Ten Years of Research into the Student Experience
LaGuardia Community College

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May 18, 2017

Ten years of research on the student experience at LaGuardia has begun to unveil a complex story of stress and coping. All community college students seem to be under levels of stress not often found among students at wealthier institutions. Our students have ways, both successful and unsuccessful, of coping with stress. The College has tried with some success to help students deal with these stresses. In the end, we know a lot about the problem, but not enough about what might alleviate the stresses on students to greatly increase the proportion of students earning a degree.

Stress
Sam Michalowski, while he was in the Institutional Research & Assessment office, interviewed 50 students who had either changed from full-time to part-time, stopped out, or dropped out.
In his report (Towards a Comprehensive Model of Community College Student Progress - The Role of Critical Junctures) he paints a picture of the stresses students are under that makes them downgrade their enrollment intensity. He found stresses that seem more a part of the students' "outside lives," as well as stresses that represent conflicts with LaGuardia itself.

More importantly, however, Sam noted a difference between the constant stresses students are under and those events that precipitate a change in enrollment intensity. He called these events "critical junctures."

The importance of these stresses was reinforced by a text survey we asked the Student Information Center to do of students who, late in the semester, still had not registered for the next semester. (Financial and Other Pressures Preventing Attendance) Half of these students who had hoped to register listed financial problems as blocking the way. Another 12% had nonfinancial problems, and 15% said that LaGuardia was preventing them from registering.

Nevertheless, Nate Dickmeyer found in matched comparisons of non-applicants and scholarship applicants, who either were awarded scholarships or were not, that the real differentiator was whether the student had applied, not whether the student actually received a scholarship (The Impact on Retention and Graduation of LaGuardia Foundation Scholarships).
Merely applying for a scholarship predicted higher levels of success. Thus, was it finances or lack of problem solving skills that made a difference?

Sam, after he had taken the director position at College of Staten Island, and Nate attempted to

see if they could model these findings with data from their two colleges (The Relationship between Student Time Allocation Decisions and Outcomes). This model postulated a fairly constant, random rate of "critical junctures," capable of knocking a student out of college, buffered by the momentum students built up as evidenced by GPA, earning college credits and moving beyond developmental education. They found that they could fit the model to their colleges' actual data well, but that the background rate of critical junctures was higher at LaGuardia than at CSI with its somewhat higher socio-economic student background.

To reinforce this, Nate looked at the rate at which students with high momentum dropped out. This would give us the rate of super-critical junctures, those that would knock any student out of college, regardless of momentum (Background Radiation: Doing Well at LaGuardia and Dropping Out and High GPA Students Leaving LaGuardia). He found that even good students drop out at a rate between five and eight percent every semester.

Jenny Zhu and Nate looked at the relationship between course failure and dropping out (An Analysis of Return Rates by Whether First-Year Freshmen Passed or Failed Particular Courses, 2007-2012). The highest numbers of students to drop out after failing a class took English 101, Math 095, Math 096 or English 099. Nevertheless, these courses also had high numbers of students who dropped out after passing. When they looked at the net rates of dropping out (rate of dropping out if failed minus the rate of dropping out if passed), a strange list of small humanities, first-year seminar and social science courses emerged. In the end, they did not find that particular course failures caused students to drop out. On the contrary, students disengaging from the college in the process of dropping out appeared to cause course failure.

Jenny and Nate in a video presentation pushed this analysis further and tried to determine why students placing into developmental courses tended to drop out at higher rates than those who did not (Presentation: Time is the Enemy: Why Developmental Students Do Not Graduate). Passing developmental courses led to the same academic success as those who placed out of developmental education. The difference appeared to come simply from the time it took students to complete a degree. Developmental students were exposed longer to the vagaries of life.

Jenny and Nate also showed that developmental education was less a barrier than a simple slowing force. Only a limited number of students dropped out after trying twice to pass developmental education (The Limited Impact of Basic Skills Failure on Student Progress). Many more students dropped out before twice trying or after succeeding.

Jenny and Nate also looked at when students made the decision to drop out (When Do Students Drop/Stop Out: After Completing the Semester or During the Semester?). Critical junctures can occur at any point in a student's career. They found, using attendance data, that 20% of students who dropped out after a semester left before the semester three-quarter mark. Along with that finding, Jeff Weintraub and Nate looked at the proportion of students who had not registered during a registration period who would not return (As Each Week of Registration Passes). After the second week of registration, one-

third of those not yet registered would not be returning. By week 14 of a 16-week registration period, 84% of those not registered would not be returning.

