# Proposals to Improve Success Rates
# For Students in Developmental Education at CUNY

**Report of the Working Group on Remediation
CUNY Office of Academic Affairs**

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# Summary:  Principal Recommendations of the Working Group

**Accelerated Learning**

1. **Scale up the ASAP program.  Come to agreement on the key elements of the program, retain or modify them as necessary to meet financial constraints, and phase in an expansion of the program initially at a subset of colleges for a limited number of majors.**

2. **Increase participation in summer and winter immersion.  Design a communication campaign to educate students to the advantages of starting and completing remediation as soon as possible.  Expand the number of seats available to incoming students in August and reserve the majority of June immersion seats for continuing students, since these workshops are offered too soon for graduating high school seniors to enroll in them.  Identify immersion models that are particularly effective.**

3. **Require students who have remedial needs at the beginning of their first semester to take remedial instruction that term and to progress through their remedial course sequence continuously until they exit, with the goal of completing all reading, writing and mathematics remediation in the first year.  Enforce this policy with registration stops. Require students who fail a remedial course to retake it in winter/summer immersion.  Provide tutoring help and monitor attendance at tutoring sessions.**

4. **Implement one or more pilots to mainstream students who score just below the cut-off into college-level courses; require appropriate academic support. If data are available, evaluate similar pilots undertaken at CUNY colleges in recent years.**

**Early Assessment and Better Preparation in Grades K-12**

5. **Through Graduate NYC, expand opportunities for high school students to gauge their level of academic readiness as early as possible.  For students who are not yet ready, develop appropriate interventions for the senior year.**

6. **Through Graduate NYC, align the expectations of K-12 and higher education with respect to college readiness in English and math. In so doing, reference the national Common Core State Standards.**

## Implementing the Principal Recommendations

Recommendations #1, #2 and #3 rest on the assumption that remedial students can benefit by beginning and completing developmental course work as quickly as possible. ASAP requires remedial students to enroll in developmental coursework immediately and to pursue it continuously. The University Summer Immersion Program (USIP) furthers the same goal by giving remedial students a head start before classes begin, and recommendation #3 recapitulates the core elements of ASAP—a combination of greater structure (requiring students to begin remedial instruction immediately and to continue it without interruption) and academic support (tutoring embedded in a web of communication involving the student, faculty, advisors and tutors). The problem CUNY faces is how best to accelerate developmental education for the vast number of students who need it—more than 15,000 last fall.

One approach is to invest in a phased expansion of ASAP in its current form or a somewhat scaled-down approximation. Among the questions and challenges associated with this option are the following:

- To what extent should ASAP be administered centrally as the program grows? Centralized administration may be essential to maintaining the fidelity of the program. Yet as ASAP serves more students it must rely increasingly on CUNY faculty who are accountable to their departments, making buy-in from the faculty important.
- While the additional costs of the program may be justified by higher graduation rates and faster degree progress, the bulk of the additional investment must come from the operating budget of the University, which is constrained.
- The effectiveness of the program may depend on the integrity of its components—intrusive advisement delivered by advisers with a caseload, academic support, financial incentives, full-time attendance, block scheduling. If the University were to redesign the program to include a subset of its original components, the new ASAP could lose some of its effectiveness. If CUNY were to go this route, it should do so in phases to allow time to assess outcomes and to make adjustments to the program. Yet the need to reform remedial instruction at CUNY is urgent.

Another alternative (not necessarily mutually exclusive with the first) is to advance some of the key goals of ASAP via broad-based changes in University policy together with targeted funding. Some of the possibilities include:

- Accelerate progress through remediation by means of
  - A policy mandate from the chancellery requiring students who need a program of developmental education to begin that program in their first term or earlier;
  - Expand summer immersion for students pursuing the associate degree;

- o Create incentives for departments to streamline remedial sequences and to experiment with mainstreaming high-level remedial students in credit courses. Loosen restrictions to facilitate mainstreaming;

- Invest in academic support:
  - o While there is probably no substitute for the academic advisement model adopted by ASAP, it may be feasible to enhance advisement through technology. Several colleges have invested in early alert systems, and others have expressed interest. Call centers may represent another low-cost addition (Harris and Goldrick-Rab, 2010);
  - o Invest in tutoring that is delivered in person, online, and through supplemental instruction. Require tutoring and monitor compliance.

This general approach holds the promise of more immediate improvement in developmental education for large numbers of students, but effects of these initiatives may well be smaller than those associated with a fully implemented ASAP program.

While the first four principal recommendations presented above pertain to acceleration through remedial instruction after matriculation at CUNY, the last two—early assessment and improved curricular alignment -- roll back the clock to address preparation for collegiate work before graduation from high school. A framework for this challenging work exists in the ongoing Graduate NYC! initiative as well as ongoing collaborative work between the NYCDOE and CUNY.

## Additional Recommendations

In addition to the principal recommendations listed above, the working group advances the following recommendations:

Accelerated Learning

- o Encourage colleges to shorten their remedial sequences wherever possible. Share CCRC's evidence with academic administrators and department chairs and sponsor discussions about how developmental and ESL sequences might be streamlined.

- o Implement and evaluate short-term brush-up modules and online tutorials as alternatives to summer immersion for students scoring just below the cut-off, using high school background information to determine appropriate placement.

- o Support CUNY Start, create a rigorous assessment of the program, and scale it up if it proves successful and cost effective.

