Getting Students to Successfully Exit Remediation

Moving the Needle Conference
November 8, 2017

Hostos Community College
Hostos Community College of the City University of New York

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Dr. Olen Dias, Professor and Previous Deputy Chair Mathematics Department
Dr. Christine Mangino, Provost and Vice President for Academic Affairs
# Student profile for Spring 2017

<table>
<thead>
<tr>
<th>Total enrollment</th>
<th>6979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>58.5%</td>
</tr>
<tr>
<td>Black</td>
<td>21.6%</td>
</tr>
<tr>
<td>Number of females</td>
<td>67.4%</td>
</tr>
<tr>
<td>Number of full-time</td>
<td>55.2%</td>
</tr>
<tr>
<td>Average age</td>
<td>25.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Freshmen Enrollment in Developmental or Remedial course</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ESL developmental course</td>
<td>16.7%</td>
</tr>
<tr>
<td>English remedial course</td>
<td>26.3%</td>
</tr>
<tr>
<td>Mathematics remedial course</td>
<td>41.5%</td>
</tr>
</tbody>
</table>
Doubled our 3-Year Graduation Rate

<table>
<thead>
<tr>
<th>Fall 2009 Entrants</th>
<th>Fall 2010 Entrants</th>
<th>Fall 2011 Entrants</th>
<th>Fall 2012 Entrants</th>
<th>Fall 2013 Entrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.3</td>
<td>11.9</td>
<td>12.6</td>
<td>20.6</td>
<td>22.1</td>
</tr>
</tbody>
</table>
% of students with initial developmental need who completed a college-level composition/mathematics course within 2 years

<table>
<thead>
<tr>
<th>Remedial Need</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
<th>Fall 2013</th>
<th>Fall 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>30.7</td>
<td>25.4</td>
<td>38.3</td>
<td>43.6</td>
<td>44.3</td>
</tr>
<tr>
<td>Writing</td>
<td>34.5</td>
<td>29.8</td>
<td>41.8</td>
<td>40.5</td>
<td>49.9</td>
</tr>
<tr>
<td>Mathematics</td>
<td>22.6</td>
<td>25.2</td>
<td>33.5</td>
<td>37.0</td>
<td>33.3</td>
</tr>
</tbody>
</table>
Mathematics Department Courses

- MAT 10 Basic Arithmetic (4.5 hrs)
- MAT 15 Intensive Integrated Arithmetic/Algebra (6 hrs)
- MAT 20 Elementary Algebra (4.5 hrs)
- MAT 22 Elementary Algebra for multiple repeaters (3 hrs)
  Two levels of remediation (MAT 10 + MAT 20)
- MAT 115 Quantitative Reasoning (3 hrs.)
- MAT 120 Statistics (4.5 hrs.)
What started the changes?

- Average passing rate in COMPASS (exit exam from Elementary algebra) was 31% in Fall 2010.
- Retention was a problem

Steps Taken

- Department instituted department midterm examination
- Study Guides were written
- Communications with the adjunct faculty were strengthened
- Online interactive COMPASS exam practices (Hostos website)

Result: Within 2 years, the Passing rate changed to around 46%. Exit Exam COMPASS was replaced by CEAFE (CUNY Elementary Algebra Final Exam)
CUNY Policy on exit from remediation
(Fall 2012)

• The student must earn at least 60% in CEAFE (CUNY Elementary Algebra Final Exam) in order to exit from remediation.

• CEAFE is given as a final examination in MAT 20 Elementary Algebra.

• 40.6% was the passing rate for Mat 20 in Fall 2012.
Mathematics Department Strategies #1

- Accelerated course MAT 15 (Supplemental Instruction) in Fall 2012
- Students take CEAFE as final examination.

Passing rate in CEAFE

<table>
<thead>
<tr>
<th>Year</th>
<th>MAT 15</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012</td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>45%</td>
<td>55%</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>55%</td>
<td>65%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>65%</td>
<td>75%</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Spring 2017</td>
<td>85%</td>
<td>95%</td>
</tr>
</tbody>
</table>
Mathematics Department Strategies #2

• Assessment of the CEAFE results
  Students’ weaknesses were addressed by creating additional handouts

• Assessment and Alignment of learning outcomes

• Study Guides were written

• Formation of teaching fellows (formal/informal assessment of teaching)

• Connecting teaching with research
  (The Creative Enterprise of Mathematics Teaching Research by Czarnocha, Baker, Dias, Prabhu)
Mathematics Department Strategies #3

- Supplemental Instruction in College Level course for non-stem majors
  New course MAT 115 (Quantitative Reasoning) in Fall 2013 and MAT 120 (Statistics) in Spring 2015

![Graph showing pass rates for MAT 115 and MAT 120SI](#)
Mathematics Department Strategy #4

- Elementary Algebra for multiple repeaters MAT 22 (Supplemental Instruction) in Fall 2014
- Students are given two chances to take CEAFE
CUNY NEW Policy on exit from remediation (Fall 2016)

Student must pass Elementary Algebra MAT 20/22/15 class and earn at least 35% in CEAFE

Passing rates for only MAT 20 Elementary Algebra
Percentage of students exiting from remediation
Enrollment in developmental or remedial courses in Mathematics
Mathematics Department future plans

- For non-stem majors and freshmen
  - Shorten the remedial sequence by creating pilot co-req. courses
    - MAT 119 (Statistics) + MAT 19 (Algebra needed for Statistics)
    - MAT 115 (Quantitative Reasoning) + MAT 16 (Algebra needed for MAT 115)
  - Create Linked courses e.g. MAT 119 + PSY 101 (Psychology) + MAT 19

- For stem students
  - Pilot course MAT 150 (College Algebra) + MAT 20 (Elementary algebra)
What were/are some of the challenges?

