

An Analysis of Summer and Fall 2013 Developmental Education Pilots in Connecticut Community Colleges

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Executive Summary

Background

Public Act 12-40: An Act Concerning College Readiness and Completion was passed by the Connecticut General Assembly in 2012 to direct the delivery of developmental education and to require the alignment of high school curricula to the Common Core Standards. The legislation delineated a developmental education delivery structure, including three tiers of developmental education.

Community colleges were given significant latitude to develop courses to meet the requirements of the law; pilot programs began in 2013. Some models being implemented on campuses (for example, the Accelerated Learning Program and the Developmental Math Demonstration Project) are part of multi-state efforts and preceded the legislation. The Board of Regents has reported to the legislature about preliminary results in the aggregate on this new model for developmental education.

The three tiers of developmental instruction are defined as:

- **Embedded Level:** College-level instruction, designed for students with 12th grade skills who are close to college readiness, but require some remediation;
- **Intensive Level:** One semester of developmental education or an intensive readiness experience for students with skills below the 12th grade level; and,
- **Transitional Strategies:** Strategies for students with eighth grade skill levels, delivered regionally, often in partnership with adult basic education providers.

Methodology

Connecticut Women's Education and Legal Fund (CWEALF) evaluation staff reviewed available student enrollment, completion and achievement data for all three strategies; surveyed community college deans, faculty and staff about their knowledge and perceptions of implementation of intensive and embedded programs; held key informant interviews with 16 community college deans, faculty and staff at seven community colleges about their transitional programs; and, profiled three exemplar programs.

Key Findings

Intensive and Embedded Programs

Outcome data for students enrolled in **intensive** and **embedded** programs suggested that students enrolled in their first semester in intensive and embedded courses in developmental **English** were:

- more likely to be enrolled in for-credit English in their second semester than were students enrolled in conventional developmental English; and,
- more likely to receive a passing grade (C or better) in for-credit English in their second semester than were students enrolled in conventional developmental English.

As with English, it appears that enrollment in intensive and embedded strategies in **Mathematics** may have a small effect on student enrollment in for-credit mathematics courses. Students enrolled in their first semester in intensive and embedded courses in developmental **Mathematics** were:

- more likely to be enrolled in for-credit Mathematics in their second semester than are students enrolled in conventional developmental Mathematics; and,
- slightly more likely to receive a passing grade (C or better) in for-credit Mathematics in their second semester than are students enrolled in conventional developmental Mathematics.

Community college administrators, faculty and staff reported that faculty members were engaged and flexible in planning and implementing *intensive* and *embedded* strategies, and accessible to students. Additionally, educators suggested that embedded tutoring gave students more academic support and that group instruction (in settings where it was possible) promoted peer bonding and support. Challenges identified included the difficulty of fitting time-intensive (6 credit) courses into student schedules and existing faculty workloads; finding resources to meet the emotional and personal needs of developmental students; and, maintaining student motivation in classes with self-paced instruction.

Transitional Programs

Data about students in Summer and Fall 2013 transitional programs were not collected uniformly across sites, making it difficult to make any inferences about the students in individual programs or the collection of programs across the system. However, demographic data received from programs was compiled and analyzed. Selected student data for **transitional** English and Mathematics programs indicated that:

- more than 60% of students in transitional programs were female;
- a higher percentage of students in English transitional programs were African American or Latino/a; in Mathematics transitional programs, a higher percentage of transitional students were Caucasian;
- the average age of students in English transitional courses was approximately 27 years of age, and in Mathematics courses, 28; and
- more students in transitional English than transitional Mathematics courses were new to community college.

Community college administrators, faculty and staff involved in transitional ‘*boot camp*’ programs¹ indicated that the developmental education efforts on their campuses have followed an evolutionary process and that the partnerships with adult education programs have been especially promising. Furthermore, they suggested that the combination of lecture, group and individual work, and the support offered by embedded tutors were essential to student success.

Community college administrators, faculty and staff involved in *accelerated* and *enhanced* models of transitional learning indicated that there was a clear articulation of program goals, consistent communication and collaboration among different departments, and the full support of college administrators. Additionally, they indicated that a hybrid model of online and classroom learning best served students, but that online learning challenged students to be self-motivated.

Educators who implemented transitional strategies posited that students’ personal challenges (such as child care, transportation and work schedules) and academic challenges may be addressed by using a learning communities model and striking a balance between course intensity and the need for mastery. Transitional programs challenged colleges to find and sustain full-time faculty and additional staff to provide ongoing retention support.

¹Boot camp programs are usually of short duration, more intense than a single course, and focused on a specific skill or transition to a higher-level of education (such as bridge programs which assist students in the transition from high school to college).

Recommendations

The following recommendations are offered:

Data

- **Data for students enrolled in transitional courses and/or programs should be collected uniformly, using a common format.** Colleges should collect and report on the same demographic variables used with for-credit students (Banner), and define and report uniformly on successful completion.
- **Data for students in intensive and embedded courses should be analyzed at the student level.** Data gathered over a student's educational path, and carefully analyzed and interpreted, may provide important information for making decisions on program enhancements and resource allocation.
- **Data must be gathered and analyzed on this beginning cohort and the groups to follow until the date of their college completion.** While efforts to date are an important start to understanding students' paths through developmental education, it will be even more important to see if any of the strategies shows a correlation with shortening or lengthening the time to certificate or degree, and for which students those correlations exist.
- **There is an existing typology that may aid in comparing courses across programs,** and while it is not a perfect fit for all new and revised courses, it may allow the Board of Regents to look at course and programs with like programs with common characteristics. Using a typology that categorizes similar strategies will allow individual colleges, policy makers and implementers to make apt comparisons that will be helpful to improving practices based upon data.

Financial Aid

- **Guidance from the Board of Regents is needed to assist colleges in preparing some measured response to the issue of financial aid for these courses.** Faculty and staff suggested that accelerated courses, specifically, were a challenge for a financial aid system that makes awards based upon a semester and credit hours.

Assessment

- **The Board of Regents should continue to promote the use of multiple measures, and analyze student-level data to understand and promote measures that are correlated with, or predictive of, student success.** College staff consistently report using Accuplacer as an important assessment of student readiness and appropriateness for different developmental education strategies; yet, they are also using multiple measures.

Faculty

- **The Board of Regents should work with each college to identify ways to deploy full-time faculty to developmental education efforts whenever possible.** Full-time faculty, who are connected to their campuses and resources and have deep experience in the classroom, can better meet student needs. Yet, full-time faculty members are difficult to find and fund.

Resources

- **The Board of Regents should work with colleges to document the level of resources needed for support and determine whether resources can be redirected or secured to better meet students' needs.** Discussions with educators, and survey data, suggested that students in developmental education have needs that are greater than those of non-developmental education students. Existing counseling capacity is insufficient to address student need.

Class scheduling

- **Whenever possible, colleges should offer off-hour opportunities (for example, on weekends) to allow working students to participate fully in developmental education strategies.** Connections to, and collaborations with, adult education and other community providers may allow campuses to extend programming so that more non-traditional students can take advantage of these enhanced opportunities.

Collaboration

- **The Board of Regents should continue to convene colleges and partners regionally on a regular basis, and annually statewide, to share lessons learned.** Best practices, which will emerge from a consideration of the data, should be promoted through regular reporting and professional development.

Conclusion

Preliminary data suggests that students in intensive and embedded courses do somewhat better than those enrolled in conventional developmental courses, as defined by passing a for-credit course in the second semester. This is a qualified success in the short term. Additional data are necessary to measure ultimate success – completion of a certificate or Associates degree – and to determine any relationships between the types of strategies employed and success for sub-groups of students, and at what cost. Equipped with this information, colleges can identify both the necessary elements to maximize student academic success and the costs of putting those elements in place on a large scale.

An Analysis of
Summer and Fall 2013
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1. Background

Data from the Connecticut Board of Regents (BOR) from 2011 suggested that as much as 72% of entering community college students and 65% of students entering Connecticut's state universities test as requiring remedial (or developmental) mathematics or English. Data also suggested that the rates of remediation for Latino/a, African American and low-income students was even higher. As a result, policy makers in the state proposed fundamental changes to the model of meeting students' developmental education needs.

Public Act 12-40: An Act Concerning College Readiness and Completion was passed by the Connecticut General Assembly in 2012 to direct the delivery of developmental education and to require the alignment of high school curricula to the Common Core Standards. This alignment, it is posited, will ensure high school graduates will be college ready. The legislation delineated a developmental education delivery structure, including three tiers of developmental education.

The three tiers of developmental instruction are defined thus by the Board of Regents:

- Embedded Level: College-level instruction, designed for students with 12th grade skills who are close to college readiness, but require some remediation;
- Intensive Level: One semester of developmental education or an intensive readiness experience for students with skills below the 12th grade level; and,
- Transitional Strategies: Strategies for students with eighth grade skill levels, delivered regionally, often in partnership with adult basic education providers.

