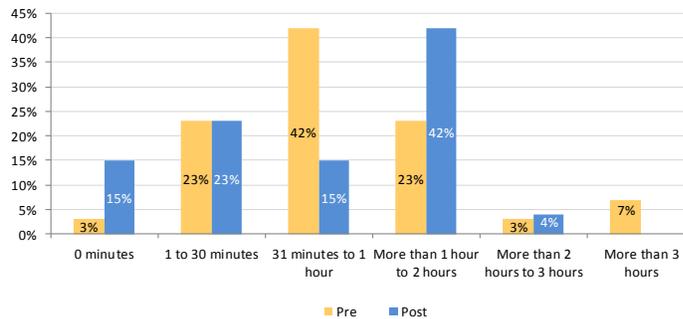


## Time Dedicated to Collaboration

Survey findings on structured teacher collaboration were mixed. Most notably, teachers who spent one to two hours per week working in structured collaboration increased by nearly 20 percentage points. However, gains in this area were counterbalanced by decreases in other areas (see Figure 14).

Figure 14

Excluding Administrative Duties, How Much Time Per Week Do You Spend Working In Structured Collaboration With Other Teachers, Staff, And School Leaders?

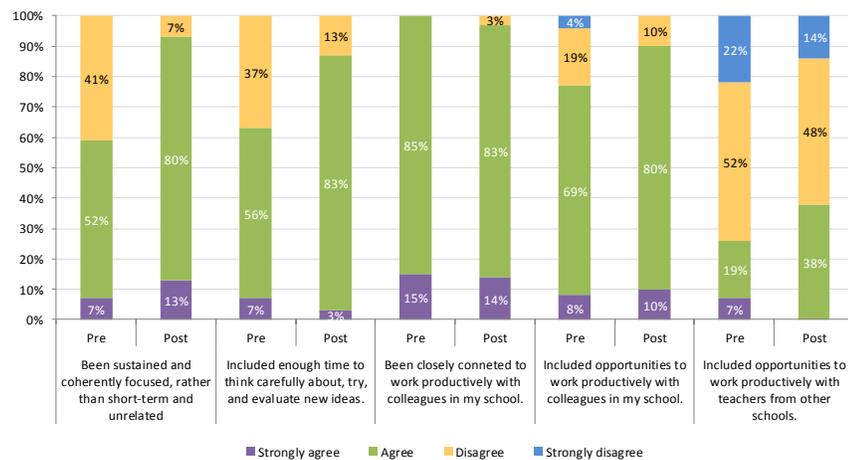


## 5.4 Individual Level Change

In most cases, survey data show that teachers received higher quality professional development under CEI than beforehand. Net increases were seen in the number of respondents who agreed or strongly agreed that professional development was sustained and coherently focused, included sufficient time for experimentation and careful thought, and included collaboration opportunities within their school. Opinions about opportunities to work with teachers from other schools varied (see Figure 15).

Figure 15

Overall, My Professional Development Experiences With CEI This Year Have...



On average, Hathaway and Pacheco teachers reported positive increases across 27 of the eighty-eight measures.

Because teachers were assigned a numeric code with which to pair their pre- and post-participation survey responses, PPC was able to evaluate the degree to which individuals reported changes in behavior and perception after engaging with CEI. Thirty-one teachers completed both the pre- and post-participation survey and these teachers' responses were analyzed across 88 measures captured by the survey.

On average, Hathaway and Pacheco teachers reported positive increases across 27 of the eighty-eight measures. Areas where the highest percentage of teachers reported positive change include:

- An increase in the frequency that teachers incorporate software and technology when they deliver lessons, including video clips, live Internet searches, music or audio clips, or similar media.
- An increase in teacher satisfaction levels in terms of their knowledge of how to use technology in the classroom.
- An increase in the belief that technology is essential to teaching and learning.
- An increase in the perception that students enjoy learning more when using technology.

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- An increase in the degree to which their school is preparing its students to be literate technology users.
- An increase in the degree to which their school's culture encourages technology usage for instruction.
- An increase in the belief that professional development has been sustained and coherently focused, rather than short-term and unrelated.

There is currently no system in place for matching survey responses to classroom-level data (this will be addressed in the long-term evaluation design). If CEI is able to link teacher survey responses and classroom data more closely (while maintaining anonymity) in the future, such tracking will allow CEI to determine whether there are relationships between survey-reported factors—such as value of technology, use of instructional strategies, and other areas—and student outcomes. This information would allow CEI to target individual teachers' needs and goals more precisely, which may have the effect of improving program impact in a number of outcome areas.