<u>Early Assessment</u>

- o Explore opportunities to expand At Home in College.

<u>Remedial Placement and Exit Policies</u>

- o A recent study suggests that when COMPASS scores are supplemented with additional data on college preparatory course work and high school grades, the accuracy of placement decisions is improved.  Based on this finding, we recommend that the Office of Academic Affairs (OAA) work with a math department to pilot the use of additional information from high school transcripts for placing students into the mathematics curriculum.  The pilot would afford an opportunity not only to assess the utility of providing the new information but also to solve the logistical problems of delivering the data and analyzing it to understand each student's capabilities.

- o Encourage the use of diagnostic software such as COMPASS and Maplesoft. CUNY currently funds a bank of Maplesoft licenses from which faculty can draw. Expand this bank and add other software as warranted by demand.

<u>Pedagogy and Curriculum</u>

- o The University should encourage the review of the current curricula in developmental education.  In mathematics, the recent requirement that colleges discontinue the use of COMPASS to determine readiness for exit from math remediation has created an opportunity for curriculum review.  As mentioned above, OAA has convened a panel of math department chairs and faculty to develop standards for common departmental examinations in arithmetic and elementary algebra.  A logical first step will entail a review of how well aligned the existing developmental courses are with one another and with the first credit courses in mathematics.  That review could lead to greater consensus on curriculum across departments.  In reading/ writing, the recent implementation of the new CAT-W assessment provides an opportunity to review developmental writing curriculum and pedagogy, particularly given differences in the pass rate on exit of as much as 20 percentage points among colleges.

- o Given the promising evidence that contextualized learning can be effective, OAA should disseminate information about this approach and support pilots and adoption in reading/ writing and mathematics.

- o OAA should encourage the development of alternative remedial pathways. CUNY's remedial math sequences tend to prepare students for college algebra, a course that many students do not need to take to satisfy requirements for general education or the major.  Students should have the option to pursue developmental

course work that prepares them for non-STEM math.  Statway is one such alternative, and the University should encourage its adoption if the pilots are successful.  The NCC statistics course may represent  another option, as does Mathway.  Similarly, remedial courses in reading and writing can be tailored to the kind of reading and writing assignments that students will encounter in their intended major.

o   Review the results of the research produced in conjunction with the IML initiative and the teaching practices recognized in the chancellor's award. Encourage the broader adoption of the most promising interventions and teaching practices. Consider developing a similar grant program for reading and writing.


Learning Communities

o   Encourage colleges to implement and evaluate comprehensive approaches to learning communities, including extension of benefits beyond the second year.

# Introduction

Like so many other community colleges, particularly those serving low-income students in urban areas, CUNY's six community colleges have long struggled to improve their graduation rates. CUNY's colleges have a track record of innovation and experimentation reaching back decades. They introduced summer immersion workshops in the mid-1980s and learning communities in the 1990s and 2000s. The College Now program, offered through both the community and the senior colleges, has long been a mainstay of the University's collaboration with the New York City public schools aimed at better preparing high school students for college. CUNY is also home to LaGuardia's path-breaking use of e-Portfolios, and to experiments with remedial instruction that have included acceleration, and contextualized instruction. Yet despite its best intentions and its proven willingness to innovate, the University must confront a stubborn fact: graduation rates have not improved. Since the early 1990s, the six-year degree completion rate for freshmen entering associate programs has oscillated within a range of 25% to 28%. Recently, one-year retention rates have begun to rise, signaling hope for improvement in graduation rates not too far in the future. But even if higher graduation rates do materialize, they are not likely to match the high aspirations of our students and the best intentions of faculty and administrators.

While far from the only route to higher success rates, improving the results of remedial instruction clearly is central. Most students entering the community colleges place into remediation—78.6% in the fall of 2010—and many languish there, either leaving the University before completing their remedial instruction or treading water as they attempt to qualify for the all-important gateway courses—credit courses that are prerequisites for large parts of the curriculum. Researchers from the Community College Research Center (CCRC) recently documented these patterns in a comprehensive study of developmental (used here as a synonym for remedial) education at CUNY's community colleges. Among their preliminary findings: two years after matriculation, only 38% of students placing into developmental math had finished it, and only a fifth had passed a gatekeeper math course. For writing the numbers are better, but still not satisfactory: after two years about two-thirds had completed developmental writing, but unfortunately, two-thirds had not yet successfully completed a gatekeeper course in writing--generally freshman composition, a degree requirement (Jaggars and Hodara, 2011). It is therefore not surprising that CUNY's remedial students graduate at a far lower rate than non-remedial students—26.1% after six years compared to 40.3%. These data are consistent with the results of national research showing that students who place into remediation are unlikely to complete or even begin their developmental sequence, much less earn a degree (Attewell, Lavin, Domina and Levy, 2006). Clearly, if we can improve outcomes in remedial education we will be able to make headway in raising graduation rates.

Remedial interventions are highly structured, typically as a sequence of courses that must be taken in order. As a consequence, students have many opportunities to fall out of compliance with the prescribed treatment. Drawing on data generated by the Achieving the Dream project, CCRC has documented the high rates at which remedial students

procrastinate in taking the first course in the sequence, fail the first course, neglect to take the next course in the sequence even if they do pass, fail to enroll in gateway courses for which they manage to qualify, and do not succeed in the gateway courses in which they enroll (Bailey and Cho, 2010). These findings have been replicated at CUNY, where failure rates in remedial courses are high—often exceeding 50%. Even for students who reach the last course in CUNY's remedial course sequences, pass rates on CUNY's exit tests are discouraging—just 58% for reading, 52% for writing, and 65% for math (CUNY Performance Management Report, 2010).

