

Stand and Deliver Revisited

The untold story behind the famous rise -- and shameful fall -- of Jaime Escalante, America's master math teacher.

Jerry Jesness | Jul. 1, 2002 12:00 am

Thanks to the popular 1988 movie *Stand and Deliver*, many Americans know of the success that Jaime Escalante and his students enjoyed at Garfield High School in East Los Angeles. During the 1980s, that exceptional teacher at a poor public school built a calculus program rivaled by only a handful of exclusive academies.

It is less well-known that Escalante left Garfield after problems with colleagues and administrators, and that his calculus program withered in his absence. That untold story highlights much that is wrong with public schooling in the United States and offers some valuable insights into the workings -- and failings -- of our education system.

Escalante's students surprised the nation in 1982, when 18 of them passed the Advanced Placement calculus exam. The Educational Testing Service found the scores suspect and asked 14 of the passing students to take the test again. Twelve agreed to do so (the other two decided they didn't need the credit for college), and all 12 did well enough to have their scores reinstated.

In the ensuing years, Escalante's calculus program grew phenomenally. In 1983 both enrollment in his class and the number of students passing the A.P. calculus test more than doubled, with 33 taking the exam and 30 passing it. In 1987, 73 passed the test, and another 12 passed a more advanced version ("BC") usually given after the second year of calculus.

By 1990, Escalante's math enrichment program involved over 400 students in classes ranging from beginning algebra to advanced calculus. Escalante and his fellow teachers referred to their program as "the dynasty," boasting that it would someday involve more than 1,000 students.

That goal was never met. In 1991 Escalante decided to leave Garfield. All his fellow math enrichment teachers soon left as well. By 1996, the dynasty was not even a minor fiefdom. Only seven students passed the regular ("AB") test that year, with four passing the BC exam -- 11 students total, down from a high of 85.

In any field but education, the combination of such a dramatic rise and such a precipitous fall would have invited analysis. If a team begins losing after a coach is replaced, sports fans are outraged. The decline of Garfield's math program, however, went largely unnoticed.

Movie Magic

Most of us, educators included, learned what we know of Escalante's experience from *Stand and Deliver*. For more than a decade it has been a staple in high school classes, college education classes, and faculty workshops. Unfortunately, too many students and teachers learned the wrong lesson from the movie.

Escalante tells me the film was 90 percent truth and 10 percent drama -- but what a difference 10 percent can make. *Stand and Deliver* shows a group of poorly prepared, undisciplined young people who were initially struggling with fractions yet managed to move from basic math to calculus in just a year. The reality was far different. It took 10 years to bring Escalante's program to peak success. He didn't even teach his first calculus course until he had been at Garfield for several years. His basic math students from his early years were not the same students who later passed the A.P. calculus test.

Escalante says he was so discouraged by his students' poor preparation that after only two hours in class he called his former employer, the Burroughs Corporation, and asked for his old job back. He decided not to return to the computer factory after he found a dozen basic math students who were willing to take algebra and was able to make arrangements with the principal and counselors to accommodate them.

Escalante's situation improved as time went by, but it was not until his fifth year at Garfield that he tried to teach calculus. Although he felt his students were not adequately prepared, he decided to teach the class anyway in the hope that the existence of an A.P. calculus course would create the leverage necessary to improve lower-level math classes.

His plan worked. He and a handpicked teacher, Ben Jimenez, taught the feeder courses. In 1979 he had only five calculus students, two of whom passed the A.P. test. (Escalante had to do some bureaucratic sleight of hand to be allowed to teach such a tiny class.) The second year, he had nine calculus students, seven of whom passed the test. A year later, 15 students took the class, and all but one passed. The year after that, 1982, was the year of the events depicted in *Stand and Deliver*.

The *Stand and Deliver* message, that the touch of a master could bring unmotivated students from arithmetic to calculus in a single year, was preached in schools throughout the nation. While the film did a great service to education by showing what students from disadvantaged backgrounds can achieve in demanding classes, the Hollywood fiction had at least one negative side effect. By showing students moving from fractions to calculus in a single year, it gave the false impression that students can neglect their studies for several years and then be redeemed by a few months of hard work.