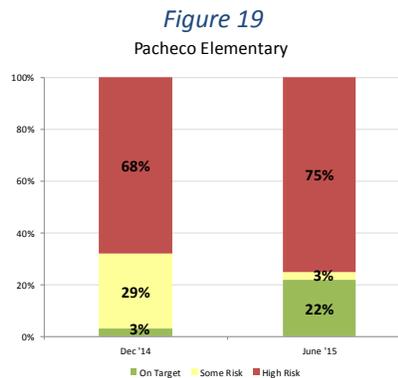
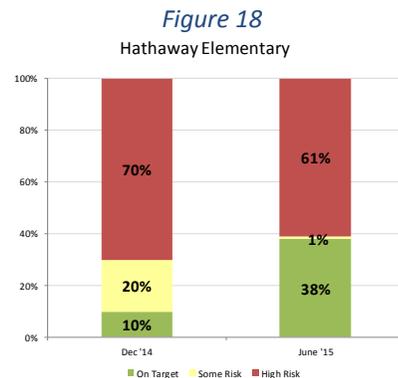
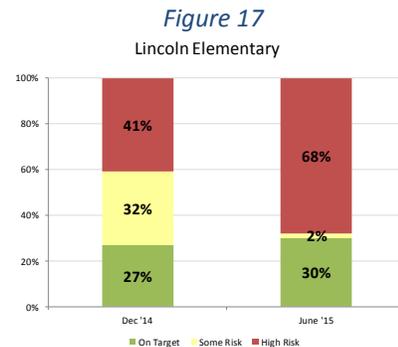
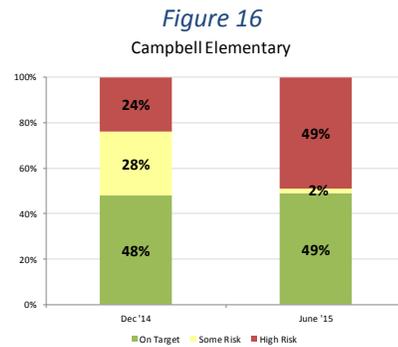
# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

## 6.0 SHORT TERM OUTCOME: LEXIA READING CORE5

One of CEI's short term goals is to improve software-based student performance outcomes, which is accomplished primarily through Lexia Core5. Lexia Core5 is a program that offers literacy skill-building exercises tailored to each student's individual needs. Upon first use, students perform a number of assessments to gauge their skill levels in phonological awareness, phonics, structural analysis, automaticity and fluency, vocabulary, and comprehension. The program then offers exercises based on the student's skill level. For educators, Lexia offers a dashboard that summarizes student progress in the aggregate as well as on the individual student level. The program also tracks usage rates to ensure that students are utilizing the program as much as recommended for their skill level and unique learning needs.

### 6.1 School Progress

Figure 16 through Figure 19 show how risk groups have changed in each CEI school from December 2014, the earliest common use month, and June 2015. In Hathaway and Pacheco, there was a large increase in the percentage of On Target students, while Campbell and Lincoln experienced more modest increases. There was also a reduction in the percentage of students in the Some Risk category across all schools, although it is unclear which groups these students moved into (i.e. High Risk or On Target), or whether there was movement between the On Target and High Risk group as well. The percentage of High Risk students increased at all schools but Hathaway.



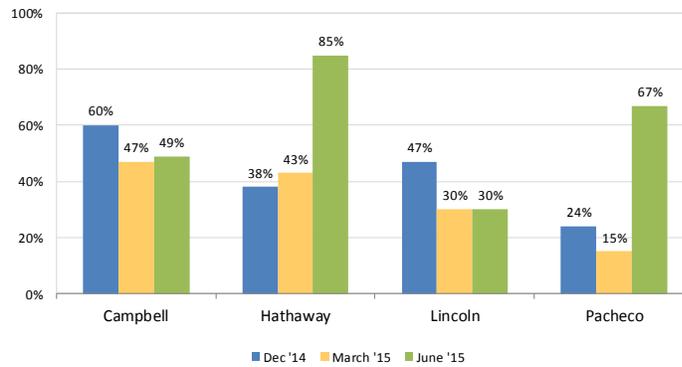
# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

## 6.2 School Usage Rates

The charts below show the percentage of students in each CEI school who met their prescribed Lexia usage target during the given months of the school year. Usage targets are determined on an individual basis depending on the needs and achievement level (risk group) of each student. Across all schools, usage rates fluctuate throughout the year. Pacheco and Hathaway saw significant increases in the percentage of students meeting their usage targets by the end of the school year, while both Campbell and Lincoln saw higher percentages of students meeting usage targets earlier in the school year.

