

PEER-LED TEAM LEARNING EVALUATION

USE OF PLTL IN IMPROVING RETENTION AND GRADUATION RATES AT KINGSBOROUGH COMMUNITY COLLEGE

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At community colleges in the City University of New York (CUNY), six-year graduation rates for A.A. and A.S. degrees are typically around 25% (Figure 1). Graduation rates at Kingsborough Community College (KCC), a campus within CUNY, are at roughly the same level. Reasons for these low success rates include low household incomes, family obligations, lengthy commuting times, poor preparation for college-level courses, and demanding work schedules. It is not uncommon for community college students to work more than one job and more than forty hours per week while attending classes. Low graduation rates at community colleges limit the number of scientists and engineers produced in the U.S.

An important introductory science course at community colleges is general chemistry. At KCC, general chemistry is one of the most challenging introductory courses for students. To succeed in the course students must reason quantitatively and abstractly, perform laboratory experiments, interpret laboratory data, and write reports. Busy schedules for both instructors and students limit the amount of time that instructors can spend with students, adversely affecting retention and graduation rates for students at Kingsborough.

Brooklyn Gateway

The Brooklyn Gateway (BG) is an NSF-funded program designed to increase retention and graduation rates of STEM majors by providing support for students in gateway courses (such as general biology and general chemistry). As part of the program, students at Kingsborough are recruited into an immersion course in general chemistry during one of the six-week winter or summer sessions. The strategy used in the program is to help students focus on a gateway course during a short, but intense, immersion course. We believe that if students can succeed in that course then perhaps they will be more successful in attaining the degree. Immersion sections include PLTL, after-class peer tutoring, a trip to a popular public science center, and a

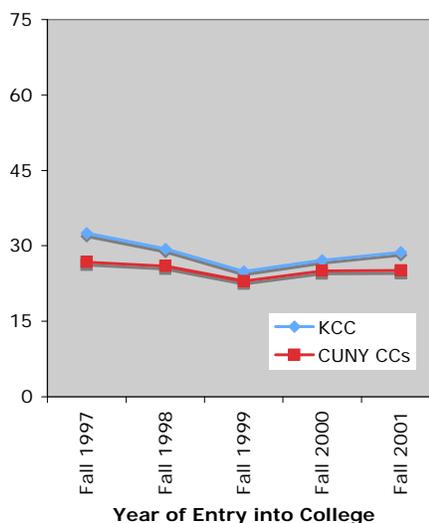


Figure 1: Six-year graduation rates at CUNY community colleges and Kingsborough Community College

three hundred dollar stipend for participation. At the heart of the Brooklyn Gateway program is the use of PLTL.

Initial Group

The first BG cohort met in January/February 2006. Fifteen students worked through the six-week course. The students in this section were fairly typical of students in other sections in terms of their declared majors and incoming GPA. However, the PLTL component had a strong effect on the group's attitude toward the course. By the end of the term, lectures involved students participating at a much higher level than is observed in traditional sections. Some of the group members formed off-campus study groups. Not surprisingly, student performance in the course was also higher than is typically observed (Table 1). Twelve of the fifteen students received a grade of C or better compared to the historical norm of fifty-seven percent for students in winter/summer sessions. The average GPA in the course was also higher than is typically observed. The BG cohort also performed much better than a group of students taking the course at the same time without the benefits of the BG program. In the non-Gateway group, roughly one-third of students received a grade of C or better and the average course GPA was also much lower than in the Gateway group.

Group	ABC (%)	Course GPA
BG Group (Winter '06) N=15	80	1.96
Non-Gateway Group (Winter '06) N= 22	36	0.93
Winter/Summer (Historical) N= 519	57	1.74
Fall/Spring (Historical) N = 1319	49	1.46

The first BG cohort completed General Chemistry 1 in February 2006. We have tracked their progress and found that as a group they have a higher graduation rate than students from historical groups. After 2 ½ years, nine of the fifteen BG students have graduated from KCC with A.S. degrees in STEM disciplines (60%). Three of the twenty-two students graduated with a degree in STEM (19%) from the non-BG group that took the course at the same time. It's not clear whether this difference in the rate of graduation will persist over time. It is possible that participation in the BG program helped to speed graduation for these students but won't result in a change of the long-term number of graduates.

Cumulative Results

As of the summer 2008 session, six General Chemistry immersion groups have taken part in the BG program. Compared with non-BG groups their performance in General Chemistry 1 has been a success (Table 2). Of the 105 students who have participated in the BG program, 82 have received a passing grade (78%). The average course GPA for these students is also above historical norms at 2.35. Non-Gateway groups performed about as well as the historical groups for winter and summer session. The average course pass rate and average course GPA were lower than that for the BG groups. Thus far, of the 105 students who have entered the winter/summer immersion program, 24 have completed AS degrees in STEM disciplines. This compares well with the non-BG students.

Table 2: Cumulative Brooklyn Gateway 1 Results			
Group	ABC (%)	Course GPA	A.S. Degree
BG Groups (1-6) N = 105	78	2.35	24
Non-Gateway Groups (1-5) N = 133	56	1.85	11

As part of the assessment of the program we are tracking students as they continue in their educational programs. We are currently looking at success rates in organic chemistry for BG students as well as the progress of transfer students to Brooklyn College, a partner in the Brooklyn Gateway program.

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