Community colleges were given significant latitude to develop courses to meet the requirements of the law; pilot programs began in 2013. There were models developed and/or adapted at community college campuses that were designed to include embedded tutors and/or to use software-based instruction; some allowed students to pace themselves. Some models being implemented on campuses (like the Accelerated Learning Program² and The Developmental Math Demonstration Project³) are part of multi-state efforts and preceded the legislation.

The Board of Regents has reported to the legislature about preliminary results in the aggregate on this new model for developmental education. This report provides some additional data on student demographics and success by course for the three strategies.

²The Accelerated Learning Program, developed at the Community College of Baltimore County, places a small cohort of 'basic writers' into the first level of credit English (often ENG 101) along with students who placed into the course. 'Basic writers' are also enrolled in a companion workshop which supports skill acquisition. More information can be found at www.alp-deved.org.

³The Developmental Math Demonstration Program is a pilot program funded by the Lumina Foundation. Khan Academy materials and tools are used in pre-matriculation and developmental mathematics courses in community colleges. Currently, there are pilots at Manchester, Housatonic, Middlesex and Norwalk Community Colleges. For more information, see www.nebhe.org/programs-overview/.

2. Research Methodology

The research in this publication included both quantitative and qualitative data and information collected by research and evaluation staff at Connecticut Women’s Education and Legal Fund (CWEALF). Data and information were collected in the following ways:

A. Enrollment, completion and achievement data

Data for transitional courses and programs were obtained directly through the community college academic deans and their associates. The data for conventional, intensive and embedded courses were made available through the Board of Regents Institutional Research staff.

B. Surveys

CWEALF staff developed and administered two surveys to gauge knowledge and perceptions of college-level developmental education efforts across the state. The first survey (13 questions) was developed for community college deans and faculty members; the second (11 questions), for community college staff, including support and administrative personnel. The surveys were distributed through community college academic deans, administered online, and open from July 10 until July 24, 2014. Nineteen deans and faculty members and 36 staff members responded. Results from the survey were analyzed by CWEALF staff for overarching themes.

C. Stakeholder interviews

Transitional courses/programs: Group and individual interviews were held with 16 community college academic deans, faculty and staff at seven community colleges (Capital, Gateway, Three Rivers, Housatonic, Manchester, Northwestern and Middlesex Community Colleges) in regard to their transitional programs.

Profiled programs: Programs profiled in this evaluation were chosen to represent different models and strategies of developmental education. Information and data about three programs is provided in Appendix B (pages 34-38): Asnuntuck’s MAT 095, a self-paced course; Norwalk’s ENG 101, which is technology mediated; and Middlesex’s Transitional Year Program.

3. Findings

3A. Intensive and Embedded Programs

A1. Selected Program Data

Community colleges had a great deal of latitude in planning and implementing new and revised intensive and embedded learning strategies and courses. Some courses were designed to accelerate students' progress; some provided contextualized basic skills together with occupational or college-content coursework; and others provided some enhanced supports (such as advising or tutoring) for developmental-level learners.

The Board of Regents reported on findings after the first semester which suggested that students in intensive and embedded courses did nearly as well or better than their counterparts enrolled in conventional developmental education classes in regards to grade point and persistence to the second semester.

This evaluation project analyzed persistence and success in for-credit courses in semester two, by reviewing data for 42 conventional, 11 intensive and 17 embedded courses in English and 34 conventional, 13 intensive and 15 embedded courses in Mathematics.

A1a. Developmental English

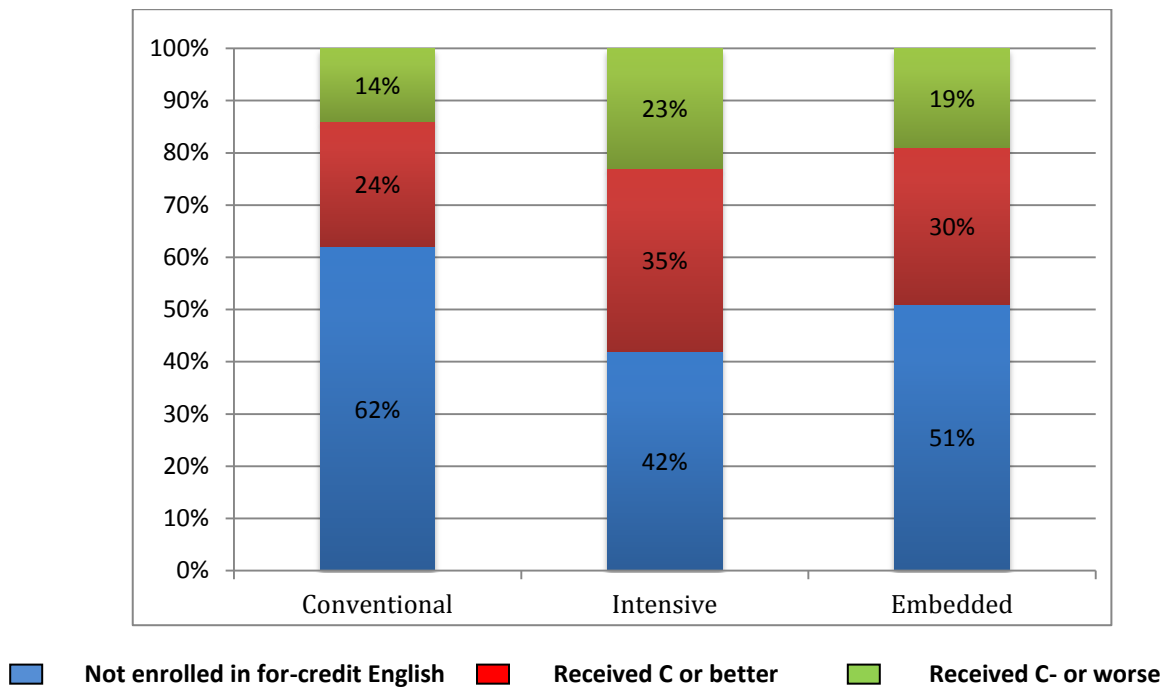
Data suggests that students enrolled in semester 1 in intensive and embedded courses in developmental English were more likely to do the following:

- **Enroll in for-credit English in their second semester** than were students enrolled in conventional developmental English.
 - **38%** of students in **conventional** developmental English classes were enrolled in for-credit English in their second semester;
 - as were **58%** of students who were enrolled in **intensive** courses in the previous semester; and,
 - **49%** of students who were enrolled in **embedded** courses in the previous semester.

- **Receive a passing grade (C or better) in for-credit English in their second semester** than were students enrolled in conventional developmental English.
 - **24%** of students in **conventional** developmental English classes in semester 1 passed for-credit English in their second semester;
 - as did **35%** of students who were enrolled in **intensive** courses in semester 1; and,
 - **30%** of students who were enrolled in **embedded** courses in semester 1.

Chart 1 (which follows) illustrates these points.

Chart 1. Conventional, Intensive, Embedded English – Enrollment and Achievement in Semester 2.



A1b. Developmental Mathematics

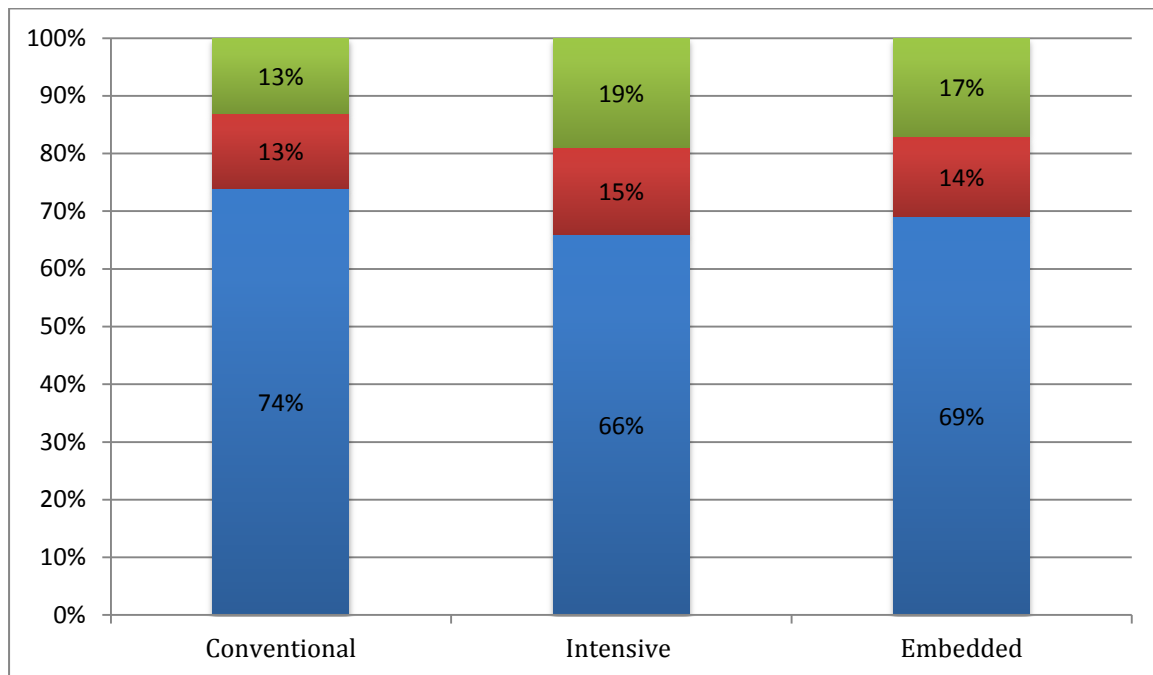
As with developmental English, it appears that, preliminarily, enrollment in Mathematics intensive and embedded strategies may have an effect on student enrollment in for-credit mathematics courses. In the case of Mathematics, the effect appears to be much smaller.