Figure 20

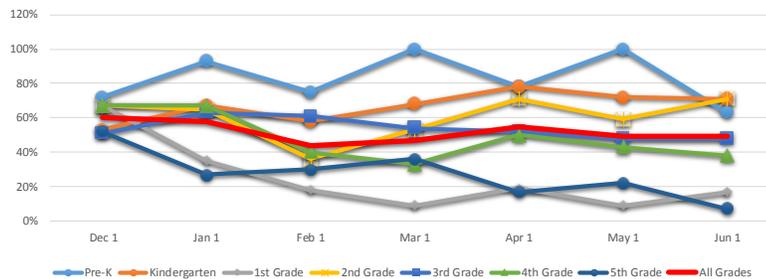
Percentage of Students Meeting Usage



Note: The monthly percentage is calculated on the first day of the month and reflects the previous Month's performance and usage.

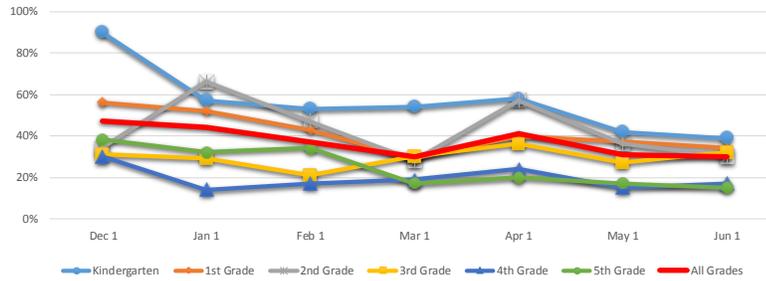
Figure 21

Campbell Elementary  
Lexia Usage By Grade

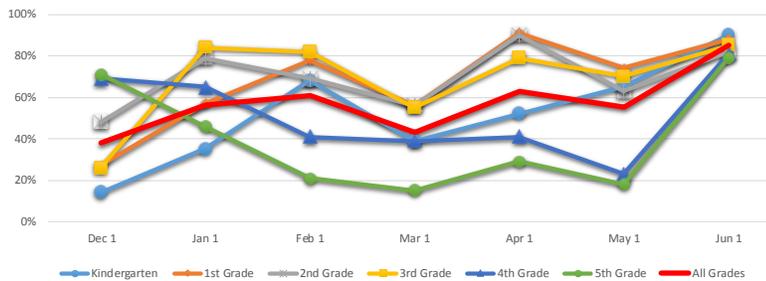


# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

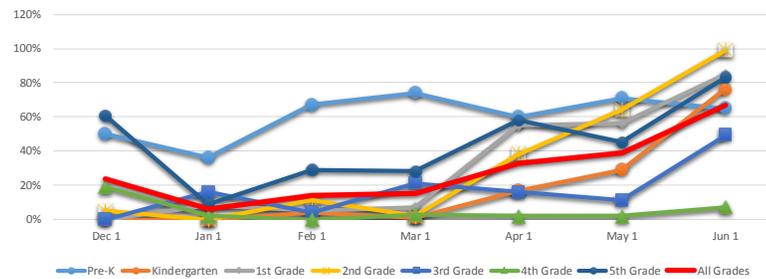
*Figure 22*  
Lincoln Elementary  
Lexia Usage By Grade



*Figure 23*  
Hathaway Elementary  
Lexia Usage By Grade



*Figure 24*  
Pacheco Elementary  
Lexia Usage By Grade



## 6.3 Lexia Implementation

There are several external factors related to program implementation and adoption that prevented the Lexia program from being implemented with fidelity, which ultimately had an adverse effect on scores. For instance, Campbell and Lincoln received their training directly from the Lexia company in Year 1, who provided extensive information and training about the software, maintaining student accounts, generating reports, and offline support materials. This type of direct professional development was not provided in Year 2 by either Lexia or CEI because administrative staff either decided that teachers did not have the time to continue professional development efforts in Lexia or simply did

## Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

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not respond to CEI requests to meet and discuss CEI's role in terms of what types of professional development CEI could offer the school.

For Lexia to be effective, professional development needs to be ongoing because the software itself has evolved, student use has evolved, and the results and needs of students and staff change over time. Teachers may also settle into a comfort zone after the initial introduction and they need to be kept up-to-date with best practices, additional resources within the software as students progress, strategies to continue to analyze data, and off-line supports that match the needs of the students and areas in which they struggle. For example, there needs to be discussion about what a student's data reveals even when students complete their Lexia paths. This informs the teacher about the next steps for that student in order to advance to higher levels of literacy.

Continual professional development also allows teachers to develop a deeper understanding of the software and the six areas of reading instruction that are the basis of the program. It is also vitally important to conference with each student at least once a month in order for students to make the greatest gains. When students have at least a broad understanding of the purpose of Lexia, understand that they are making progress, and are encouraged to set personal learning goals with the assistance of their teacher, their work has more meaning, and they ultimately make greater gains.