Symptoms of Stress Overtaking Resilience
In 2015 Provost Arcario asked IR&A to use our data to predict which students were likely to drop out. Under that directive, Jenny Zhu used stepwise logistical regression to determine which variables most strongly predicted whether or not a student returned to college after two semesters (or graduated before) (Developing a Single Tool for Assessing Student Retention Interventions). The strongest variables predicting return, which we will call symptoms to avoid implying either causality or solutions, were attending full-time, having accumulated more degree credits, a higher GPA, being a woman, having completed developmental math requirements, registering earlier than one month before classes start, and being on a student visa.

We found other symptoms as well in situations where we could not build a full database, but could develop warning signals (Drop Out Warning Signs). Outside the context of having a GPA and earning credits, being a first-time student increased the probability of non-return. High rates of class absence, avoiding orientation sessions, as well as avoiding first-year seminars were all added to the list of symptoms predicting non-return.

Erez Lenchner and Nate took a deeper look at one of the strongest symptoms, attending part-time. They asked, what are students doing that prevents them from taking 15 college-level credits each semester (Momentum Absorbers: Measuring the Impact of Part-time, Course Failure, Basic Skills, Stopping Out, and Moot Courses)? Three activities deprived students from 15-credit attendance at high, nearly equal rates: 1) attempting too few courses; 2) taking developmental courses below college-level; and 3) failing college-level courses. Other actions showed a much smaller share of the loss: stopping out and taking moot courses not required in their major.

Course failure is extensive at LaGuardia, especially at the developmental level, as noted in Nate's discussion (Course Failures). Interestingly, students with heavier loads are somewhat less likely to fail.

Nate and Jenny examined the Fall 2010 new, full-time student cohort, noting the semester-to-semester dynamics of "changing state" from full-time to part-time, graduation or non-attendance (Modeling Twelve Semesters of Retention and Graduation). After the first semester, nearly one out of three students became part-time. In semesters after that, although there was a trend toward a greater proportion of part-time attendance, the driving force was not so much a net shift from full-time to part-time as a greater rate of graduation by those who were full-time in each semester.
This work supports earlier work by Jenny and Nate that showed that, holding all else constant, slowing down in credits attempted was a strong symptom of future disengagement from the college (The Impact of Slower Academic Progress in One Semester).

Jenny and Nate also found that certain behaviors allowed students to return at rates higher than those predicted in Jenny's model (Using a Uniform Retention Assessment Methodology to Examine the Impact of Advising Teams and Advising Offices). These included visiting more offices for assistance, seeing an academic advisor more than once, visiting a faculty member for advising, and being part of several programs, including ASAP. Nevertheless, some programs, like the honors society, screened for students with so much success potential that these programs showed no contribution to improved probability of return.

Students regularly rate academic advising lower than we hope and lower than the average for other institutions (for example, see the latest CCSSE for LaGuardia: Community College Survey of Student Engagement (CCSSE) 2016). The impact of faculty advisement appeared to improve the probability of student return above that predicted by our model. Nevertheless, the "Road to Success" project, a well-funded attempt to provide well-trained coaches and peer advisors to a limited number of students did not have a strong impact (Road to Success (RTS) Actual vs. Expected Return Rates). The strongest positive impact occurred with the students with the highest predicted probability of return in the beginning. Students with moderate levels of predicted return appeared to transfer out at higher rates, while low-return probability students appear to understand more quickly their imperiled future and left at higher than predicted rates.

Nate, Erez and Jenny also studied the relationship between class absence, GPA and return rate (Class Absence, GPA and Returning Next Semester). The statistical evidence is devastating.
Students miss nearly one class in six on average. Those with higher rates of absence have lower GPAs and are much more likely to drop out. Students miss one in five developmental classes.

While Nate found that changing majors lengthened the time to earn a degree and thus "probably" increased exposure to drop-out-level stresses (Modeling Twelve Semesters of Retention and Graduation), he subsequently found that the actual graduation rate of students who changed major in only their first three semesters was higher than that of those who did not change major (Graduation Rate and Changing Major).

Symptom or Cause of Non-retention
Given all that we have discovered, we must now try to tackle the old statistics bugaboo, "Correlation is not causation." From the studies above, we can say, admittedly with some level of continuing uncertainty, that applying for and not receiving a scholarship is not a cause, that bad advising is not a strong cause of dropping out, that, related to advising, taking a moot course is not a strong cause, that failing a particular course, even a developmental course, does not cause dropping out and that changing major is not a significant cause of dropping out.

We are left with an interesting set of symptoms: attending part-time (especially slowing to part-time status), failing courses, placing into developmental education, being a man, not being on a student visa, being absent in courses, registering just before the start of classes, and being a first-time student.