Data suggests that students enrolled in semester 1 in intensive and embedded courses in developmental Mathematics were more likely to do the following:

- **Enroll in for-credit Mathematics in their second semester** than were students enrolled in conventional developmental Mathematics.
 - **26%** of students in **conventional** developmental Mathematics classes in semester 1 were enrolled in for-credit Mathematics in their second semester,
 - as were **34%** of students who were enrolled in **intensive** courses in the previous semester; and,
 - **31%** of students who were enrolled in **embedded** courses in the previous semester.
- **Receive a passing grade (C or better) in for-credit Mathematics in their second semester** than were students enrolled in conventional developmental Mathematics.
 - **13%** of students in **conventional** developmental Mathematics classes in semester 1 passed for-credit Mathematics in their second semester;
 - as did **15%** of students who were enrolled in **intensive** courses in semester 1; and,
 - **14%** of students who were enrolled in **embedded** courses in semester 1.
- **Receive a failing grade (C- or worse) in for-credit Mathematics in their second semester** than were students enrolled in conventional developmental Mathematics.
 - **13%** of students in **conventional** developmental Mathematics classes in semester 1 passed for-credit Mathematics in their second semester;
 - as did **19%** of students who were enrolled in **intensive** courses in semester 1; and,
 - **17%** of students who were enrolled in **embedded** courses in semester 1.

Chart 2 (which follows) illustrates these points.

Chart 2. Conventional, Intensive, Embedded Mathematics: Enrollment and Achievement in Semester 2.



■ Not enrolled in for-credit English ■ Received C or better ■ Green: Received C- or worse

Student demography and success in both developmental (Fall 2013) and for-credit (Spring 2014) classes varied by college, and by course. Students in developmental classes in English appeared to have passed both their Fall 2013 developmental courses and Spring 2014 for-credit courses at higher rates than those in developmental Mathematics, although there are variations from school to school.

More detailed information about courses at each campus follows in Appendix A.

Table 1, which follows, illustrates successful completion in Fall 2013 and Spring 2014 by college, by course.

Table 1. Intensive and Embedded Strategies by College: Successful Completion

Asnuntuck	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG 101 - EMBEDDED	87%	33%
ENG 198 - EMBEDDED	87%	33%
MAT 095 - INTENSIVE	31%	23%
MAT 137 - EMBEDDED	44%	0
Capital	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG 095 - INTENSIVE	60%	30%
ENG 101 – EMBEDDED	69%	26%
MAT 085 - INTENSIVE	12%	0
MAT 136 - EMBEDDED	38%	0
Gateway	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG I098 - INTENSIVE	52%	40%
ENG I101 - EMBEDDED	59%	24%
ENG I101 ALP (all)	57%	31%
MAT I097 - INTENSIVE	38%	15%
MAT I137 - EMBEDDED	49%	19%
Housatonic	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG 043 - INTENSIVE	75%	50%
ENG 073 – INTENSIVE	88%	18%
ENG 101W - EMBEDDED	81%	45%
MAT 095 - INTENSIVE	59%	11%

Manchester	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG 066 - INTENSIVE	69%	22%
ENG B101 – EMBEDDED	47%	19%
ENG B101M – EMBEDDED	71%	15%
MAT B096 - INTENSIVE	53%	10%
MAT B139 - EMBEDDED	64%	16%

Middlesex	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG F063 - INTENSIVE	73%	37%
ENG 063 - EMBEDDED	40%	25%
MAT F075 - INTENSIVE	45%	2%
MAT F095 - INTENSIVE	39%	30%
MAT F095 - EMBEDED	92%	0

Naugatuck	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG H063 - EMBEDDED	73%	20%
ENG H101 - EMBEDDED	87%	40%
MAT H081 - INTENSIVE	46%	15%
MAT H094 - INTENSIVE	46%	15%
MAT H091 - EMBEDDED	55%	21%
MAT H136 - EMBEDDED	55%	21%

Northwestern	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG C085 - INTENSIVE	82%	32%
ENG C101W- EMBEDDED	56%	29%
MAT C085 - INTENSIVE	66%	12%
MAT 137W - EMBEDDED	62%	22%

Norwalk	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG D088 - INTENSIVE	55%	40%
ENG D101W - EMBEDDED	72%	45%
MAT D094E - EMBEDDED	80%	20%
MAT D136E - EMBEDDED	46%	25%
Quinebaug	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG L066 - INTENSIVE	72%	50%
ENG L198 - EMBEDDED	79%	0
MAT L085 - INTENSIVE	68%	19%
MAT L137S - EMBEDDED	58%	11%
Three Rivers	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG K096 - INTENSIVE	56%	30%
ENG K101S - EMBEDDED	31%	19%
MAT K095I - INTENSIVE	54%	21%
MAT 137S - EMBEDDED	54%	8%
Tunxis	Successfully completed developmental education class in Fall 2013	Successfully completed college-level class in Spring 2014
ENG J075 - INTENSIVE	67%	40%
ENG J093 - EMBEDDED	67%	40%
ENG J101 - EMBEDDED	47%	20%
MAT J298 - INTENSIVE	42%	18%
MAT J139 - EMBEDDED	34%	16%

3A2. Survey Findings

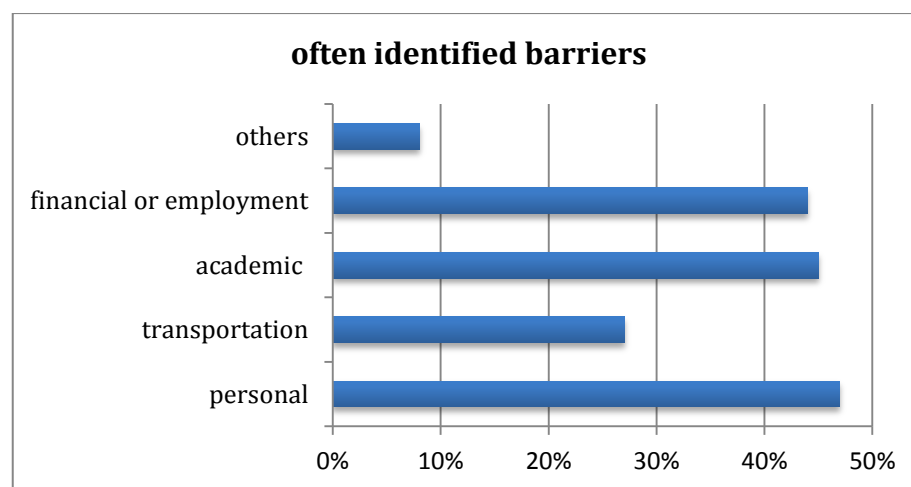
CWEALF staff developed and administered two surveys to gauge knowledge and perceptions of college-level developmental education efforts across the state: the first survey was developed for community college deans and faculty members; the second, for community college staff, including support and administrative personnel. Nineteen deans and faculty members and 36 staff members responded. The following is an analysis of responses.

Deans and faculty indicated that many of the courses implemented were predicated on existing curriculum; more than 70% indicated that faculty and staff were supportive and engaged in the efforts; and over 90% indicated that Summer 2013 and Fall 2014 embedded and intensive programs were at least somewhat successful (29% indicated they were very successful).

Compliance with Public Act 12-40 requires that colleges use multiple measures to assess student readiness for the college curriculum and placement into classes. Survey results indicate that staff, in fact, used multiple measures to assess students enrolling in embedded and/or intensive courses. Respondents indicated they universally used the Accuplacer⁴, but the majority also used SAT/ACT scores (97%), transcripts (74%), and other assessment methods (interviews, challenge essays, observation and faculty recommendations). While 41% indicated that they thought the measures were indicative and/or successful, half of respondents were uncertain.

Asked to identify whether did students who were enrolled in Summer or Fall 2013 embedded and/or intensive programs demonstrated specific barriers to retention and completion, and what those barriers were, staff indicated that students *often* identified personal barriers (personal or family issues), transportation, academic and employment issues.