Although these data document the lack of success that students who place into developmental courses encounter in higher education, the data do not by themselves diagnose the origins of these difficulties. Research conducted at CUNY and nationally, as well as discussions with CUNY faculty and administrators point to many contributing factors, including the following:

- Inadequate academic preparation in grades K-12. Critics have pointed not only to a lack of rigor, but also to curricula that are not aligned well with the English Language Arts and mathematics competencies that are required for success in college and in the workplace (e.g. Achieve, Inc. 2007).

- Confusing placement practices. Students must navigate a complex and inconsistent set of placement rules and practices (OAA Working Group on Remediation, 2010).

- Assessment tools that are not sensitive enough to identify needs for instruction and support. Without detailed information, it is not possible to tailor instruction and services effectively (e.g. Conley, 2005; Hughes and Scott-Clayton, 2011).

- A lack of structure for remedial students. Students are given the leeway to postpone their entry to remedial course work and to interrupt their progress toward completion of remedial instruction (e.g., CUNY Task Force on Reading and Writing, 2005).

- Ineffective pedagogy. Remedial instruction often focuses on discrete, de-contextualized skills that do not prepare students for the reading, writing and mathematics assignments they will encounter in the credit courses they will take in general education and their major (e.g. Grubb, 2010).

CUNY is ideally positioned to chart new directions, and CUNY students have much to gain if we are successful. We therefore propose a set of initiatives to implement evidence-based policy and practice across the system. These initiatives must be owned and implemented by the colleges, with assistance from the Office of Academic Affairs (OAA). OAA can effect changes in policy, promote and support promising practices, sponsor assessment and research, and create forums for the exchange of ideas and dissemination of findings. But the heavy lifting of reinventing developmental education

must be done in the departments in close collaboration with student services and the academic administration of the colleges. Based on our research and discussions we outline five key areas on which the University might focus to improve developmental education outcomes:

- Accelerated Learning
- Early Assessment
- Remedial Placement and Exit Policies
- Developmental Curriculum and Pedagogy
- Learning Communities

## Accelerated Learning

The Working Group has identified acceleration as one of the most promising strategies for improving remedial instruction at CUNY. Students pursuing the associate degree are vulnerable to disruptions in their degree trajectories, both for academic and non-academic reasons. This means that concurrent with students' efforts to remedy their weak academic preparation, economic and family responsibilities cause too many students to attend college part-time (or not at all). Academic strategies that accelerate degree progress can improve prospects for graduation, a truth that has been made even more urgent in light of New York State's new Tuition Assistance Program (TAP) regulations, which create a powerful incentive for students to begin any necessary remedial instruction in their first semester. Under TAP progress and pursuit standards, students with remedial needs have more time than non-remedial students to accumulate degree credits, but they must begin developmental instruction in the first semester or during the preceding summer.

The Working Group has reviewed a growing body of research that points to the benefits of moving students through remedial course work as quickly as possible (Bailey, 2009). Research by CCRC on CUNY's remedial instruction (unpublished) indicates that compared to students who are required to complete long remedial sequences, students of similar ability, as measured by placement test scores, who are placed in shorter remedial course sequences have an equal or slightly better chance of successfully completing the gateway course within two years. CCRC found this pattern for writing, reading and math. If the longer sequence provides no tangible benefit, CUNY should make its sequences as short as possible.

One especially promising accelerated-learning model at CUNY is Accelerated Study in Associate Programs (ASAP). Launched in 2007, ASAP is designed to enable students to earn the associate degree as quickly as possible, with a target of 50% of students graduating within three years. In fall 2007, ASAP's pilot cohort included 1,132 students, all deemed fully skills-proficient in reading, writing, and math. As of September 2010, 54.9% of the cohort had graduated with an associate degree, compared to a 24% rate for similar students. The program has been expanded, and is now open to students who are within 200% of federal poverty or in receipt of Pell and who require remedial instruction in one or two areas at the time of their entry. Beginning with "summer institutes" prior to

students' first semester, ASAP provides intensive support to students taking remedial instruction, so that the majority become fully skills-proficient within one year of program entry. CUNY has launched a 5-year random assignment study of the program, with the assistance of MDRC.

ASAP seems to have speeded the progress of its students through remediation by combining prescription with student support. The program requires remedial students to begin remedial instruction immediately on entry to the program and to repeat immediately any course that is failed. ASAP provides tutoring for students taking remediation and monitors attendance at tutoring sessions. The program also has aggressively promoted winter and summer workshops for students who satisfied the requirements of remedial courses but were not able to pass the exit tests. Recently-reported results suggest that ASAP is succeeding in its efforts to accelerate remedial instruction. After one year, 83% of the remedial students who began ASAP in fall 2009 were fully skills proficient. The rate for a similar group of students who began the year before was 60% (D. Linderman email, 1/8/11).

The working group began a discussion of how the program might be scaled up, within the existing fiscal constraints. Donna Linderman identified what she believes are the core components of the program as follows:

- o Early contact with students, in which they learn about the program and the commitment required.
- o A structured academic environment in which the choice of majors and courses is limited.
- o An academic advisement model centered on advisers who are responsible for a defined caseload.
- o Required full-time attendance.
- o At least one financial incentive, such as the free Metrocard that ASAP students currently receive.