This Hollywood message had a pernicious effect on teacher training. The lessons of Escalante's patience and hard work in building his program, especially his attention to the classes that fed into calculus, were largely ignored in the faculty workshops and college education classes that routinely

showed *Stand and Deliver* to their students. To the pedagogues, how Escalante succeeded mattered less than the mere fact that he succeeded. They were happy to cheer Escalante the icon; they were less interested in learning from Escalante the teacher. They were like physicians getting excited about a colleague who can cure cancer without wanting to know how to replicate the cure.

The Secrets to His Success

How did Escalante attain such success at Garfield? One key factor was the support of his principal, Henry Gradillas.

Escalante's program was already in place when Gradillas came to Garfield, but the new principal's support allowed it to run smoothly. In the early years, Escalante had met with some resistance from the school administration. One assistant principal threatened to have him dismissed, on the grounds that he was coming in too early (a janitor had complained), keeping students too late, and raising funds without permission. Gradillas, on the other hand, handed Escalante the keys to the school and gave him full control of his program.

Gradillas also worked to create a more serious academic environment at Garfield. He reduced the number of basic math classes and eventually came up with a requirement that those who take basic math must concurrently take algebra. He even braved the wrath of the community by denying extracurricular activities to entering students who failed basic skills tests and to current students who failed to maintain a C average.

In the process of raising academic standards at Garfield, Gradillas made more than a few enemies. He took a sabbatical leave to finish his doctorate in 1987, hoping that upon his return he would either be reinstated as principal of Garfield or be given a position from which he could help other schools foster programs like Escalante's. He was instead assigned to supervise asbestos removal. It is probably no coincidence that A.P. calculus scores at Garfield peaked in 1987, Gradillas' last year there.

Escalante remained at Garfield for four years after Gradillas' departure. Although he does not blame the ensuing administration for his own departure from the school, Escalante observes that Gradillas was an academic principal, while his replacement was more interested in other things, such as football and the marching band.

Gradillas was not the only reason for Escalante's success, of course. Other factors included:

The Pipeline. Unlike the students in the movie, the real Garfield students required years of solid preparation before they could take calculus. This created a problem for Escalante. Garfield was a three-year high school, and the junior high schools that fed it offered only basic math. Even if the entering sophomores took advanced math every year, there was not enough time in their schedules to take geometry, algebra II, math analysis, trigonometry, and calculus.

So Escalante established a program at East Los Angeles College where students could take these classes in intensive seven-week summer sessions. Escalante and Gradillas were also instrumental in getting the feeder schools to offer algebra in the eighth and ninth grades.

Inside Garfield, Escalante worked to ratchet up standards in the classes that fed into calculus. He taught some of the feeder classes himself, assigning others to handpicked teachers with whom he coordinated and reviewed lesson plans. By the time he left, there were nine Garfield teachers working in his math enrichment program and several teachers from other East L.A. high schools working in the summer program at the college.

Tutoring. Years ago, when asked if Garfield could ever catch up to Beverly Hills High School, Gradillas responded, "No, but we can get close." The children of wealthy, well-educated parents do enjoy advantages in school. Escalante did whatever he could to bring some of those advantages to his students.

Among the parents of Garfield students, high school graduates were in the minority and college graduates were a rarity. To help make up for the lack of academic support available at home, Escalante established tutoring sessions before and after school. When funds became available, he arranged for paid student tutors to help those who fell behind.

Escalante's field-leveling efforts worked. By 1987, Gradillas' prediction proved to be partially wrong: In A.P. calculus, Garfield had outpaced Beverly High.

Open Enrollment. Escalante did not approve of programs for the gifted, academic tracking, or even qualifying examinations. If students wanted to take his classes, he let them.

His open-door policy bore fruit. Students who would never have been selected for honors classes or programs for the gifted chose to enroll in Escalante's math enrichment classes and succeeded there.

Of course, not all of Escalante's students earned fives (the highest score) on their A.P. calculus exams, and not all went on to receive scholarships from top universities. One argument that educators make against programs like Escalante's is that they are elitist and benefit only a select few.

Conventional pedagogical wisdom holds that the poor, the disadvantaged, and the "culturally different" are a fragile lot, and that the academic rigor usually found only in elite suburban or private schools would frustrate them, crushing their self-esteem. The teachers and administrators that I interviewed did not find this to be true of Garfield students.