Chart 3. Identified Student Barriers to Retention and Completion

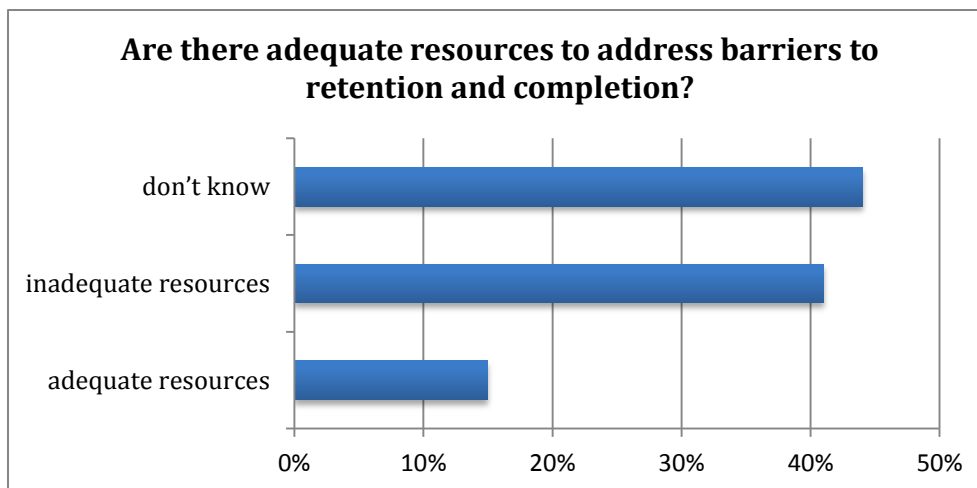


While 50% of staff indicated that additional or different supports and other services were available to students in intensive and embedded classes, approximately a third of respondents indicated that they did not know about any

⁴Accuplacer, developed by the College Board to measure mathematics, reading, writing and computer skills is one of the multiple measures used by Connecticut Community Colleges. Colleges vary in their interpretation of specific scores which signal readiness for college-level English and Mathematics.

additional or different supports. Approximately 15% of staff indicated that there were adequate resources to address the barriers to retention and completion; 41% did not believe there were adequate resources and 44% did not know.

Chart 4. Survey Responses in Regards to the Adequacy of Resources



Program Strengths

Deans and faculty members identified the following strengths of intensive and embedded developmental education strategies:

- Students appreciated more time on task and the additional support provided by embedded tutors and lab time.
- Faculty members were highly engaged and supportive of new and revised courses, and worked together to develop and review courses.
- Staff was willing to adapt and make changes to programs to meet student needs.

Faculty support, especially from the English and Math department chairs, was excellent. The instructors involved in teaching the courses were responsive and involved in the implementation process. Many went out of their way to attend meetings, support students, and meet with implementation staff, as needed.

Faculty member

Staff identified the following strengths of intensive and embedded developmental education strategies:

- The strategies provided staff with additional flexibility; they could be more accessible and had increased motivation to work with students. Faculty members were able to spend more time with students and give them individual attention.
- Embedded tutoring gave students more academic support; group instruction promoted peer bonding and support.

Students seemed to be comfortable with the embedded tutors in both settings and sought their help outside of class. In general, I think students in the classes developed a closer connection with their instructor and tutor than they would have in a traditional classroom. If students form a connection with a faculty or staff member, they are more likely to persist.

Faculty member

Program Challenges

Challenges of intensive and embedded developmental education strategies as identified by **deans and faculty** included:

With the better-prepared students in embedded, the intensive writing course loses a population in class that helped everyone to move. The intensive course then has a higher number of absences.

Faculty member

- Outreach was difficult for some schools; barriers included both the short time period for outreach and the need to reach out to students individually.
- Some of the more time-intensive courses (six-credit courses, specifically) posed a problem for students' schedules, especially if students had work or family responsibilities. Some of the six-credit courses were not filled as a result.
- The numbers of sections offered in both intensive and embedded options was limited; schools could only serve so many students during this pilot year.
- Finding the 'right' mix of students in developmental education is important and difficult.
- Teaching six-credit courses impacts faculty time and availability to perform other duties.

Challenges of intensive and embedded developmental education strategies as identified by **staff** at the various colleges included:

- Many schools have resources for financial aid assistance or academic counseling, but not as many for emotional or personal challenges. Small staff size/small colleges are limited in the necessary staff support for programs.
- Students feeling underprepared or having to work and go to school are issues that are difficult to address.
- Motivation is a challenge – classes that are self-paced require students to be self-motivated and complete homework.
- Existing college schedules did not offer students sufficient flexibility and choice to fit classes into working and other family responsibilities. Completing homework was cited as a challenge among many participants. Six-credit courses posed challenges for students; they were often cited as a challenge to scheduling work, childcare/transportation. These courses were also more intense in both instruction and homework assignments.

We need counselors on campus who specialize in mental health issues. At-risk students also need mentors that they can check in with on a regular basis, either individually or as part of a small group.

Staff

Program Impact

Deans and faculty members suggested that the pilot efforts have been largely successful and as such, will continue to inform planning for the full implementation of PA 12-40. While their comments are both specific (about the launch of one course or technology) and more global (redesigning a sequence of courses), there appears to be consensus about the positive impact on students. Methodology and platform changes have allowed campuses to add variety to college offerings and better serve students.

They also indicated that the process of planning for, and implementing, course and department changes has been both creative and collaborative. Comments included:

“Our developmental writing curriculum has been completely redesigned. None of the course offered in the past are on the books any longer. In mathematics, embedded/self-paced offers a great alternative for the right population. All new courses were well supported and moved through faculty governance quickly to support progress and meet deadlines.”

“The courses gave faculty insight on changes that needed to be made in the math curricula to make the courses more successful. We will be redesigning the courses based upon the outcomes of the pilot courses.”

However, campuses faced some space and personnel issues as lab space was highly subscribed and faculty members were teaching courses of longer duration (six-credits). Deans and faculty also indicated that co-curricular courses may make it difficult for students to schedule classes outside of English and Mathematics departments.

We continue to look at data from the Fall 2013 and subsequent data to identify trends and see how we might better serve students. Overall, it is preliminary to say that the programs/courses are a success based on one semester of data. But we can use this preliminary data to inform decisions on how to modify or change courses/programs to better serve students – and that is what we are doing on an ongoing basis.

Faculty member

3B. Transitional Programs

3B1. Selected Program Data –Demography

Data about students participating in Summer and Fall 2013 transitional programs were collected in many formats across sites, making it difficult to make any inferences about the students in individual programs or the collection of programs across the system. For example, sites did not uniformly collect and report information about whether the student was new to the college, date of birth and other demographic variables, and Accuplacer scores. However, data received was compiled and analyzed to provide the demographic profiles below. Please note that the number of data points were different depending upon the category (for example, there were 145 records in which gender data was submitted). Data analyzed for English transitional programs indicate that:

- **Females were 61% of participants;**
- **Latinos, African Americans and Asians were 86% of participants;**
 - **39% of participants were less than 19 years old; and**
 - **80% of participants were new to community college.**

Table 2. English transition programs in the aggregate – demographic profile

GENDER	N=145
Female	61%
Male	39%
RACE AND ETHNICITY	N=90
Latino	29%
African American	42%
Asian	8%
White	12%
More than one race	2%
Unknown	1%
Latino/African American	2%
Latino/White	2%
Latino/More than one race	1%
AGE	N=101
Average Age	27 years
Students 19 years old or younger	39%
TYPE OF STUDENT	N= 83
New	80%
Not new ⁵	20%
ACCUPLACER SCORES⁶	
Reading Comprehension	N=70
Average: 51	Range: 27-95
Sentence Skills	N=54
Average: 62	Range: 29-104

⁵Continuing, transfer, readmit, and not new categories collapsed for the analysis.

⁶While there are not common Accuplacer threshold scores across all colleges, most colleges use an 87-88 in Sentence Skills and an 82-83 in Reading Comprehension as one determination of basic readiness in English to guide course placement.

Data analyzed for Mathematics transitional programs indicate that:

- **Females were 66% of participants;**
- **Latinos, African Americans and Asians were 62% of participants;**
 - **34% of participants were less than 19 years old; and**
 - **56% of participants were new to community college.**

Table 3. Mathematics transition programs in the aggregate – demographic profile

GENDER	N=341
Female	66%
Male	34%
RACE AND ETHNICITY	N=114
Latino	16%
African American	33%
Asian	3%
White	36%
More than one race	3%
Unknown	3%
Latino/African American	<2%
Latino/White	3%
Latino/More than one race	<2%
AGE	N=260
Average Age	28 years
Students 19 years old or younger	34%
TYPE OF STUDENT	N= 112
New	56%
Not new ⁷	41%
Not enrolled	2%
High School Partnership	<1%
ACCUPLACER SCORES⁸	
Elementary Algebra	N=274
Average: 33	Range: 21-103
Arithmetic	N=250
Average: 41	Range: 20-107

Of note: Caucasian students were 36% of the population enrolled in developmental Mathematics as compared to 12% of the population in developmental English. Students of color made up a higher percentage of developmental English courses than developmental Mathematics courses.

⁷Continuing, transfer, readmit, and not new categories collapsed for the analysis.