Going forward, CEI has made several adjustments to address these issues. In the current 2015-2016 school year, CEI began at Pacheco and Hathaway with the same Lexia training provided by Lexia in Year 1. As the year has progressed, CEI has facilitated further discussions about Lexia and contributed to a deeper understanding of the software. CEI has conducted additional Lexia training regarding the new Lexia platform and best practices at Campbell, Pacheco, and Hathaway. CEI is also meeting with teachers as needed to answer questions and to discuss what the data is revealing and to assist in developing strategies for students who complete their Lexia path. Administrators at these schools have been very supportive of CEI's professional development activities this school year.

## 7.0 LONG-TERM OUTCOMES: GALILEO AND DIBELS ASSESSMENTS

One of CEI's long term outcomes (i.e. 5 to 7 years) is to improve student performance as measured by reading scores on the Galileo and DIBELS assessment tests. Galileo assesses student achievement in English language skills based on district-specific benchmarks. DIBELS (Dynamic Indicators of Basic Early Literacy Skills) is focused on early literacy and reading skills, and is used to monitor these developments in students early in their academic careers. Both assessments are administered at the beginning of year (BOY), middle of year (MOY), and end of year (EOY).

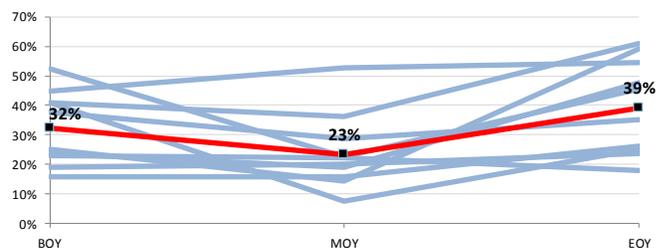
Teachers in CEI-supported classrooms saw across-the-board growth in their students' Galileo and DIBELS scores. And though it is not currently possible to attribute this change to CEI directly, it is clear that participating teachers' students have made meaningful literacy gains during the period of CEI's involvement. It is difficult to know whether these increases are on par with other NBPS elementary schools because district-wide data was not provided by the district. Even if these increases are atypical, it is not possible to isolate CEI's role in that change. Nevertheless, this data indicates a positive trend that CEI should continue to track in future evaluation efforts.

### 7.1 Galileo Reading

Figure 25 through Figure 27 present the percentage of students meeting their benchmark at New Bedford's Pacheco, Campbell, and Lincoln elementary schools.<sup>13</sup> All grades showed improvement from beginning of year (BOY) to end of year (EOY), with the percentage of students reaching benchmark improving by 7 percentage points at Pacheco, 15 percentage points at Campbell, and 7 percentage points at Lincoln.

Figure 25

Pacheco Elementary School  
Galileo Reading  
Percent at Benchmark By Class



<sup>13</sup> Galileo data for Hathaway Elementary was not provided by the district.

Teachers in CEI-supported classrooms saw across-the-board growth in their students' Galileo and DIBELS scores between the middle and end of the year.

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Figure 26

Campbell Elementary School  
Galileo Reading  
Percent at Benchmark By Class

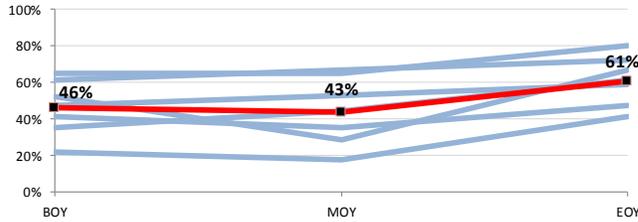
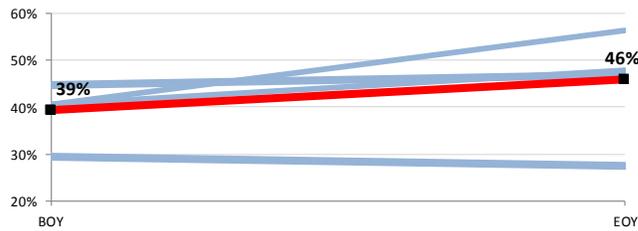


Figure 27

Lincoln Elementary School  
Galileo Reading  
Percent at Benchmark By Grade



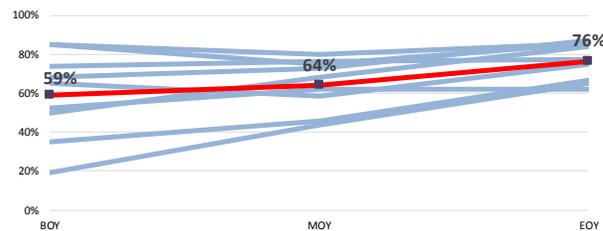
Note: Data for Lincoln Elementary was provided by grade only.