In order to make the program available to more CUNY students, the current model for delivering the initial counseling and ongoing advisement would have to be reworked to supplement the work of full-time staff with part-timers and technology. The initial expansion of the program might be limited to a few colleges and majors within those colleges. The working group strongly advocates a continuation of this discussion, given the initial success of the ASAP program.

Although ASAP appears to be succeeding with students whose remedial needs are low to moderate, students who score well below cut-offs on all three subjects continue to pose a special challenge. For these students, the CUNY Start program (originally CTI) may provide a model that could be replicated more broadly. Initially, CUNY Start was developed to help GED-holders successfully transition into college. Similar to the CUNY Language Immersion Program (CLIP), on which it is modeled, CUNY Start charges a nominal fee for 25 hours a week of study, with a focus on helping students test out of remediation and become better prepared for taking college-level courses. Initially

offered at Kingsborough and LaGuardia, the program is built on a highly structured and standard curriculum, and extensive professional development. In 2009-2010, between 77% and 89% of program completers tested out of remedial courses. In the fall of 2011, the program will be offered at all six community colleges and the College of Staten Island.

For students who are at the other end of the remedial spectrum--close to the college-ready cut point--mainstreaming may be a viable alternative. CUNY colleges typically employ a single cut point (albeit on multiple tests) to place students into remediation or credit work. However, there is no research basis to support such a stark difference in the treatments prescribed to students whose scores are just below and just above the proficiency standard.

One large-scale national study found that 72% of students who ignored their referral to remediation and enrolled directly into a college-level gatekeeper course passed it, while only about 27% of those who started with remedial course work ultimately completed the gatekeeper course. Students who ignored remediation passed their gatekeeper courses at a slightly lower rate than those who completed remediation prior to enrolling in a gatekeeper course, but many students who complied with the remedial referral never enrolled in the gatekeeper course (Bailey, Jeong and Cho, 2010). Rigorous assessments have suggested that mainstreaming remedial students directly into college-level courses has positive effects on students' persistence to and completion of college-level courses (Zachry and Schneider, 2010).

CUNY has long recognized the value of accelerated remedial instruction when offered between semesters, during the summer or winter. CUNY's University Summer Immersion Program (USIP) represents a compressed, or intensive, approach to acceleration. Since 1985, the immersion program has been offered at all 17 undergraduate campuses to provide tuition-free developmental courses and workshops in summer or in January sessions. The program is designed for pre-freshmen who have failed one or more of the CUNY basic skills assessments. In practice, many continuing students are enrolled as well; these students comprise the majority of USIP enrollments at some colleges.

Nearly 21,000 students participated in 2009-2010 immersion programs. The Working Group heard testimony about several successful programs. For example, at John Jay College, a two-week intensive program in mathematics that features supplemental instruction and small classes has achieved a 92% success rate. And in a recent study, the immersion program at all colleges taken together was found to provide significant benefits for participants in relation to earning cumulative credits, reducing attrition rates, and improving the likelihood of graduation (Attewell, Reisel and Heil, 2008). A follow-up random assignment study is being conducted in summer 2011, with a focus on eliminating the effect of selection bias by providing incentives for participation to students who do not voluntarily enroll in the immersion program. Also under way is a university-wide data collection system to track longitudinal progress of students who enroll in immersion programs, eventually creating the ability to identify models with

higher success rates than others. The new data collection has already led to improved reporting on USIP enrollments and outcomes.

Given the benefits of immersion, the University should make more seats available in USIP for incoming first-year students. In a recent survey related to the development of the data collection system mentioned above, all community colleges reported capacity issues. With the cessation of conditional admissions at the senior colleges, funds might be redirected to expand USIP enrollments in the associate programs. If the admissions processing for these programs could be completed earlier, more students could enroll in summer immersion, thereby gaining a head start on their remedial instruction. Eventually, enrollments of continuing students in USIP would shrink, creating greater capacity in the program for incoming students. Recruitment strategies for immersion vary widely by college, and a more systemic approach might result in higher enrollments (once capacity issues are addressed).

At this time, OAA lacks a comprehensive picture of the remedial interventions that are in place across the CUNY campuses. (An inventory of interventions both in math and ELA is nearing completion by the Office of Undergraduate Studies at this writing.) It is reasonable to assume, however, that CUNY offers too few instructional options for its remedial students. Although targeted workshops and intensive instruction are available, and at least one college is experimenting with mainstreaming remedial students who score close to the cut point, the great majority of remedial students enroll in standard semester-based remedial courses. These courses generally are not tailored to the individual instructional needs of students, as defined by their academic preparation, remedial history, and educational goals.