⁸While there are not common Accuplacer threshold scores across all colleges, most colleges use 50-120 in Elementary Algebra, 54-90 in Arithmetic and 20-57 in College Math to determine basic readiness in Mathematics and guide course placement.

3B2. Selected Program Data – Developmental Education Pathways

While successful completion of a transitional program itself is important to student success, the completion of a developmental pathway from developmental (non-credit) to credit-bearing courses provides a more complete picture of student achievement.

To that end, evaluators dissected student course data for the two semesters after the initial transitional course to determine individual student paths. There were 56 students in English and 236 students in Mathematics for whom evaluators could follow course-taking paths.

The data reflected in the tables on the next pages (Tables 4 and 5) illustrate the paths for students enrolled in English and Mathematics transitional programs in Summer 2013 and their course-taking in the following two semesters (Fall 2013 and Spring 2014).

Definitions

- *Not enrolled in English or Not enrolled in Mathematics* mean that students were not enrolled in a course in that subject area, and not to be interpreted as that they were not enrolled in any other course.
- *Advanced Non-credit* means that the student was enrolled in a lower level non-credit course and subsequently in a higher-level non-credit course (for example, enrolled in ENG 003 in the first semester, and in ENG 073 in the second).

For example,

- the first line of data in Table 3 (**bold**) illustrates that there were two students who completed a transitional course in Summer 2013, were not enrolled in an English course in Fall 2013, and then passed a non-credit course in Spring 2014.

Interestingly, the largest group (and percentage) of students among those who completed a transitional course in Summer 2013 were those who were enrolled in a non-credit English course in Fall 2013, and enrolled and passed a for-credit course in Spring 2014 (10 students; 18%). These data are in bold font and underlined.

Of note were the students who completed a transitional course in Summer 2013, enrolled and passed a non-credit English class in Fall 2013, and then did not complete the pathway by taking and completing a for-credit English class in Spring 2014. Additionally, there was a percentage of students who completed transitional and non-credit courses and did not pass a for-credit course. It is, perhaps, these students (a small but not insignificant percentage) who may be most at risk for nonsuccess. As these are pilot data and represent only the first two semesters of the initiatives, no extrapolations are being made about the effectiveness of the specific strategies. However, the low poor pass rates in Mathematics should be tracked further. More data will be required in order to do so.

Table 4. Student Pathways in Two Semesters in **English** after Summer Transitional Participation

English N=56			
<i>Fall</i>	<i>Spring</i>	<i>Passed Spring 2014 course</i>	<i>Did not pass Spring 2014 course</i>
Not enrolled in English	Non-credit	2 (4%)	1 (2%)
Not enrolled in English	<i>Credit</i>	0 (0%)	0 (0%)
Non-credit	Non-credit	3 (5%)	1 (2%)
Non-credit	Advanced non-credit	6 (11%)	2 (4%)
Non-credit	Credit	10 (18%)	4 (7%)
Credit	Credit	0 (0%)	3 (5%)
Credit	Advanced credit	9 (16%)	2 (4%)
<i>Students enrolled in English during Fall 2013, but not in Spring 2014</i>			
<i>Fall</i>	<i>Spring</i>	<i>Passed Fall 2014 course</i>	<i>Did not pass Fall 2014 course</i>
Non-credit	Not enrolled in English	4 (7%)	2 (4%)
Credit	Not enrolled in English ⁹	3 (5%)	4 (7%)

⁹These students (Credit to No English) may have not enrolled in any English course in Spring 2014 because they completed their English requirement.

Table 5. Student Pathways in Two Semesters in **Mathematics** after Summer Transitional Participation

Mathematics N=236			
<i>Fall</i>	<i>Spring</i>	<i>Passed Spring 2014 course</i>	<i>Did not pass Spring 2014 course</i>
Not enrolled in Mathematics	Non-credit	9 (4%)	3 (1%)
Not enrolled in Mathematics	Credit	7 (3%)	3 (1%)
Non-credit	Non-credit	11 (5%)	18 (8%)
Non-credit	Advanced non-credit	8 (3%)	12 (5%)
Non-credit	Credit	30 (13%)	29 (12%)
Credit	Credit	2 (1%)	7 (3%)
Credit	Advanced credit	9 (4%)	4 (2%)
<i>Students enrolled in Math during Fall 2013, but not in Spring 2014</i>			
<i>Fall</i>	<i>Spring</i>	<i>Passed Fall 2014 course</i>	<i>Did not pass Fall 2014 course</i>
Non-credit	Not enrolled in Mathematics	19 (8%)	38 (16%)
Credit	Not enrolled in Mathematics ¹⁰	19 (8%)	8 (3%)

¹⁰These students (Credit to No English) may have not enrolled in any Mathematics course in Spring 2014 because they completed their Mathematics requirement.

3B3. Focus Groups and Interview Findings

Bridge/Boot Camp Programs

Gateway, Middlesex, Three Rivers and Tunxis Community Colleges used bridge programs as a strategy to address the developmental needs of students. Boot camp programs were developed in English and Mathematics and offered students an opportunity to move from the lowest level of developmental education to the mid-level or new intensive level courses. The programs ranged from two to three weeks depending on the college, and the level of student need and, in most cases, were offered free of charge.

The English boot camps reinforced skills in grammar, writing and reading comprehension. The English program was supplemented with web-based software to allow students to work specifically on those areas that needed improvement. The Mathematics program builds skills in arithmetic including adding, subtracting, multiplying and dividing whole numbers, integers, fractions and decimals, as well as problems involving proportions and percentages. In some cases, the Mathematics program also included lab time, and used web-based software to allow students the opportunity to work at their own pace. Instructors were supplemented, in many cases, by classroom assistants and tutors who helped students master course material.

Program Strengths

In interviews, college staff and faculty identified the following program strengths:

- Developmental education work has been an evolutionary process; the previous work done by specific campuses on mathematics curricula laid the foundation for boot camp curricula.
- Multiple measures were useful in placing students into appropriate transitional courses.
- The opportunity for students to take accelerated courses free of charge was an incentive for students; faculty who had been concerned that the cost of accelerated courses would be a barrier to college enrollment were also pleased.
- The instructional model – lecture combined with individual and group work, and support from embedded tutor – was successful.
- Department chairs in the colleges were engaged from the beginning of the initiative. This promoted institutionalization of the strategies; strong collaboration between faculty on curriculum development; and faculty ‘owning’ the changes.
- The initiative created positive change for the whole campus; faculty and staff are focused and energized.
- A single advisor for all boot camp students appears to work best -- students need constant attention and support.
- In boot camps, support specialists work with students individually and participate in orientation.
- Campuses have their best, most patient faculty teaching in transitional programs.
- Recruitment efforts included widely distributing flyers to advisors and outreach to students identified for developmental education in fall 2013; parents were also engaged.
- Small group efforts and individual advising directed at college readiness are both working well.
- Incorporating enhanced services, such as tutoring and other academic services, into the boot camps, has been effective.
- Boot camps were a positive experience for students; the experience built student confidence and college readiness; student success has, in turn, motivated faculty and staff.

Interviews with faculty and staff indicated:

Plans to work with the adult education programs in the near future are promising.

New models with cohorts, learning communities, weekend options and longer time frames are underway as result of these early transitional pilots.

Program challenges

In interviews, college staff and faculty noted the following challenges faced by **students**:

- Student challenges included personal issues such as work schedules, childcare and transportation, as well as academic challenges related to the intensity of the courses and maintaining a high level of motivation.
- Students wanted more time for the course work; some programs are expanding the length of time to allow for additional weeks for those who want/need it.
- Students need a strong foundation to advance in their coursework, and a balance between speed and intensity.

In addition, they noted the following challenges faced by the **faculty/staff**:

- Some campuses had only 10 days to get their program up and running; having more time in subsequent semesters will allow for improvements.
- A key to student success is advising; the advising strategy needs to be assessed and delineated.
- Campuses have determined that there is a need for retention support after completion of the initial pilot.
- There has been difficulty in finding English faculty to meet student demand for courses.
- As the initiative continues, programs are seeing students with larger skill deficits and greater support needs.
- Some faculty members perceive the boot camps as gate-keeping courses and faculty and staff are confused about why the course is not optional. Additionally, students think they cannot enroll in college courses if they do not participate in the boot camp program.

Accelerated and Enhanced Programs

Asnuntuck, Manchester, Northwestern and Quinebaug Valley Community Colleges used accelerated online, self-paced mathematics models to address remediation needs of students. Colleges used various web-based software including Khan Academy, ALEKS and Plato. Some of these programs are part of a New England Board of Higher Education (NEBHE) effort called the Developmental Math Demonstration Project and initiated in Summer 2013; all NEBHE programs use Khan Academy software. Online programs offered pre-assessment and assigned modules based on individual student needs. The majority of schools used the mathematics portion of the Accuplacer for pre- and post- testing. Program length varied by college, and most colleges allowed students to work at their own pace.