Wayne Bishop, a professor of mathematics and computer science at California State University at Los Angeles, notes that Escalante's top students generally did not attend Cal State. Those who scored fours and fives on the A.P. calculus tests were at schools like MIT, Harvard, Yale, Berkeley, USC, and UCLA. For the most part, Escalante grads who went to Cal State-L.A. were those who scored ones

and twos, with an occasional three, or those who worked hard in algebra and geometry in the hope of getting into calculus class but fell short.

Bishop observes that these students usually required no remedial math, and that many of them became top students at the college. The moral is that it is better to lose in the Olympics than to win in Little League, even for those whose parents make less than \$20,000 per year.

Death of a Dynasty

Escalante's open admission policy, a major reason for his success, also paved the way for his departure. Calculus grew so popular at Garfield that classes grew beyond the 35-student limit set by the union contract. Some had more than 50 students. Escalante would have preferred to keep the classes below the limit had he been able to do so without either denying calculus to willing students or using teachers who were not up to his high standards. Neither was possible, and the teachers union complained about Garfield's class sizes. Rather than compromise, Escalante moved on.

Other problems had been brewing as well. After *Stand and Deliver* was released, Escalante became an overnight celebrity. Teachers and other interested observers asked to sit in on his classes, and he received visits from political leaders and celebrities, including President George H.W. Bush and actor Arnold Schwarzenegger. This attention aroused feelings of jealousy. In his last few years at Garfield, Escalante even received threats and hate mail. In 1990 he lost the math department chairmanship, the position that had enabled him to direct the pipeline.

A number of people at Garfield still have unkind words for the school's most famous instructor. One administrator tells me Escalante wanted too much power. Some teachers complained that he was creating two math departments, one for his students and another for everyone else. When Escalante quit his job at Garfield, John Perez, a vice president of the teachers union, said, "Jaime didn't get along with some of the teachers at his school. He pretty much was a loner."

In addition, Escalante's relationship with his new principal, Maria Elena Tostado, was not as good as the one he had enjoyed with Gradillas. Tostado speaks harshly about her former calculus teachers, telling the Los Angeles Times they're disgruntled former employees. Of their complaints, she said, "Such backbiting only hurts the kids."

Escalante left the program in the charge of a handpicked successor, fellow Garfield teacher Angelo Villavicencio. Escalante had met Villavicencio six years previously through his students -- he had been a math teacher at Griffith Junior High, a Garfield feeder. At Escalante's request and with Gradillas' assistance, Villavicencio came to Garfield in 1985. At first he taught the classes that fed into calculus; later, he joined Escalante and Ben Jimenez in teaching calculus itself.

When Escalante and Jimenez left in 1991, Villavicencio ascended to Garfield's calculus throne. The following year he taught all of Garfield's AB calculus students -- 107 of them, in two sections.

Although that year's passing rate was not as high as it had been in previous years, it was still impressive, particularly considering that two-thirds of the calculus teachers had recently left and that Villavicencio was working with lecture-size classes. Seventy-six of his students went on to take the A.P. exam, and 47 passed.

That year was not easy for Villavicencio. The class-size problem that led to Escalante's departure had not been resolved. Villavicencio asked the administration to add a third section of calculus so he could get his class sizes below 40, but his request was denied. The principal attempted to remove him from Music Hall 1, the only room in the school that could comfortably accommodate 55 students. Villavicencio asked himself, "Am I going to have a heart attack defending the program?" The following spring he followed Escalante out Garfield's door.

Scattered Legacy

When Cal State's Wayne Bishop called Garfield to ask about the status of the school's post-Escalante A.P. calculus program, he was told, "We were doing fine before Mr. Escalante left, and we're doing fine after." Soon Garfield discovered how critical Escalante's presence had been. Within a few years, Garfield experienced a sevenfold drop in the number of A.P. calculus students passing their exams. (That said, A.P. participation at Garfield is still much, much higher than at most similar schools. In May of 2000, 722 Garfield students took Advanced Placement tests, and 44 percent passed.)

Escalante moved north to Sacramento, where he taught math, including one section of calculus, at Hiram Johnson High School. He calls his experience there a partial success. In 1991, the year before he began, only six Johnson students took the A.P. calculus exam, all of whom passed. Three years later, the number passing was up to 18 -- a respectable improvement, but no dynasty. It had taken Escalante over a decade to build Garfield's program. Already in his 60s when he made his move, he did not have a decade to build another powerhouse in new territory.