*Proposed actions:*

1. **Scale up the ASAP program. Come to agreement on the key elements of the program, retain or modify them as necessary to meet financial constraints, and phase in an expansion of the program initially at a subset of colleges for a limited number of majors.**

2. **Increase participation in summer and winter immersion. Design a communication campaign to educate students to the advantages of starting and completing remediation as soon as possible. Expand the number of seats available to incoming students in August and reserve the majority of June immersion seats for continuing students, since these workshops are offered too soon for graduating high school seniors to enroll in them. Identify immersion models that are particularly effective.**

3. **Require students who have remedial needs at the beginning of their first semester to take remedial instruction that term and to progress through their remedial course sequence continuously until they exit, with the goal**

**of completing all reading, writing and mathematics remediation in the first year.  Enforce this policy with registration stops. Require students who fail a remedial course to retake it in winter/summer immersion. Provide tutoring help and monitor attendance at tutoring sessions.**

4. **Implement one or more pilots to mainstream students who score just below cut-off into college-level courses; require appropriate academic support.  If data are available, evaluate similar pilots undertaken at CUNY colleges in recent years.**

Additional Recommendations:

- o Encourage colleges to shorten their remedial sequences wherever possible. Share CCRC's evidence with academic administrators and department chairs and sponsor discussions about how developmental and ESL sequences might be streamlined.

- o Implement and evaluate short-term brush-up modules and online tutorials as alternatives to summer immersion for students scoring just below the cut-off, using high school background information to determine appropriate placement.

- o Support CUNY Start, create a rigorous assessment of the program, and scale it up if it proves successful and cost effective.

## Early Assessment

If accelerated-learning models assist students once they arrive at CUNY's doors, much additional potential resides in early-assessment practices implemented while students are still in high school. Perhaps the best-known national exemplar in this area is California's Early Assessment Program, which was designed jointly by California State University and the California Department of Education to inform high school juniors whether or not they are ready to take college-level courses in English and math.  Students who pass the assessment are exempt from the CSU placement tests and remedial course work, while students who fail the assessment have several options for strengthening basic skills during their senior year in high school.  A rigorous analysis of the Early Assessment Program demonstrated reductions in the number of students needing remedial course work at one CSU institution (Zachry and Schneider, 2010).

Similarly, Florida has implemented a large-scale college readiness assessment of high school students and is developing targeted instruction in high school to reduce the need

for remediation. Other smaller-scale models have seen promising results as well, such as the College Readiness Initiative developed by El Paso Community College in partnership with the University of Texas at El Paso and their local K-12 school districts.  This initiative provides a range of services for high school seniors to support college readiness, including the administration of Accuplacer in the high schools and providing an orientation and refresher workshops to prepare for this assessment and other basic skills tests.

Again, the model is not entirely new within the CUNY system. CUNY's At Home in College program currently serves students who score below the CUNY benchmark (75) on the Integrated Algebra and English Language Arts Regents Exams. These students are placed into college preparatory math and English courses during 12th grade and given an early opportunity to take the CUNY Assessment tests, in January.  Students who do not pass on their first attempt may retest in June, at the end of their senior year.  The program also provides college advisement and helps students to complete both the FAFSA and the CUNY application.  At Home has made it possible for students in the participating schools to enter CUNY with less remedial need, and it has yielded higher college-going rates for black and Hispanic students when compared to the overall city average (73% and 69%, respectively, compared to 58% for all students who come to CUNY from schools within the New York City Department of Education (DOE).

Graduate NYC, CUNY's partnership with the DOE to improve college readiness, offers still another promising framework for additional efforts to improve the college readiness of high school students.  A CUNY-DOE steering committee is coordinating the efforts of seven cross-institutional committees focused on improving students' preparation in math and English, expanding college transition programs, providing effective college advisement through various supports, supporting FAFSA completion, and using data to guide decision-making and project implementation across the institutions. Graduate NYC has adopted a standard of 75 or better on the NYS Regents examinations in English and Mathematics as an indicator of academic preparation for college, and a key goal of the initiative is to raise substantially the percentage of DOE students who reach this standard. The Regents exams provide a useful common yardstick by which students and teachers can gauge readiness for college while the student is still in high school.   And the anticipated shift to K-12 assessments linked to the national Common Core State Standards provides an opportunity to strengthen alignment between high school exit and college entrance, as these standards are explicitly aimed at college and career readiness.

Although there is general agreement, both in the Working Group and in Graduate NYC, that some form of early assessment is a good idea, consensus has not been reached regarding the purposes of such an assessment.  Consequently, agreement on the most appropriate instrument has proved elusive. If the goal is simply to identify students who are not adequately prepared for collegiate work, the New York State Regents exams in ELA and math provide a handy common yardstick, but the content and scoring of these exams are flawed, and the benchmark of readiness, at least in math, has shifted more than once.  The COMPASS exams are an alternative, if the logistical problems associated with administration of the test in the high schools could be solved.  There is little evidence,

however, that COMPASS is a more valid predictor of readiness than the Regents exams. Moreover, neither set of assessments provides diagnostic information about the student's particular academic weaknesses—data that might guide the senior year intervention. Diagnostic information might be derived from the CUNY Assessment Test in Writing, but no comparable test, providing both a benchmark and diagnostic information, exists at this time for mathematics.  Looming over this debate are changes in the testing program associated with NYSED's goals for improving teacher accountability and for assessing the learning goals associated with the Common Core State Standards, to be implemented in phases beginning 2013.  For the time being, CUNY's collaborative programs rely most often on the ELA and math Regents exams to identify students who can benefit from interventions such as College Now and At Home in College.  While less than perfect, the Regents exams are familiar to students and high school teachers, represent no additional cost to the high schools or to CUNY, and are correlated with grades in credit-bearing courses at CUNY.