Another model used in Summer and Fall 2013 was to offer enhanced supports to students. Capital and Housatonic Community Colleges coupled online learning with structured support and tutors for increased success. Capital Community College established a Center for Academic Transitions (CAT) within the Academic Success Center in the Summer of 2013. The CAT also serves students who wish to re-take the Accuplacer to improve their placement into Mathematics and English courses.

Housatonic Community College transferred their iMath program to the Plato platform to better serve their students with remediation needs. They leveraged state and grant funding to integrate Khan Academy materials and to administer additional Accuplacer exams. Housatonic had full-time staff to orient, tutor and provide weekly check-ins with students throughout the program. Information reported to the Board of Regents described Housatonic's plan to open a new center which will focus on the needs of transitional students while also implementing an Accuplacer Preparation Workshop for all students entering the college beginning with the Summer or Fall 2014 semester. Through the Center for Academic Progress (CAP), students requiring additional academic skill development in English, Reading and Mathematics will be referred to support services. These services will include a variety of tutoring, non-credit workshops, computer-based review and other resources. Students will also be advised about completion of non-credit options prior to taking the Accuplacer examination.

Program Strengths

During interviews with a sample of accelerated and enhanced models, staff was able to identify the following program strengths:

- The existence of dedicated full-time staff to oversee program design and implementation, and to provide support services and tutoring, was important.
- There was identification of clear goals during program design and implementation.
- Communication and collaboration between and among staff and college departments was consistent and essential.
- Collaboration among different academic departments allowed the programs to identify appropriate curriculum.
- Online, self-paced learning allowed students the needed flexibility to make learning gains. For motivated students especially, the online strategy was a great way to remediate more quickly.
- Orientation provided a great opportunity to communicate with students and discuss program expectations prior to the start of the program.
- Administrators fully supported the programs.
- Campuses were able to embed new/revised programs into existing support structures on campus.
- A hybrid model of online learning and classroom teaching was suggested (by many stakeholders) as the best model for students. This includes structured time for students to use computer labs on campus.

Program Challenges

In interviews, college staff and faculty noted the following challenges faced by **students**:

- Students need access to a personal computer.
- Online learning can be challenging for some students who have a difficult time motivating themselves to spend the necessary time on each module.
- Students' negative perception of developmental courses can be de-motivating to students.
- Students' personal/life challenges make it difficult for them to participate.
- Students needed additional support through the registration process for their next semesters.

Also, they noted the following challenges faced by the **faculty/staff**:

- Faculty/staff need access to cost-effective, appropriate pre- and post-testing.
- Best practices such as constant follow up with students required a significant amount of time on the part of staff.
- It is difficult to sustain resources needed to implement the program, most specifically to keep full-time staff employed.

4. Discussion and Recommendations

Public Act 12-40 has been a lever for change in developmental education in Connecticut's community colleges. While the legislation delineated the basic model through which students would be remediated into for-credit courses, it was largely silent as to how the community colleges were to accomplish their work, meet student needs and enhance student enrollment, completion and success in developmental education. Community colleges were given great latitude to determine pedagogy and content most applicable to their developmental students, and out of the freedom to create have emerged interesting and different models.

Some of the new courses, like the Accelerated Learning Program (ALP), which originated at the Community College of Baltimore County, are part of a wide-ranging pilot. More than 150 schools and five states have adopted the ALP model. Early ALP research (Cho, Kopko, Jenkins and Jaggars, 2012) suggests that students have greater success in English 101 and may persist in community colleges at higher rates than non-ALP developmental students. Others, like courses at four of Connecticut Community Colleges (Manchester, Housatonic, Middlesex and Norwalk) are technology-mediated – using Khan Academy software – and are part of the New England Board of Higher Education's Developmental Math Demonstration Project. And still others, such as the boot camp model piloted on many campuses and with adult education providers, are using a learning community structure to impact student achievement.

It is critical to continue to collect, analyze and use data to improve student experiences and enhance student achievement. While the evaluators were limited by time and data collection, there are areas in which we believe we can offer some focused recommendations.

Recommendations

Data

- **Data for students enrolled in transitional courses and/or programs should be collected uniformly, using a common format.** Colleges use their own collection mechanisms and format, which hampers efforts to analyze across programs. Colleges should collect and report on the same demographic variables used with credit students (Banner) and define and report uniformly on successful completion. Looking longitudinally, it is important to gather and analyze transitional data in the context of a student's entire path through community college using a single system (Banner).
- **Data for students in intensive and embedded courses should be analyzed at the student level.** While seat-level data is important in determining how many students in a certain section enrolled and successfully completed an intensive or embedded course, there is no way to ascertain whether there is a connection between specific categories or sub-categories of students and a specific strategy. In moving forward, it would be important to know (as other studies have asked): were there different completion outcomes for students by gender, race, age, socioeconomic status, or new or returning student? Analyses of Achieving the Dream students (Jeong and Cho, 2009) have shown some variability by certain characteristics – women tend to have higher odds of progressing through developmental mathematics than men; older students tend to have lower odds of passing to a higher level than younger students. This suggests that specific data gathered over years, and carefully dissected, may provide added information for making decisions on program enhancements and resource allocation.

Recommendations (continued)

DATA

- **Data must be gathered and analyzed on this beginning cohort and the groups to follow until the date of their college completion.** The data analyzed for this report only reflects two semesters (or in the case of Summer 2013 transitional courses, three). While efforts to date are an important start to understanding students' paths through developmental education, it will be even more important to see if any of the strategies shows a correlation with shortening or lengthening the time to certificate or degree, and for which students.
- **There is an existing typology that may aid in comparing course across programs,** and while it is not a perfect fit for all new and revised courses, it may allow the Board of Regents to look at course and programs with like programs with common characteristics. Rutschow and Schneider (2011), in *Unlocking the Gate: What We Know About Improving Developmental Education*, review and summarize major research on developmental education, and propose that developmental education strategies can be categorized thus:
 - Interventions aimed at helping students avoid developmental education by shoring up their skills before they enroll in college.
 - Interventions designed to accelerate students' progress through developmental education by shortening the timing or content of their developmental education courses.
 - Programs that provide contextualized basic skills together with occupational or college-content coursework.
 - Programs that enhance the supports for developmental-level learners, such as advising or tutoring (Rutschow and Schneider, 2011, p. ES2).

Using a typology that categorizes similar strategies will allow individual colleges, policy makers and implementers to make apt comparisons that will be helpful to improving practices based upon data.

FINANCIAL AID

- **The Board of Regents should lead colleges in preparing some measured response to the issue of financial aid for these courses.** Differently structured learning modules pose challenges to students' financial aid awards. Faculty and staff suggested that accelerated courses, specifically, were a challenge for a financial aid system that makes awards based upon credit hours within a semester. Students who are enrolled in a self-paced course and progress through two courses in one semester are unsure whether their financial aid award will cover the additional expense. One school, Asnuntuck Community College, convenes a small team comprised of administrators and faculty toward the end of each semester to review student need related to accelerated completion.

Recommendations (continued)

CLASS SCHEDULING

- **Whenever possible, colleges should offer off-hour opportunities (on weekends, for example) to allow working students to participate fully in developmental education strategies.** The traditional Monday through Friday calendar may not meet the needs of all students. Most boot camp models were held during the day and during the traditional workweek. Connections to, and collaborations with, adult education providers may allow campuses to extend programming so that more non-traditional students can take advantage of these enhanced supports.

ASSESSMENT

- **The Board of Regents should continue to promote the use of multiple measures, and analyze student-level data to understand and promote measures that are correlated with, or predictive of, student success.** College staff consistently report using Accuplacer as an important assessment of student readiness and appropriateness for different developmental education strategies; yet, they are also using multiple measures. Some colleges report using essays, interviews and teacher recommendations as supplementary measures. Yet, some faculty and staff suggest that some measure of grit, as defined as the tendency to sustain interest in and effort toward very long-term goals (Duckworth et al., 2007), may be useful to measure student persistence through levels of developmental education.

FACULTY

- **The Board of Regents should work with colleges to identify ways to deploy full-time faculty to developmental education efforts whenever possible.** Campuses report they are short on full-time faculty to teach developmental education courses. Discussions with faculty and administrators stressed the importance of having the most engaged and experienced faculty available to teach students with developmental needs. These students often have more challenges that extend beyond their academic needs. Full-time faculty, who are connected to their campuses and resources and have deep experience in the classroom, can better meet student needs. Yet, full-time faculty members are difficult to find and fund. In addition, when full-time faculty members do teach courses that are either longer in duration or more intense (six-credit classes, particularly), they are pulled away from other duties.

RESOURCES

- **The Board of Regents should work with colleges to better support developmental education students.** Student support services related to students' daily life challenges must be enhanced. Discussions with educators, and survey data, suggested that students in developmental education courses have needs that are greater than those of non-developmental education students. In addition, educators suggest that the nature of the pilot strategies – learning communities, enhanced support in the classroom – have led to closer relationships to students, students who now talk about their needs for support. Existing counseling capacity is insufficient to address student need.