Meanwhile, Villavicencio moved to Chino, a suburb east of Los Angeles. He had to take a pay cut of more than \$7,000, since his new school would pay him for only six of his 13 years in teaching. (Like many districts, the Chino Valley Unified School District had a policy of paying for only a limited number of years of outside experience.) In Chino, Villavicencio again taught A.P. calculus, first in Ayala High School and later in Don Lugo High School.

In 1996 he contacted Garfield's new principal, Tony Garcia, and offered to come back to help revive the moribund calculus program. He was politely refused, so he stayed at Don Lugo. Villavicencio worked with East Los Angeles College to establish a branch of the Escalante summer school program there. This program, along with more math offerings in the district's middle schools, allowed Villavicencio to admit even some ninth-graders into his calculus class.

After Villavicencio got his program running smoothly, it was consistently producing A.P. calculus passing scores in the 60 percent to 70 percent range. Buoyed by his success, he requested that his

salary be raised to reflect his experience. His request was denied, so he decided to move on to another school. Before he left, Don Lugo High was preparing to offer five sections of AB calculus and one section of BC. In his absence, there were only two sections of AB and no BC.

Meanwhile, after seeing its calculus passing rate drop into the single digits, Garfield is experiencing a partial recovery. In the spring of 2001, 17 Garfield students passed the AB calculus exam, and seven passed the BC. That is better than double the number of students passing a few years ago but less than one-third the number passing during the glory years of Escalante's dynasty.

And after withering in the absence of its founder, the Escalante program at East Los Angeles College has revived. Program administrator Paul Powers reports that over 1,000 high school students took accelerated math classes through the college in the year 2000.

Although the program now accepts students from beyond the college's vicinity, the target pupils are still those living in East L.A.

Nationally, there is no denying that the Escalante experience was a factor in the growth of Advanced Placement courses during the last decade and a half. The number of schools that offer A.P. classes has more than doubled since 1983, and the number of A.P. tests taken has increased almost sixfold. This is a far cry from the Zeitgeist of two decades ago, when A.P. was considered appropriate only for students in elite private and wealthy suburban public schools.

Still, there is no inner-city school anywhere in the United States with a calculus program anything like Escalante's in the '80s. A very successful program rapidly collapsed, leaving only fragments behind.

This leaves would-be school reformers with a set of uncomfortable questions. Why couldn't Escalante run his classes in peace? Why were administrators allowed to get in his way? Why was the union imposing its "help" on someone who hadn't requested it? Could Escalante's program have been saved if, as Gradillas now muses, Garfield had become a charter school? What is wrong with a system that values working well with others more highly than effectiveness?

Barn Building

Lyndon Johnson said it takes a master carpenter to build a barn, but any jackass can kick one down. In retrospect, it's fortunate that Escalante's program survived as long as it did. Had Garfield's counselors refused to let a handful of basic math students take algebra back in 1974, or had the janitor who objected to Escalante's early-bird ways been more influential, America's greatest math teacher might just now be retiring from Unisys.

Gradillas has an explanation for the decline of A.P. calculus at Garfield: Escalante and Villavicencio were not allowed to run the program they had created on their own terms. In his phrase, the

teachers no longer "owned" their program. He's speaking metaphorically, but there's something to be said for taking him literally.

In the real world, those who provide a service can usually find a way to get it to those who want it, even if their current employer disapproves. If someone feels that he can build a better mousetrap than his employer wants to make, he can find a way to make it, market it, and perhaps put his former boss out of business. Public school teachers lack that option.

There are very few ways to compete for education dollars without being part of the government school system. If that system is inflexible, sooner or later even excellent programs will run into obstacles.

Escalante has retired to his native Bolivia. He is living in his wife's hometown and teaching part time at the local university. He returns to the United States frequently to visit his children. When I spoke to him he was entertaining the possibility of acting as an adviser to the Bush administration. Given what he achieved, he clearly has valuable advice to give.

Whether the administration will take it is another question. We are being primed for another round of "education reform." One-size-fits-all standardized tests are driving curricula, and top-down reforms are mandating lockstep procedures for classroom instructors. These steps might help make dismal teachers into mediocre ones, but what will they do to brilliant mavericks like Escalante?

Before passing another law or setting another policy, our reformers should take a close look at what Jaime Escalante did -- and at what was done to him.