*Proposed actions:*

5. **Through Graduate NYC, expand opportunities for high school students to gauge their level of academic readiness as early as possible.  For students who are not yet ready, develop preparatory instruction for the senior year.**

6. **Through Graduate NYC, align the expectations of K-12 and higher education with respect to college readiness in English and math. In so doing, reference the national Common Core State Standards.**  The math panel convened by Executive Vice Chancellor Alexandra Logue is taking a fresh look at the topics that students require to succeed in credit coursework. It is anticipated that representatives from the DOE will join the discussion in the fall. (The work of the panel is discussed in more detail below.)

Additional Recommendations

o Explore opportunities to expand At Home in College.

## Remedial Placement and Exit Policies

Unlike most other institutions of higher education that offer the associate degree, CUNY has been administering common assessment tests both to place students into remedial instruction and to determine when they are ready to exit from it.  Nationally, most colleges employ placement tests to place students into remediation, but rely on faculty

grades to determine readiness for exit.  The Working Group became aware of some of the limitations of this policy during the course of its deliberations. Another issue that emerged is the lack of consistency in proficiency standards across the University.

 From the research conducted last year and reported in *The Placement of CUNY's Associate Degree Students into Mathematics Courses: A Survey of Policies and Practice,* the Working Group learned that the COMPASS cut scores used by CUNY's mathematics departments to place students into remedial instruction, particularly in elementary algebra, vary substantially across colleges and are sometimes not consistent with exit standards at the same college. While most colleges had adopted a cut point of 30 on the pre-algebra as the indicator of readiness for elementary algebra, the algebra cut points ranged from 30 at several colleges to 45 at one community college.  These discrepancies breed confusion for prospective and current students.

The Working Group also learned that passage of a departmental exam serves as the de facto exit standard from both arithmetic and elementary algebra in most mathematics departments.  These courses are taught largely by adjuncts, making the departmental exams an important tool for enforcing the uniformity of standards across course sections and for evaluating the performance of contingent faculty.  The exams also insure alignment among courses in a sequence, including credit courses.  Math chairs and faculty reported to us and to the CCRC researchers that COMPASS, while valuable as a placement tool, is impractical as an exit criterion because it is not closely aligned with the curriculum.  The range of topics tested by COMPASS is broad, making it difficult to cover all topics in a typical remedial course.  The weighting of topics is also sometimes out of alignment with the emphasis the department might desire.  As a result, most departments have been requiring students to pass the departmental examination before they were eligible to sit for COMPASS.  It should be acknowledged that another important motivation for this practice has been to boost the exit pass rates on COMPASS, which are important indicators on the annual Performance Management Process (PMP) report, used to assess the progress of the colleges toward the University's goals.

To address these problems, the University has taken the following actions:

1. Raise COMPASS placement cut points substantially, to 35 on the pre-algebra module and 40 on the elementary algebra module.
2. Require all colleges to adopt the same placement standard.
3. End the use of COMPASS as a criterion for exiting mathematics remediation, effective May 2011, and require all colleges to develop departmental exams in both arithmetic and elementary algebra meeting common standards, to be developed by a panel of math faculty.

In addition to these issues of consistency and alignment, another problem identified by the working group is the inability of CUNY's placement tests, specifically the COMPASS reading and mathematics tests, to provide diagnostic information about the specific constellations of strengths and weaknesses to which instruction could be tailored. Rather than provide this sort of data, placement tests are designed simply to place

students into or out of remedial instruction. The decision is made with reference to a single cut point on the test. Faculty and students alike receive just a single piece of information—which course the student is most qualified to take.

Some diagnostic information is in fact already available to CUNY faculty members who wish to take advantage of it. The COMPASS software package contains an extensive set of diagnostic modules, which CUNY licenses and makes available for use at all CUNY colleges. However, because live items from the placement tests are incorporated into the diagnostics, they must be administered under secure conditions in a testing lab. The diagnostics also require a substantial amount of time to complete-- so much time that it is often not practical for students to take both the assessment and the diagnostics in the same sitting. In any case, faculty have not made use of the COMPASS diagnostics, probably in part because of the logistical hurdles and partly because they may not be aware that the software is available for their use.

There is some evidence of potential demand for diagnostic information. The new assessment test in writing has been well received by faculty in part because it does provide more detailed information through its analytical rubric. A few mathematics faculty members at CSI have experimented with Maplesoft (an assessment software program that provides diagnostic information), and have found it helpful for its ability to provide specific information about strengths and weaknesses. Some mathematics faculty members administer their own diagnostic test to students on the first day of class. And the CCRC researchers heard repeatedly from faculty that they would like to have information about their students' mathematical ability that COMPASS does not provide.

In addition to providing diagnostic information, another means of improving placement is to augment the data currently used for this purpose. In addition to SAT, Regents and assessment test scores, data from each student's high school record could be made available to improve placement decisions. These data include information about which mathematics and English Language Arts courses a student has taken in high school, as well as grades in those courses. Scott-Clayton (2011) found that high school grades and college preparatory course work, when combined with COMPASS test scores, significantly improve the ability to predict grades in English and math gateway courses. It is not impossible to incorporate additional information into existing placement algorithms, though the logistical hurdles are not trivial, given the current deployment of IT resources to the CUNY First project.

It is probably most feasible to put diagnostic software directly into the hands of faculty for use in their classroom or in learning labs. More detailed information creates an opportunity for pedagogical and curricular innovations designed to allow students to focus on competencies that they need to learn and to bypass lessons on material they have already mastered. Many colleges across the nation are now experimenting with modularized mathematics instruction, in which related topics are taught in a single module or a cluster of modules. If testing reveals that the student has not mastered the material in a module, only that module must be repeated; not a semester-long course.