## 7.2 DIBELS

Figure 28 through Figure 30 present the percentage of students meeting their DIBELS benchmark at New Bedford’s Pacheco, Campbell, and Lincoln elementary schools.<sup>14</sup> All grades showed improvement from beginning of year (BOY) to end of year (EOY), with the percentage reaching benchmark improving by 17 percentage points at Pacheco, 9 percentage points at Campbell, and 15 percentage points at Lincoln.

Figure 28

Pacheco Elementary School  
DIBELS  
Percent at Benchmark By Class



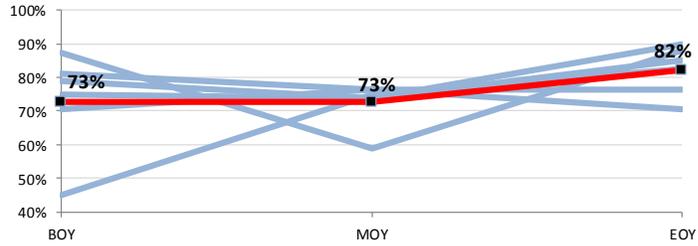
<sup>14</sup> Galileo data for Hathaway Elementary was not provided by the district.

# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

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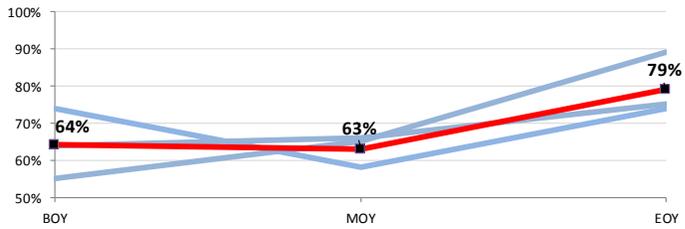
*Figure 29*

Campbell Elementary School  
DIBELS  
Percent at Benchmark By Class



*Figure 30*

Lincoln Elementary School  
DIBELS  
Percent at Benchmark By Grade



# Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

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## 8.0 DISCUSSION AND NEXT STEPS

In the short-term, the goals of CEI are to improve teaching quality and collaboration among CEI-engaged schools. In the long-term, CEI hopes that these short-term impacts will translate to improved outcomes for students, their schools, and the entire New Bedford Public Schools system.

Similar to the findings of the 2013-14 pilot study, the evidence presented in this report confirms that CEI is fostering a school culture that supports the integration of technology and learning. These efforts are particularly important for New Bedford's students, many who are low income, and who are unlikely to graduate with levels of technology literacy sufficient for college and career without intervention.<sup>15</sup> If CEI participants continue to make the gains reflected in this program evaluation, it stands to positively shape the New Bedford Public Schools' approach to technology-centered professional development, which may in turn shape the long-term prospects of the city's students and schools.

### Recommendations

CEI initiatives are currently in place in four schools, and there is evidence that the innovative instructional technology and professional development has had a positive impact on teaching and learning. However, there are several opportunities and challenges to CEI's long-term impact related to improving programmatic consistency and rigor that could have sizeable impacts on overall program efficacy, particularly in terms of implementing the program with fidelity across the board.

- **Develop a Long-Term Work Plan:** CEI and participating schools would benefit from a clearly articulated 5-year Work Plan. During the 2014-15 school year, programming between schools was not consistent, and while in most cases CEI had little control over these inconsistencies, a strong Work Plan with clear lines of responsibility and timelines will ensure a more consistent and effective program. Questions that a strong Work Plan can answer include:
  - Will CEI continue to work in each school indefinitely or will CEI work in schools for a finite duration?
  - Will new staff need to be hired and how will they be deployed?
  - How will growth affect the organization's mission?
  - Given that CEI continues to refine programming and pilot program interventions, is it beneficial to delay expansion of the program into new schools until it has achieved consistency in programming and measurement?

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<sup>15</sup> Ehrlich, Stacy B., Susan E. Spote, Penny A. Sebring, Penny Bender Sebring. "The Use of Technology in the Chicago Public Schools 2011: Perspectives from Students, Teachers, and Principals." Consortium on Chicago School Research.

## Instructional Technology In The New Bedford Public Schools CEI Impact Report, 2014-2015: DRAFT

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- **Develop a Long-Term Evaluation Plan:** Strong, consistent measurement and detailed evaluation procedures are critical to provide CEI with a set of metrics against which future impacts can be measured, particularly in terms of how they relate to the long-term goals of improving standardized test scores. Data collection protocols are an essential component of this evaluation plan, and as such, regular data reporting requirements should be formalized via signed agreements. For example, while it is clear that participating teachers' students have made meaningful literacy gains during the period of CEI's involvement, it is difficult to establish whether these increases are on par with other NBPS elementary schools because district-wide data was not provided by the district.