Recommendations (continued)

COLLABORATION

- **The Board of Regents should continue to convene colleges and partners regionally on a regular basis, and annually statewide, to share lessons learned.** Best practices, which will emerge from continued data analysis, should be promoted through regular reporting and professional development. There are many stories within the developmental education pilots; some of these are unknown, except among the practitioners at the individual colleges. There are exciting efforts in which departmental faculty across campuses are convening to discuss and adopt practices that work. Many faculty members reported that one of the important impacts of this initiative is to enable schools to meet and discuss, revise and test pedagogy and content. This must be an enduring piece of the work so that the most promising strategies can be replicated and used and student achievement can be enhanced.

Conclusion

Various course structures, pedagogical strategies and content emphases have emerged during the pilot implementation year of Connecticut's new developmental education model. Community colleges have invested creative and collaborative energy and resources (people and funds) to develop and implement revised and new courses to meet the legislative mandate to better serve all students.

Deans and faculty members suggested that while the timeline for planning and action was short, they were able to marshal the necessary support in order to serve students differently through transitional, intensive and embedded strategies. Preliminary data through the second semester suggests that students in intensive and embedded courses do somewhat better than those enrolled in conventional developmental courses, as defined by passing a for-credit course in the second semester. This is a qualified success in the short term. Future evaluation efforts will necessitate the collection of a standard set of data for students in transitional courses in order to assess their impact as well.

Additional data are

necessary to measure ultimate success – completion of a certificate or Associates degree – and to determine any relationships between the types of strategies employed and success for sub-groups of students, and at what cost. Colleges must identify both the necessary elements to maximize student academic success and the costs of putting those elements in place on a large scale. The foundation for this analysis has been laid in this report, and future efforts will benefit from continued investigation of promising practices in Connecticut's developmental education programs.

Appendix A. Aggregate Data for Conventional, Intensive and Embedded Developmental Strategies

Table A1. Conventional English

		ENROLLED	NO ENGLISH	C OR BETTER	C- OR WORSE	S2* ¹¹
Asnuntuck	043	101	63	29	9	29%
	073	88	43	34	11	39%
Capital	G003	179	160	5	5	3%
	G013	156	144	7	5	4%
	G043	251	122	75	54	30%
	G073	267	125	82	60	31%
	G095	20	6	6	8	30%
Gateway	I043	388	326	46	16	12%
	I063	706	366	195	145	28%
	I073	341	219	74	48	22%
	I082	166	93	42	31	25%
Housatonic	E003	200	135	34	31	17%
	E013	84	71	10	3	12%
	E043	515	223	184	108	36%
	E073	341	163	112	66	33%
	E093	69	29	26	14	38%
Manchester	B003	32	31	0	1	0%
	B066	209	171	24	14	11%
	B090	20	15	3	2	15%
	B093	613	345	158	110	26%
Middlesex	F003	137	133	2	2	1%
	F013	58	58	0	0	0%
	F063	207	137	50	20	24%
	F073	209	97	72	40	34%
Naugatuck	H043	327	281	27	19	8%
	H053	117	50	42	25	36%
	H063	573	295	204	74	36%
Northwestern	C033	42	35	4	3	10%
	C085	47	19	13	15	28%
	C093	21	21	0	0	0%
Norwalk	D066	155	147	5	3	3%
	D068	13	12	1	0	8%
	D074	131	55	54	22	41%
	D084	347	145	138	64	40%

¹¹S2 is the success rate for students who participated in developmental education in the first semester, and passed their subsequent for-credit course with a C or better in the second semester (S2=C or better divided by enrolled).

Table A1 (continued). Conventional English

		ENROLLED	NO ENGLISH	C OR BETTER	C- OR WORSE	S2* ¹²
Quinebaug	L073	105	95	9	1	9%
	L086	89	69	14	6	16%
	L093	91	51	26	14	29%
Three Rivers	K002	116	91	15	10	13%
	K012	97	64	18	15	19%
Tunxis	J065	157	156	1	0	1%
	J075	214	106	63	45	29%
	J093	159	92	33	34	21%
All		8149	5059 (62%)	1937	1153	24%

Table A2. Intensive English

		ENROLLED	NO ENGLISH	C OR BETTER	C- OR WORSE	S2
Asnuntuck	none					
Capital	G095	20	6	6	8	30%
Gateway	I098	25	12	10	3	40%
Housatonic	E043	16	5	8	3	50%
	E073	17	6	3	8	18%
Manchester	B066	32	23	7	2	22%
Middlesex	F063	41	9	15	17	37%
Naugatuck	none					
Northwestern	C085	22	8	7	7	32%
Norwalk	D088	77	35	31	11	40%
Quinebaug	L066	18	5	9	4	50%
Three Rivers	K096	73	36	22	15	30%
Tunxis	J075	15	5	6	4	40%
All		356	150 (42%)	124	82	35%

¹²S2 is the success rate for students who participated in developmental education in the first semester, and passed their subsequent for-credit course with a C or better in the second semester (S2=C or better divided by enrolled).

Table A3. Embedded English

		ENROLLED	NO ENG	C OR BETTER	C- OR WORSE	S2
Asnuntuck	I01	15	9	5	1	33%
	198	15	9	5	1	33%
Capital	G101	39	18	10	11	26%
Gateway	I101	59	34	14	11	24%
	I101 ALP(all)	61	29	19	13	31%
Housatonic	E101W	31	13	14	4	45%
Manchester	B101	36	23	7	6	19%
	B101M	41	31	6	4	15%
Middlesex	F063	20	12	5	3	25%
Naugatuck	H063	15	3	3	9	20%
	H101	15	7	6	2	40%
Northwestern	C101W	45	24	13	8	29%
Norwalk	D101W	146	37	66	43	45%
Quinebaug	L198	24	24	0	0	0%
Three Rivers	K101S	68	45	13	10	19%
Tunxis	J093	11	2	9	0	82%
	J101	30	19	6	5	20%
All		671	339 (51%)	201	131	30%

Table A4. Conventional Math

		ENROLLED	NO MATH	C OR BETTER	C- OR WORSE	S2
Asnuntuck	075	76	73	3	0	4%
	095	149	82	36	31	24%
Capital	G075	298	279	9	10	3%
	G092	45	26	10	9	22%
	G093	8	7	0	1	0%
	G095	387	257	65	65	17%
Gateway	I075	525	524	1	0	0%
	I095	1188	747	249	192	21%
	I098	62	37	12	13	19%
Housatonic prealg	E075	351	337	10	4	3%
Pre-alg/intensive	E075	45	22	5	18	11%
Pre-alg/selfpaced	E075	156	149	2	5	1%
Elem alg	E095	332	210	65	57	20%
Elem alg/ Self-paced	E095	153	104	24	25	16%
Manchester	B095	504	335	93	76	18%
Middlesex	F075	98	90	7	1	7%
	F095	121	72	23	26	19%
Naugatuck	H073	85	82	0	3	0%
	H075	273	262	4	7	1%
	H092	12	5	4	3	33%
	H095	1064	683	197	184	19%
Northwestern	C075	33	33	0	0	0%
	C085	122	62	28	32	23%
	C095	74	38	21	15	28%
Norwalk	D073	79	78	0	1	0%
	D075	322	312	5	5	2%
	D094	581	349	90	142	15%
Quinebaug	L075	136	123	8	5	6%
	L095	175	108	34	33	19%
Three Rivers	K075	257	253	3	1	1%
	K090	36	29	6	1	17%
	K095	385	248	84	53	22%
Tunxis	J075	305	288	7	10	2%
	J095	449	258	92	99	20%
All		8886	6562 (74%)	1197	1127	13%

Table A5. Intensive Math

		ENROLLED	NO MATH	C OR BETTER	C- OR WORSE	S2
Asnuntuck	95	13	7	3	3	23%
Capital	G085	8	8	0	0	0%
Gateway	I097	112	80	17	15	15%
Housatonic	E095	46	23	5	18	11%
Manchester	B096	154	109	16	29	10%
Middlesex	F075	80	75	2	3	2%
	F095	57	37	17	3	30%
Naugatuck	H081	13	10	2	1	15%
	H094	13	10	2	1	15%
Northwestern	C085	32	19	4	9	13%
Norwalk	none					
Quinebaug	L085	31	17	6	8	19%
Three Rivers	K095I	112	61	24	27	21%
Tunxis	J298	71	32	13	26	18%
All		742	488 (66%)	111	143	15%

Table A6. Embedded Math

		ENROLLED	NO MATH	C OR BETTER	C- OR WORSE	S2
Asnuntuck	137	9	8	1	0	11%
	198	9	8	1	0	11%
Capital	G136	8	7	0	1	0%
Gateway	I137	63	37	12	14	19%
Housatonic	none					
Manchester	B139	55	38	9	8	16%
Middlesex	F095	13	11	0	2	0%
	F137E	23	15	2	6	9%
Naugatuck	H091	47	32	10	5	21%
	H136	47	32	10	5	21%
Northwestern	C137 W	32	25	0	7	0%
Norwalk	D094 E	15	6	3	6	20%
	D136 E	28	17	7	4	25%
Quinebaug	L137S	38	29	4	5	11%
Three Rivers	K137S	106	73	8	25	8%
Tunxis	J139	67	46	11	10	16%
All		560	384 (69%)	78	98	14%

Appendix B. Profiles of Selected Programs

Asnuntuck Community College (ACC) MAT 095 - Self-paced

Length of session: 15-week regular semester

Days and hours: 2 days a week for 1 hour 20 minutes per day

Instructional methods: Self-paced

Technology mediated: Yes, taught in computer lab

Software: ALEKS

Number of credits: Non-credit 3 contact or semester hours (non-credit)

Student population: All, based on placement scores and permission of instructor

Tutoring: Embedded; also available at Academic Skills Center (office hours in the Academic Skills Center via walk-in or no appointment needed).