With this approach, faculty can design groups of modules for students intending to pursue more or less math intensive pathways.

Recommendations:

- o Work with a math department to pilot the use of additional information from high school transcripts for placing students into the mathematics curriculum. The pilot would afford an opportunity not only to assess the utility of providing the new information but also to solve the logistical problems of delivering the data and analyzing it to understand each student's capabilities.

- o Encourage the use of diagnostic software such as COMPASS and Maplesoft. CUNY currently funds a bank of Maplesoft licenses from which faculty can draw. Expand this bank and add other software as warranted by demand.

CUNY's placement exams are high stakes. Students who score below the cut points are required to take a substantial detour into non-credit coursework that costs them time, tuition, and financial aid. According to Jaggars and Hodara (2011), CUNY students who place into a remedial sequence two levels below college ready require a median of 9 months to emerge from math remediation and 8 months from writing. The great majority do not emerge at all, even when tracked for two years. Jaggars and Hodara report evidence that some CUNY students are not fully aware of the consequences of failing the tests, a finding consistent with other research outside CUNY (Venezia, Bracco and Nodine, 2010). The Graduate NYC! Initiative affords an opportunity to develop and disseminate better information about the tests to prospective students while they are still in high school. It is incumbent on CUNY not only to provide full disclosure about the importance of the tests to applicants well before they enter the testing lab but also more opportunities for test preparation.

Recommendations:

- o Through Graduate NYC! Disseminate information about the assessment tests to students, guidance counselors and parents.

- o Prepare test preparation materials and make it available to students at the time they apply to CUNY.

## Pedagogy and Curriculum

So far in this discussion we have focused on the timing and format of remedial instruction rather than on how the teaching is done and what is taught. With respect to pedagogy, based on his research at a number of California community colleges, Grubb (2010) describes the typical practice as "remedial pedagogy," in which the focus is on "drill and practice on small sub-skills, stressing correct answers rather than conceptual understanding, with very little contextualization." A systematic review of teaching practices in CUNY's developmental education classroom has not been undertaken, but it is probably safe to say that too much remedial instruction at CUNY consists of drills to inculcate the skills tested by the exit examinations. We do know for certain that failure rates are high in CUNY's developmental courses. CUNY's Office of Institutional Research and Assessment (OIRA) recently released a report listing for each CUNY college the high-enrollment courses with the highest failure rates in fall 2009. At the associate-granting colleges, without exception, remedial courses were among the top five.

For some time, OAA has been engaged in an effort to improve student success in mathematics at every level (developmental and credit-bearing). A variety of activities and studies are under way to enhance math readiness, improve math pedagogy, and increase success rates. The office has distributed Coordinated Undergraduate Education (CUE) money to support best practices designed to improve success in mathematics instruction. Through its Improving Undergraduate Mathematics Learning (IML) grant program, OAA has funded 10 research projects whose purpose is to identify promising instructional innovations in math on the basis of rigorous evidence. And the office has issued an RFP for online tutoring in mathematics. In addition, the office is collaborating with the Ithaka Foundation to assess the effectiveness of online instruction in statistics using an experimental design. The Office has also been seeking funding for experimental research that would measure the effectiveness of some of the most widely utilized remedial formats: traditional course-based instruction, accelerated learning, and mainstreaming students in regular credit courses, but with additional support. Finally, for the second year, the Chancellor's Math Award has recognized outstanding teaching by CUNY's mathematics faculty. Now, at the conclusion of the 2010-11 academic year, OAA has an opportunity to distill the results of these initiatives, identify the most promising practices, and encourage broader adoption across the University.

The New Community College (NCC) has also been a source of innovation at CUNY. All entering students will take a 4-credit statistics course as a part of the required first-year program. Remedial students will be enrolled in a "stretched," two-semester version of the statistics course, which will meet 6 hours per week over 24 weeks. Developmental number and algebra skills will be incorporated into the statistics teaching as they are needed—contextualizing the basic skills instruction.

In related work, the Carnegie Foundation for the Advancement of Teaching has launched an initiative to create two new pathways, the Statway and the Mathway, to enable developmental mathematics students to complete a credit-bearing, transferable mathematics course in one academic year while simultaneously building skills for long-

term college success. The Statway course sequence targets students pursuing non-STEM academic and occupational programs, with a special focus on statistical literacy; the curriculum has been piloted in 2010-2011 by 19 community colleges. Mathway is designed to take students through a credit-bearing transferable mathematics course focused on developing general quantitative reasoning skills; it was launched in fall 2010 with eight community colleges, including BMCC (Cullinane and Treisman, 2010).

More recently, developmental writing and reading pedagogy have received renewed attention. OAA recently funded 18 additional projects aimed at improving undergraduate outcomes in writing and mathematics, about half of which focused on writing. Given that failure rates in remedial writing and reading courses are unacceptably high and given the centrality of reading and writing in developing critical thinking skills (Arum and Roksa, 2011), OAA's focus on increasing student success in math should not preclude a similar focus on increasing student success in reading/ writing.