An important step moving forward will be to clarify terms with school administrators and teachers, especially with regard to deliverables needed for evaluation and progress tracking. Clear responsibilities should be outlined with regard to who is responsible for collecting what data and on what schedule. Failure on behalf of school staff to implement program directives with fidelity reduces overall program efficacy and subverts the objectives of CEI. CEI may consider formal agreements with school administrators for consistent data reporting during preliminary meetings.

- **Conduct More Frequent Monitoring of Lexia Data:** The link between Lexia usage rates and scores is clear. An analysis by grade level in 2014-15 showed that Lexia scores dropped in step with lower usage rates and by the end of the year these classrooms had the lowest number of students on target and the highest number at risk. Unfortunately, the data is not sufficient to analyze Lexia usage rates and scores in more detail, but CEI is working to strengthen usage reporting in the current year, including generating monthly data reports for school principals. It is the experience of CEI that while principals agree to self-monitor the data at the beginning of the year, this analysis has not always occurred as the year progresses.
- **Solicit Continual Feedback from Teachers and Administrators:** Creating a feedback loop between CEI, teachers, and administrators will allow for a continual refinement of the program and the ability to troubleshoot issues as they occur. CEI is moving in this direction and for the 2015-2016 school year has begun crafting distinct Year 2 workshops based on feedback from teachers. Additionally, program directors are in the process of planning a 42 hour professional development course covering techniques for classroom implementation of instructional technology, which will contain elements of technology best practices to develop critical thinking. CEI is also incorporating formative assessments that introduce protocols and is modeling these practices throughout the course so teachers are introduced to best practices and strategies to use in their own classroom.

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- **Survey A Control Group of NBPS Teachers Annually:** In order to track changes over time, and to better correlate changes in the program with changes in outcomes, all participating CEI teachers and a control group of non-participating NBPS teachers should be surveyed annually.<sup>16</sup> Administering a survey to a control group sample of NBPS teachers will allow CEI to measure how perceptions and behaviors change in comparison to teachers who do not receive the CEI intervention. The control group survey was implemented in the Pilot study and yielded several results that showed how CEI teachers were positively impacted from the intervention in comparison to their peers.
- **Link Teacher Survey Data with Classroom Outcomes.** An effective system for matching CEI-teacher survey responses with other classroom-based data sources—while preserving teacher anonymity—would improve analytic capability for evaluative purposes. Such tracking would allow staff to determine whether there are relationships between survey-reported factors—such as value of technology, use of instructional strategies, and other areas—and student outcomes. This information would allow CEI to target individual teachers’ needs and goals more precisely, which may have the effect of improving impact in a number of outcome areas.
- **Strengthen Teacher Collaboration:** Overall, CEI initiatives have positively affected teacher collaboration, but not in all areas. Survey responses show positive shifts with regard to collaboration in teachers’ lounges and faculty meetings. However, the results do not show progress related to experienced teachers collaborating with new teachers. Strengthening relationships between these two teacher groups could aid newer teachers in developing stronger curriculum and more effective instruction techniques. To this end, teachers may benefit from a teacher-to-teacher mentoring program.

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<sup>16</sup> The control group survey of all New Bedford teachers was conducted for the Pilot Study but not in the 2014-15 school year.

# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

## APPENDIX A – LOGIC MODEL

VISION: The vision of CEI is to help New Bedford Public Schools teachers realize improved outcomes for their students, their classrooms, and their schools through the provision of professional development and enhanced classroom technology.