- Recruiting students
- Finding Instructors to teach these pilot courses
- Advisement issues
- Department concerns
Developmental English and Reading Students at Hostos Community College
Fall 2011 to Spring 2013
TAKE 2!

- 389* needed 091
  348 enrolled
  173 (44%*) passed test in Fall 11
  259 (61%) passed test by Spring 13
  133 (34%) enrolled in 110
  86 (65%) passed 110 22% of original 389

- 274* needed 092
  264 enrolled
  108 (39%*) passed test in Fall 11
  140 (51%) passed test by Spring 13
  48 (17%) enrolled in 110
  31 (65%) passed 110 11% of original 274

- 192 enrolled in both
  60 (30%) passed test by Spring 13
  51 (28%) enrolled in 110
  32 (63%) passed 110 17% of those enrolled Fall 11

566 passed test start fall 2011
582 enrolled in 110
488 (78%) Passed 110 of those enrolled fall 11

Note: Percentages are of those who needed, not enrolled

From Figures 3 & 5
From Table 16
Develop a Co-Requisite Curriculum

• Accelerate ‘high-scoring’ developmental students.
• Replace a languishing course.
• Close the ‘test loop’ for multiple repeaters.
• Provide students that pass Eng 101 (Writing Focused) and 102 (Reading Focused) with credit.
• Goals:
  • Introduce college-level assignments and skills earlier in developmental courses.
  • Pedagogically assess students at the college level, teach students at their level.
Develop an Integrated Curriculum

- Replace a bifurcated curriculum where reading and writing skills were taught separately.
- Create a course that mirrors the combined writing and reading skills necessary for college-level work.
- Integrate test-prep skills into a cohesive curriculum.
- Goals:
  - Streamline the developmental process for students.
  - Reduce a ‘test-prep’ pedagogy.
  - Emphasize the teaching of reading and writing skills.
Pass Rates

- New Courses increased pass rates across the developmental cycle.

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall 2014</th>
<th>Fall 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Enrolled</td>
<td># Completed</td>
</tr>
<tr>
<td>ENG91</td>
<td>355</td>
<td>312</td>
</tr>
<tr>
<td>ENG92</td>
<td>268</td>
<td>232</td>
</tr>
<tr>
<td>ENG91+92</td>
<td>134</td>
<td>112</td>
</tr>
</tbody>
</table>
## Multiple Repeater Rates

- New Courses reduce the rate of multiple repeater students.

<table>
<thead>
<tr>
<th>Course</th>
<th>F14 Count Multiple</th>
<th>F14 Total Enrolled</th>
<th>F15* Count Multiple</th>
<th>F15* Total Enrolled</th>
<th>F16* Count Multiple</th>
<th>F16* Total Enrolled</th>
<th>% Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 91/101</td>
<td>100</td>
<td>345</td>
<td>36</td>
<td>220</td>
<td>31</td>
<td>224</td>
<td>28.99%</td>
</tr>
<tr>
<td></td>
<td>28.99%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 92/102</td>
<td>76</td>
<td>259</td>
<td>21</td>
<td>114</td>
<td>16</td>
<td>124</td>
<td>29.34%</td>
</tr>
<tr>
<td></td>
<td>29.34%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 91+92/93</td>
<td>29</td>
<td>134</td>
<td>39</td>
<td>190</td>
<td>23</td>
<td>172</td>
<td>21.64%</td>
</tr>
<tr>
<td></td>
<td>21.64%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table shows the count and total enrollment for multiple repeater courses in F14, F15*, and F16*.
Change to Multiple Measures Approach

• Lessened emphasis on exit exam as assessment tools.
• Gave the teaching of reading skills to local campuses.
• Made the writing exam (CAT-W) worth 35% of the developmental grade.
• Emphasized an assessment of student work that is representative of a work done throughout the course.
Develop a Multiple Measures Curriculum

• Remove the course specific Eng 101 & 102 exit exams.
• Align curriculum of Eng 101 & 102 to meet Eng 110 (Intro to Composition) ‘exit standards.’
• Create a departmental reading exam for Eng 93.
• Develop a portfolio and cross-grading system for Eng 93.
• Adjust placement procedures for incoming and continuing students.
What were/are some of the challenges?

• Increasing professional development for faculty.
• Changing the nature of an ‘exit-exam culture.’
• Examining the need for a departmental reading exam.
• Streamlining the Eng 101 & 102 process.
• Developing an assessment structure for multiple measures.
### Increased Enrollments in College-level Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Fall 2014</th>
<th>Fall 2015</th>
<th>Fall 2017</th>
<th>Increases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG composition</td>
<td>1366</td>
<td>1667</td>
<td>1633</td>
<td>+267</td>
</tr>
<tr>
<td>ENG literature</td>
<td>972</td>
<td>979</td>
<td>1049</td>
<td>+77</td>
</tr>
<tr>
<td>ENG elective</td>
<td>226</td>
<td>242</td>
<td>256</td>
<td>+30</td>
</tr>
<tr>
<td>College Math</td>
<td>333</td>
<td>334</td>
<td>267</td>
<td>-66</td>
</tr>
<tr>
<td>Intro to Stats</td>
<td>412</td>
<td>336</td>
<td>795</td>
<td>+382</td>
</tr>
<tr>
<td>College Algebra</td>
<td>185</td>
<td>211</td>
<td>241</td>
<td>+56</td>
</tr>
</tbody>
</table>
Questions?
Other Suggestions?
Barriers we haven’t discussed?
Can’t happen on my campus!
Wow! Can’t wait to get started!