In their review of evidence-based practices in developmental education, Zachry and Schneider (2010) identified contextualized instruction as one of the most promising strategies. Remedial instruction is provided in the context of particular academic disciplines or vocational training. CCRC evaluated one such program, Washington State's Integrated Basic Education and Skills Training (I-BEST) program, in which ESL and continuing education faculty collaborate with career-technical faculty to create and teach occupational courses. Teaching of writing and communication skills is combined with vocational course content, and students are offered a variety of supports, including tutoring, advising and mentoring. CCRC found systematically positive effects of the program on persistence, credits earned and degree completion (Jenkins, Zeidenberg, and Kienzl 2009).

All too often, innovation in developmental education is limited to a patchwork of small-scale programs or to the classrooms of individual faculty members. In its recent review of the first five years of Achieving the Dream, MDRC found that while most participating institutions completed some reforms, there was very little change in the key quantitative indicators of student progress through developmental education to gateway courses and ultimately, degree completion (Zachry et al., 2011). The authors attributed this lack of progress in part to the inability of most institutions to bring promising interventions to scale. Grubb (2010, p. iii) points to the same problem specifically with respect to efforts to reform developmental education: "individual innovations and 'little programs'—which are often inconsistent and incoherent—dominate innovation." He calls for stronger instructional leadership on the part of institutions.

Recommendations:

- o The University should encourage the review of the current curricula in developmental education. In mathematics, the recent requirement that colleges discontinue the use of COMPASS to determine readiness for exit from math remediation has created an opportunity for curriculum review. As mentioned above, OAA has convened a panel of math

department chairs and faculty to develop standards for common departmental examinations in arithmetic and elementary algebra. A logical first step will entail a review of how well aligned the existing developmental courses are with one another and with the first credit courses in mathematics. That review could lead to greater consensus on curriculum across departments. In reading/ writing, the recent implementation of the new CAT-W assessment provides an opportunity to review developmental writing curriculum and pedagogy, particularly given some significant differences across colleges in the performance of students on the new assessment.

o Given the promising evidence that contextualized learning can be effective, OAA should disseminate information about this approach and support pilots and adoption in reading/ writing and mathematics.

o OAA should encourage the development of alternative remedial pathways. CUNY's remedial math sequences tend to prepare students for college algebra, a course that many students do not need to take to satisfy requirements for general education or the major. Students should have the option to pursue developmental course work that prepares them for non-STEM math. Statway is one such alternative, and the University should encourage its adoption if the pilots are successful. The NCC statistics course may represent another option, as does Mathway. Similarly, remedial courses in reading and writing can be tailored to the kind of reading and writing assignments that students will encounter in their intended major.

o Review the results of the research produced in conjunction with the IML initiative and the teaching practices recognized in the chancellor's award. Encourage the broader adoption of the most promising interventions and teaching practices. Consider developing a similar grant program for reading and writing.

## Learning Communities and Academic Support

Learning Communities, minimally defined by linked courses during the freshman year, have been adopted widely by CUNY colleges. More comprehensive approaches typically include enriched academic support, in the form of tutoring or supplemental instruction as well as enhanced advisement. Research has shown that comprehensive learning communities increase first-to-second year retention rates, although persistence results beyond the second year have been mixed (Bailey and Cho, 2010; Zachry and Schneider, 2010).

Some of CUNY's most promising models are found at Kingsborough and Queensborough Community Colleges, both of which are part of the Learning

Communities Demonstration study of the National Center for Postsecondary Research. Kingsborough expanded its original model to include programs for English Language Learners and career-focused programs for second-semester students; these programs have been the subjects of random-assignment evaluation studies by MDRC. Results have shown that students in the learning communities program group felt more integrated and more engaged than students in the control group; program-group students attempted and passed more courses and earned more credits during their first semester; and these students were more likely to take and pass required reading and writing skills assessment exams.

Advising is central to improving outcomes in developmental education. ASAP and the NCC embed intensive (intrusive) advising as a critical component of their comprehensive approach to improving student outcomes. Evaluations of ASAP find that staff and faculty consider the program's advisement services to be the single most important component (Rini, 2011). ASAP advisers have a small caseload of about 80 students, small enough to permit them to build close ties with students and to provide a mix of guidance, support and follow up.

Recommendations:
- o Encourage colleges to implement and evaluate comprehensive approaches to learning communities, including extension of benefits beyond the second year.

- o Consider ways to scale up models of intrusive advisement in a cost effective manner. Possibilities include the use of technology in early alert systems as well as greater use of call centers, which have been found to be particularly cost effective (Harris and Goldrick-Rab, 2010).

## Conclusion

CUNY cannot hope to improve developmental education by working at the margins, leaving reform to individual instructors or departments, pilots projects, and small programs. The need for scale-up to college-wide and systemic change is one of the central conclusions of the five-year review of the Achieving the Dream initiative (Jaggars and Richburg Hayes, 2011). In a similar vein, writing for the Carnegie Foundation for the Advancement of Teaching, Bryk, Gomez and Grunow (2010) argue that "Small gains may be possible by focusing on single elements, but dramatic change ultimately requires a systems view of how these elements (and others) inter-lock to create the overall outcomes currently observed" (p. 9). The scope of the problem requires a systems approach, in which multiple component parts are reformed simultaneously, with a focus on those having the greatest potential impact. It also requires the full engagement of the faculty and administrators who are responsible for developmental education, with a

strong assist from student services.  As this report has shown, CUNY and its colleges have launched a number of promising initiatives.  The special challenge now facing the University is to forge these components into a coherent, affordable program of improvement to which the colleges are fully committed.

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