INPUTS/RESOURCES	ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	LONG-TERM OUTCOMES
<ul style="list-style-type: none"> <li>▪ CEI director to coordinate program</li> <li>▪ CEI/Friends teachers to serve as coaches/mentors</li> <li>▪ WIDE World curriculum</li> <li>▪ Computers for teachers</li> <li>▪ Tablets for students</li> <li>▪ Software programs in math, reading</li> <li>▪ Internet connectivity</li> <li>▪ Access to teacher and student data</li> <li>▪ External evaluator</li> <li>▪ Evaluation plan and tools</li> <li>▪ Data analysis and reporting protocols</li> </ul>	<p style="text-align: center;"><b>CEI:</b></p> <ul style="list-style-type: none"> <li>▪ Provides teachers with instruction through the WIDE World curriculum</li> <li>▪ Helps teachers implement that training in the classroom through coaching and mentoring</li> <li>▪ Provides oversight to ensure that implementation is consistent and effective</li> <li>▪ Supplies teachers and classrooms with equipment necessary to implement the program (i.e. computers, tablets, internet connectivity, software)</li> </ul> <p style="text-align: center;"><b>NBPS teachers:</b></p> <ul style="list-style-type: none"> <li>▪ Implement lessons learned through WIDE World in classroom</li> <li>▪ Engage their students in math and reading instruction through software recommended by CEI</li> <li>▪ Regularly track student progress through software programs</li> </ul>	<p style="text-align: center;"><b>CEI:</b></p> <ul style="list-style-type: none"> <li>▪ Number/proportion of teachers trained in WIDE World curriculum</li> <li>▪ Number/proportion of teachers implementing WIDE World curriculum with fidelity</li> <li>▪ Number of students taught by teachers trained by/working with CEI</li> </ul> <p style="text-align: center;"><b>NBPS teachers:</b></p> <ul style="list-style-type: none"> <li>▪ Intensity of software use in classroom (minutes/week, minutes/school year)</li> <li>▪ Responses to survey questions</li> <li>▪ Attendance rates among participating, non-participating teachers</li> <li>▪ Evaluation results for participating, non-participating teachers</li> </ul> <p style="text-align: center;"><b>NBPS students:</b></p> <ul style="list-style-type: none"> <li>▪ Attendance</li> <li>▪ Software-produced assessments</li> <li>▪ MCAS, other test scores</li> </ul>	<ul style="list-style-type: none"> <li>▪ Teachers deliver instruction more effectively</li> <li>▪ Increased collaboration among teachers</li> <li>▪ Classroom instruction is more challenging and engaging</li> <li>▪ Students are more engaged in their learning</li> <li>▪ Software-based student performance improves</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased NBPS student performance</li> <li>▪ Increased performance of the NBPS system</li> <li>▪ Increased teacher retention</li> </ul>

# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

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## APPENDIX B – SURVEY INSTRUMENT

Enter your CEI identification number:

When did you begin working with CEI?

- 2013-14 school year
- This school year

At which school do you teach?

- Hathaway
- Pacheco
- Other \_\_\_\_\_

What grade(s) do you primarily teach? Check all that apply.

- Pre-Kindergarten
- Kindergarten
- 1st grade
- 2nd grade
- 3rd grade
- 4th grade
- 5th grade
- I am an administrator
- I am a paraprofessional
- Other

Did you participate in the WIDE course offered through Harvard?

- Yes
- No

### TECHNOLOGY

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1. How often do you:

	Never/no access	Once or twice a semester	Once or twice a month	Weekly	Almost daily or more
Expect students to use computers or other technologies in completing their class work or assignments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use a computer and/or the Internet outside of class for such activities as lesson preparation, getting ideas, or finding examples of best practices?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incorporate software beyond word processors (such as PowerPoint, video clips, live Internet searches, music or audio clips, or similar media) when you deliver lessons?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

## 2. How valuable do you see integration of technology in teaching the following subject areas:

	Not valuable	Limited value	Average value	Very valuable	Extremely valuable
Art, music, drama	<input type="radio"/>				
Reading	<input type="radio"/>				
Writing	<input type="radio"/>				
Mathematics	<input type="radio"/>				
Science	<input type="radio"/>				
Social studies, history, government	<input type="radio"/>				
World language	<input type="radio"/>				

## 3. Please mark the extent to which you disagree or agree with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree
I am satisfied with my knowledge of how to use technology in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, technology saves time in helping me do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technology has improved my overall effectiveness in my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My students have become too reliant on technology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When used properly, technology really improves student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe technology is essential to teaching and learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My students enjoy learning more when using technology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 4. How many working computers do you have in your classroom?

## 5. Please rate the adequacy of the following technologies and resources in your school:

	Inadequate	Adequate	More than adequate
Software in your school for students' use (e.g., word processing, graphics, remedial packages, individualized instruction)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Software in your school for teachers and other staff (e.g., word processing, graphics, spreadsheets)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The number of computers for students' use in your classroom (or primary work area)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working condition of existing computer equipment in your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet connectivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical assistance for setting up and using technology in your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical assistance for trouble-shooting or fixing technology problems in your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training staff to use technology equipment that is in your school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training staff to use administrative type software (e.g., word processing, PowerPoint, graphics, and spreadsheets)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training staff to use the Internet for research and information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training staff to use instructional software packages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training on how to integrate technology into your daily instruction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training to use technology to design individual lessons for students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training on how to use technology to evaluate individual student progress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time to plan for integrating technology into the classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**6. Please indicate the degree to which:**

	Not at all/no access	A little	Somewhat	Very much
Your school is preparing its students to be literate technology users.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your schools culture encourages technology usage for instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your schools culture encourages technology usage for communication with students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your schools culture encourages technology usage for communication with student's families.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**COLLABORATION**

**7. Please mark the extent to which you disagree or agree with each of the following:**

	Strongly disagree	Disagree	Agree	Strongly agree
Teachers talk about instruction in the teachers' lounge, faculty meetings, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers in this school share and discuss student work with other teachers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Experienced teachers invite new teachers into their rooms to observe, give feedback, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A conscious effort is made by faculty to make new teachers feel welcome here.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**8. This school year, how often have you had conversations with colleagues about:**