We first needed to understand the impact of gender better. Jenny and Nate took a look at the results of a CUNY survey of new students that asked whether they would like help in various areas (Help-Seeking Behavior and Predictions of Retention). They controlled for the apparent help these students actually needed, like placing into developmental education and receiving financial aid awards and found a correlation between asking for help and retention.

Nate discovered a curious gender link in help-seeking behavior with regard to Orientation (Return Rate of Students Attending Spring 2011 Orientation). Students who attended Orientation were much more likely to persist. Women were more likely to attend than men, but men and women who attended persisted at the same high rates, while men and women who did not attend persisted at the same low rates. The "gender effect" seems to be strongly related to the more natural help-seeking behavior of women than men.

One of the curious things that Sam found in the first study cited above is that older students were better at solving problems than younger students, but older students had many more problems. The result was that these two groups looked statistically identical. Lack of problem solving skills caused many of the students Sam interviewed to reduce their enrollment intensity, but our statistics could not sort this factor from the impact of having more problems.

Fewer and fewer of our students are studying on student visas and that information has been removed from our data sets supplied by CUNY. Common wisdom tells us that visa regulations force these students to take their studies seriously. Low credit accumulation and/or bad grades would cause them to lose their visas. The study mentioned above that used SEMS data (a system of recording visits to offices) to see the impact on actual versus predicted two-semester retention (Using a Uniform Retention Assessment Methodology to Examine the Impact of Advising Teams and Advising Offices) showed that going multiple times to the International Student Office did not improve success above the prediction. Just studying under such a visa was an indicator.

There can be little doubt that students who graduate start faster and go stronger on average (Measuring Student Momentum, Credits Earned per Semester and more). On average, students who graduate earn more credits in every semester, have a higher GPA in every semester, and finish developmental requirements faster.

While it is much less true of students who graduate, students, in general, only go full-time in their first two semesters because they are taking developmental courses (Some Notes on Momentum). Students consistently take nine to ten college-level credits each semester, increasing slightly in the early semesters. Dropping to part-time does not occur simply because students get jobs. Part-time is the norm. Developmental credits appear to be regarded as "early fluff" that can be just added on until they can be overcome. Students, especially non-graduates, are always part-time with college-level courses. In the early semesters they are forced to add on developmental classes, but they are more often absent in these courses and don't bother with the homework (an observation by Provost Arcario after taking developmental math).

We noted above that course failure predicts success. On the other hand, the more college level credits a student earns in a semester, the greater the likelihood of success (A Simple Predictor of Next Semester Retention: Passing Courses). Ninety percent of students who pass four courses return the next semester. Interestingly, progress is the most important factor. It does not make a large amount of difference whether a student passes one course out of one or one out of four.

Working did not appear to assist students in making it to graduation (Employment and Wage Patterns of Enrolled LaGuardia Students). Nevertheless, working on campus had a positive effect (Impact of On-Campus Employment on Retention).

To help this picture jell, we examined a couple of other interventions to see how they helped students toward graduation. In the first Nate examined the impact of student use of Academic Peer Instruction (student tutors) (The Impact of API Sessions on the Pass Rate in Math 096).
While the impact was positive, especially for first-time students and students with a low GPA who attended three or more sessions, the attendance rate for these students was much lower than the rate for stronger students who benefited less.

Nate also examined the impact on student success of cluster courses (Comparative Outcomes of Students in Learning Communities Taking Clusters of Courses Together at LaGuardia Community College). While there were short-term benefits to GPA and credits earned, there were no longer term benefits to graduation. As noted in the paper on modeling the Fall 2010 cohort above, statistically significant benefits (in this case of studying together and peer support) do not necessarily lead to detectable benefits in the long run.

We thus have a set of persistent indicators, like part-time attendance, passing courses, absences, delayed registration, applying for scholarships, moving quickly through developmental courses, and help-seeking, and more ephemeral indicators that seem to disappear on further examination, like quality advising, scholarships and learning communities.

A unifying theory might be that there is some Special Factor X that differentiates successful students from unsuccessful students. This X appears to be strongly related to a sense of academic seriousness that is above and beyond what is measured in part-time attendance and cumulative GPA, but that does cause students to seek out faculty advisement. All the strong factors relate to it: full-time attendance, better grades, fewer absences, earlier registration, help-seeking, and lower levels of off-campus employment. The effect of learning communities indicates that the peer and faculty support improve seriousness, but that the effort needs to be sustained. Nothing supports this more strongly than the very high return rate of students who pass four or more college-level courses in a semester.