Accelerated instruction: Self-paced

The self-paced MAT 095 course was developed and taught by Teresa Foley, Ph.D., Associate Professor & Mathematics Coordinator, and piloted in Spring 2012 semester. Foley gives her students concrete study strategies – offering weekly targets (both hours and topics) and time sheets – and tracks their seat time, in order to assist students who may need more structure to succeed. Some students, however, especially those with more complex learning profiles – identified or unidentified learning disabilities or challenges – take more time; the structure of the course allows for their success as well.

The class is taught with an embedded tutor in the classroom for additional support. The tutor, assigned to the class, is also available to students in the Academic Skills Center. Additionally, Foley holds her office hours in the Academic Skills Center. She believes this “lessens the intimidation” of students going to her office and makes her a more easily approachable resource.

One challenge of the self-paced course is that it is embedded in a system that is less flexible. If a student does not finish the MAT 095 course (non-credit), they will receive an M for a grade (M signifying making progress); this secures their seat for the next semester where they can resume the course where they left off the semester before. Receiving an M rather than an F allows students to feel success rather than failure. However, this is not an option for students in MAT 137.

Another challenge for which Asnuntuck has devised a solution is the misalignment of financial aid with course completion and registration. A small team comprised of the Dean of Students, the Registrar, Financial Aid and Foley meet toward the end of each semester to review student need related to accelerated completion. They decide how to meet student aid and registration needs on a case-by-case basis. In some cases, the group has used a presidential waiver to meet student financial needs.

Meetings of Math faculty throughout the community college system are held monthly; this allows for collaboration of faculty using similar strategies and software. Foley also calls upon her community college colleagues using ALEKS software in their classrooms to share pedagogical and content knowledge.

Middlesex Community College (MxCC) TRANSITIONAL YEAR PROGRAM (TYP)

Length of session: 2 15-week regular semesters

Days and hours: Dependent upon course times

Instructional methods: Traditional and co-teaching; cohort structure; embedded assistance

Technology mediated: Determined by faculty in each course

Software: My Math Lab; SAM (Intro to Computers)

Number of credits: 18 credits for the TYP program – students complete 6-9 developmental credits and 6-9 college credits (depending on math placement)

Student population: Varies by age; new to college

Tutoring: Yes; Instructional Support as well as Librarian are assigned to classes/cohort; specific classes (ENG) co-taught.

Accelerated instruction: No

Fall semester

- ENG 096 (TYP) – Intro to College English
- FS 100 (TYP) – Freshman Seminar
- CSC 101(TYP) – Intro to Computers
-

Spring semester

- ENG 101 (TYP) – Composition (or ENG 096 as needed)
- SCI 103 (TYP) – Recent Discoveries in Science
- MAT 085, 095 or 137 – Math-directed elective
- Program or Career Elective

The Transitional Year Program is led by Terence (Terry) McNulty, Professor of English at MxCC; the program groups students into a learning cohort in order to provide a smoother transition into college and optimize academic success. The program also provides embedded instructional support, study skills instruction (freshman seminar) and a flexible Math option. It is predicated on an honors cohort model, and first piloted in 2011-2012, preceding PA 12-40. It is currently implemented on both Meriden and Middletown campuses, each with a cohort of 20 students.

McNulty works closely with the Learning Center to ensure that appropriate students are referred into the program. Whenever a student scores at the threshold score for TYP placement, the center staff emails McNulty, who contacts the student to further assess eligibility and interest. Boot Camp workshops implemented this year at MxCC have made referral a bit more complicated. Students can now choose to enroll in a two-week Boot Camp course; the time commitment is far less than that of TYP, and students often opt for an intervention of shorter duration. As a result, the staff and McNulty now recruit TYP candidates from the Boot Camp workshops as well as directly through the Learning Center because there are often students in the Boot Camps who do not successfully accelerate.

The program uses multiple measures to assess student's eligibility for TYP, but still relies heavily on the Accuplacer. Previously, they relied almost exclusively on Accuplacer scores, but now use a combination of Accuplacer, SAT scores, students' work in the Boot Camp workshop and informal discussions with Boot Camp instructors.

Students are encouraged (and sometimes accompanied) to make use of the resources in the Learning Center; the small cohort size and close student-faculty relationships make it easier to make sure students are accessing help. Instructional Support staff is assigned to a class, as is a Librarian. As students move to researching tasks in their English classes, the Librarian becomes a research guide; the relationships students form with the Librarian facilitate their skill-building. There are often four or five professionals involved in one English class (if the class is co-taught).

A significant challenge to the program is the difficulty in funding co-teaching. While the model is successful, it is costly to staff – although there are two faculty members in the classroom, only one position is compensated. This may not be sustainable for colleges; McNulty shared that this will be the last year of the team teaching approach for developmental English.

McNulty indicated that students who have participated in the TYP have been overwhelmingly positive about their experiences (see below). Students suggest that they feel they are part of a community, are academically supported, are making cross-curricular connections, and are getting to know themselves and their abilities better. Some of their comments (from an in-house assessment and shared with the evaluator), which follow, included reflections on feeling like part of a community and supported by peers and faculty, and resulting personal and academic growth.

Student reflections

TYP has impacted me positively by getting close to my classmates and enjoying college. I feel comfortable in all my classes and enjoy my teachers.

TYP gave me friends. I was always quiet and would be judged. There's no judgment here. I can be myself.

I feel like I have a lot of support, help, and guidance from all my teachers.

Without the program, my first semester would have been overwhelming due to the fact of starting at a new school and having hard classes due to being in college.

I like how close the students and teachers have become. Also, how all the teachers work with each other so everything that we learn comes together in each of our classes.

I always used to be a very shy and always kept to myself. With this program I've gotten to meet new people and I was pushed out of my comfort zone. With the extra help and positive attitudes of the teachers, I have grown academically.

Norwalk Community College (NCC) ENGLISH 101 and 101W (paired; co-requisite)

Length of session: Traditional semester

Days and hours: Concurrent enrollment; each course has an 80 minute class twice a week.

Instructional methods: Single instructor, cohort in paired classes

Technology mediated: Yes

Software: Blackboard Learn used to monitor assignments, submit papers electronically, and receive instructor feedback; Bedford St. Martin's Exercise Central used for diagnosing student's mastery of grammar, instructor planning; other technologies being used by individual faculty such as the use of a digital portfolio.

Number of credits: 6 for ENG 101 and ENG 101W

Student population: Largely traditional-aged college students, some adults

Tutoring: Dedicated staff member to tutor/advise students and mediate barriers

Accelerated instruction: No

The paired courses were based upon the pilot Eastern Connecticut State University (ECSU) developed to meet first year students' developmental English needs.

NCC uses multiple measures to place students into the paired class. They have used the Accuplacer and more recently, added an essay. The use of the essay has increased the number of students placing into the intensive rather than embedded courses. To assess students' grammar needs, Casper uses Bedford St. Martin's Exercise Central; the diagnostic software is free and online. She generally administers the assessment during the first week, often during the second class meeting. The assessment provides "outstanding feedback," suggested Casper; both students and their instructor(s) receive individual scores, as well as information about where their errors occurred.

The courses are structured thus: an 80-minute session for each class twice a week, taught consecutively. For example, one section might be taught on Tuesday –Thursday, with ENG 101 (in a traditional classroom) from 10:00 a.m. to 11:20 a.m., and ENG 101W (in the computer lab) from 11:40 a.m. to 12:50 p.m. The class is a small cohort – all students enrolled in this section of ENG 101 are also enrolled in the ENG 101W class that follows. The cohort structure is a benefit to students.

ENG 101W stresses the acquisition of information technology skills – finding, evaluating and using online sources, and Casper has integrated content from an information technology course she taught into ENG 101W. In Casper's sections, students are assigned a research paper about the research process and sources.

Other support measures have included a staff member serving under a temporary special appointment, who provided tutoring support and advising to students during this academic year. Recently, NCC received funding for a full-time position to expand upon that support. The former part-time staff member filling the position just completed dissertation research in the area of digital literacy and the needs of students in developmental courses. It is hoped that the additional support to both students and staff will improve outcomes and allow for promotion of best practices among the faculty who teach the courses.