	Less than once a month	2 or 3 times per month	1 or 2 times per week	Almost daily	N/A
What helps students learn the best.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development of new curriculum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The goals of this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing classroom behavior.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**9. This school year, how often have you:**

	Never	Once or twice	3-9 times	10 or more times	N/A
Observed another teachers classroom to offer feedback.	<input type="radio"/>				
Observed another teachers classroom to get ideas for your own instruction.	<input type="radio"/>				
Gone over student assessment data with other teachers to make instructional decisions.	<input type="radio"/>				
Worked with other teachers to develop materials or activities for particular classes.	<input type="radio"/>				
Worked on instructional strategies with other teachers.	<input type="radio"/>				
Worked with other teachers to ensure the use of common standards in evaluations assessing student progress	<input type="radio"/>				
Attended team conferences	<input type="radio"/>				
Taken part in collaborative professional learning	<input type="radio"/>				
Engaged in discussions about the learning development of specific students	<input type="radio"/>				

# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

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10. Excluding administrative duties, how much time per week do you spend working in structured collaboration with other teachers, staff, and school leaders?

- 0 minutes
  - 1-30 minutes
  - 31 minutes – 1 hour
  - More than 1 hour – 2 hours
  - More than 2 hours – 3 hours
  - More than 3 hours
- 

11. How would you describe your schools approach to professional learning?

- Professional development focuses on the teaching of core subjects, especially fact mastery.
  - Between 25-75% of PD focuses on the teaching of core subjects along with skills like critical thinking, communication and collaboration.
  - Over 75% of PD routinely emphasizes the use of professional learning communities and teaching core subjects along with higher order thinking skills.
- 

12. Overall, my professional development experiences with CEI this year have:

	Strongly Disagree	Disagree	Agree	Strongly agree
Been sustained and coherently focused, rather than short-term and unrelated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included enough time to think carefully about, try, and evaluate new ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been closely connected to my school’s improvement plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included opportunities to work productively with colleagues in my school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included opportunities to work productively with teachers from other schools.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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13. To what extent do you disagree or agree with the following:

	Strongly Disagree	Disagree	Agree	Strongly agree
Once we start a new program, we follow up to make sure that it’s working.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have so many different programs in this school that I can’t keep track of them all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many special programs come and go at this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Curriculum, instruction, and learning materials are well coordinated across the different grade levels at this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is consistency in curriculum, instruction, and learning materials among teachers in the same grade level at this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My school leader encourages me to come up with new and better ways of doing things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the recognition I receive for doing my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The people I work with at my school cooperate to get the job done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have access to the resources (materials, equipment, technology, etc.) I need in order to effectively teach my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

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## INSTRUCTION

14. Please indicate the degree to which you would be interested in training designed to:

	Very uninterested	Uninterested	Neutral	Interested	Very interested
Assess students current skills and knowledge	<input type="radio"/>				
Modify instructional strategies to meet individual student needs	<input type="radio"/>				
Motivate students to learn	<input type="radio"/>				
Design or implement a challenging curriculum, including problem solving techniques	<input type="radio"/>				
Design appropriate out-of-class assignments and activities	<input type="radio"/>				
Translate subject matter content into standards-based activities	<input type="radio"/>				
Promote critical thinking	<input type="radio"/>				

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15. To what extent do you disagree or agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree
My role as a teacher is to facilitate students' own inquiry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students learn best by finding solutions to problems on their own.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thinking and reasoning processes than specific curriculum content are more important than specific curriculum content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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16. How frequently do you review assessment data (e.g. department-wide common assessments, standardized tests)?

	Never	A few times a year	Every 6-8 weeks	Every 3-4 weeks	Weekly	N/A
Independently.	<input type="radio"/>					
With teachers in your grade level.	<input type="radio"/>					
With teachers across grades.	<input type="radio"/>					
With your principal.	<input type="radio"/>					

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# Impact of the Center for Education Innovation On Teaching and Learning in the New Bedford Public Schools

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## 17. How valuable do you find the following types of assessment data?

	Not valuable	Limited value	Average value	Very valuable	Extremely valuable	N/A
Lexia	<input type="radio"/>					
DIBELS	<input type="radio"/>					
Galileo	<input type="radio"/>					

## ABOUT YOU

### Number of years teaching:

- This is my first year
  - 2 to 3
  - 4 to 10
  - 11 to 15
  - 16 to 20
  - 21 or more
- 

### Number of years at your current school:

- This is my first year
  - 2 to 5
  - 6 to 10
  - 11 to 15
  - 16 to 20
  - 21 or more
- 

### What is your age?

- Younger than 22
- 22-24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60-64
- 65+