Progress
Examining the latest six-year graduating rates of first-time, full-time cohorts in the LaGuardia Institutional Profiles of 2006 and 2016, which Jan Gau designed and continues to produce, we see that

27.2% of the 1999 cohort graduated, while 29.1% of the 2009 cohort graduated. While the increase is not beyond the range of possible random fluctuation, the result is encouraging.

There is an even stronger increase possible coming down the pipeline with the three-year graduation rate of first-time, full-time students in the 2012 cohort at 19.9% compared with the 2011 cohort's rate of 16.3%. This jump was true across all CUNY community colleges. Jeff Weintraub used inferential statistics to show that the increase was largely due to two community college programs, ASAP and CUNYstart (Analysis of Fall 2011 and Fall 2012 Three Year Graduation Rates).

The question remains then, whether LaGuardia has had much success influencing our students' "Special Factor X." Is it possible that students only arrive at college with a "natural" level of "academic seriousness," as indicated by initial full-time status, high GPA and swift movement through developmental courses, or is it possible that we effect a transformation?

In a final paper in this essay, we note that not all students "start fast and proceed swiftly" (Persistence and Transformation: The Other Factors in Reaching Graduation). Nearly one in three of the graduates from the academic year 2015-16 began their academic career part-time, had a first semester GPA below 2.00, took more than six years to graduate, or a combination of those three factors. When we follow one cohort of new students and add what we have learned about starting strong and the critical junctures that knock even our best students out of school, we see that we lose about 18% to other colleges, regardless of stress or seriousness, that about 20% start strong and finish fast, as though no transformation was necessary and that about 22% were knocked out by a critical juncture that no college intervention could have prevented. That leaves about 40% who appear to be susceptible to a transformation, who did not suffer a terminal critical juncture and who did not start with great seriousness. Of these one in four made it to graduation and became a one in three graduate who clearly had to have become more serious to have made it.

Many of our successful students talk about the influence of a faculty member. Others talk about how support from peers got them through. One student in Sam's study said that becoming a father changed him. He realized that he would not be a great role model for his son unless he finished college.

That's ten years of research. The college's success depends on how well it does convincing more of its students to take their education seriously: to attend class, to take heavier loads, to get help, and to put their education first.

The Next Phase
Many of the quantitative research questions of the last decade came from questions raised in the interview study done by Sam and from student interviews of students conducted by Rahela Aktar (temporarily working for IR&A and still employed by the college, The Student View of Advising — Fall 2014). From those interviews, we began to have a small idea of the enormous breadth of activities encompassed by advising and an incremental idea of what worked and didn't.

In the last year, LaGuardia began a more structured examination of the student experience. Jing Li (also a temporary employee of this office) conducted a series of student focus groups (Focus Group Final Report, part I, Credit Student Success Framework and Focus Group Final Report, part II, Credit Student Success Framework). One thing is very clear from the words of students in both interviews and focus groups: some of our encounters with students are working and some are not.

Such is the cycle of institutional research: qualitative studies to get a sense of the questions that need to be answered; quantitative studies to get data on who and how many and what connects to what; and then another round of qualitative studies to understand what the data means.

Thus, we have returned to a qualitative phase. We know that we are succeeding in transforming some students from indifferent learners to graduates. We know that we must do more of this. We have learned how to spot our indifferent learners. What we have not systematically explored are the exact things that we have done, the behaviors of our faculty, advisors, counselors, financial aid experts and security guards that have changed the behaviors of our students in ways that have transformed them into degree holders.

We cannot assume that a single phrase will make a difference. We cannot assume that a single event, however momentous, is the key. Transformations take time and continual reinforcement. Each student may require a different key to unlock his or her potential. We can, however, celebrate the transformations and those among us who have helped unlock this trapped potential. We can redefine the expectations embedded in our culture of what we do when we encounter a student.

Acknowledgements
This decade of IR&A research was only possible because of the belief that evidence is a powerful guide by the leadership of the college: President Mellow, Provost Arcario and Vice President Saltiel. This office was given far more resources than similar offices across the country because of their support. Veron Sundar and Patricia Rivera also provided essential office support.

The benefits of our location within the IT division under Vice President Saltiel cannot be minimized. The database administrators, applications experts, network administrators, training specialists and communications developers were our partners. Other colleges ask, "How can we work with IT?" We ask, "How could we work without them?"

Our location within IT also increased our clients' confidence in our neutrality. Our clients constantly challenged us and taught us. Our relationships with the Math Department, Center for Teaching and Learning, Education and Language Acquisition, Health Sciences, Natural Sciences, Engineering, the Provost's Office and Adult and Continuing Education immediately come to mind as productive and excellent representations of the way a learning organization ought to operate.