**Professor Tim Renick – Ōritetanga Learner Success Conference, August 2019**

[MUSIC PLAYING]

And now it gives me a real pleasure to introduce Tim Renick. Now, with a name like Tim, he has to be a good bloke, doesn't he? You know? But under Tim Renick's leadership, the skite sheet's pretty bloody impressive. Georgia State University has produced some of the fastest-growing graduation rates in America and has eliminated achievement gaps based on students' race, ethnicity, and income levels.

Tim has testified on strategies for helping university students succeed before the US Senate and has twice been invited to speak at the White House. In 2018, Tim was the winner of the McGraw Prize in Education, an award that recognises individuals who dedicate themselves to improving education through innovation.

Just a wee sidebar. That is not just something that's done for somebody who's done something in the last couple of years. This is a lifetime of work. And so Tim, it was last year, but congratulations. That's a very major achievement. He was also the recipient of the 2015-2016 Award for National Leadership in Student Success Innovation.

His work has been covered by the New York Times, the Wall Street Journal, CNN, and cited by President Obama. It gives me very, very great pleasure to introduce Tim Renick to you. Nau mai haere mai Tim. Can you please join me in welcoming Tim Renick?

[APPLAUSE]

Kia ora, koutou. It's a pleasure being here. Good morning, everyone. Thank you for having me here. It's an honour to be in the beautiful country and to be supported by so many new friends. Thank you, Tim, for the invitation. And thanks to all of you for your hospitality. It's a little appropriate, I think, that I'm starting early because Tristan and I are still trying to figure out these time zone things.

We left on Friday from Atlanta. We arrived on Sunday. We will sadly have to return this Friday to Atlanta. And we'll leave on Friday and arrive in Atlanta on Friday. And we're not quite sure how that works. But if I go really fast, I might actually be able to finish my talk before I start. So we'll see if that's doable.

But I'm not here to tell you to be like Georgia State or to presume that what we're doing would apply to your context. You have a very special educational system and a very special culture in which it's situated. And I understand that there are many differences.

But the story of Georgia State is one of possibility, of what can be done that may surprise you. And I hope the lessons that I have to share with you this morning are applicable, at least in some instances, and, at the very least, are inspirational for the very important work you're engaged with in New Zealand.

I'm going to start with some national data from the US. And in many ways, these lines parallel the chart that Tim was sharing with you just a few minutes ago. This represents the percentage of Americans who hold the bachelor's degree, the level seven equivalent. The data is disaggregated by economic quartile. It covers the last forty years, from 1970 to the present.

And what you can see, even if you're in the back of the room, is there have been significant changes in university attainment over the last generation, but entirely in the upper half of the economic spectrum. If you're among the 25 percent wealthiest Americans by annual household income, your chances of holding a college degree have moved from about forty percent of the population in 1970 to now over eighty percent in 2019. That's fantastic progress in a relatively short period of time.

But my comments this morning will be concentrating on the lower bands on that chart, where the picture is very different. If you're among the 25 percent least wealthy Americans by annual household income, your prospects of holding a college degree have changed hardly at all, from about six percent to eight percent.

And what you can see, visually, by this chart is the gap between the least wealthy and wealthiest Americans when it comes to university attainment is not getting narrower. It's actually doubled over the last forty years.

So you take those national data and add to them these-- that over the last six or seven years the United States has crossed an important marker. For the first time since these data have been collected, the majority of schoolchildren in public schools throughout the United States-- so these are secondary and prior schools-- now qualify as low income.

You can draw a line across the United States, roughly from Washington, DC, to California. And every state below that line now has more than fifty percent of the young schoolchildren coming through the system are low income. And not coincidentally, those are the states in the United States that have the highest non-white populations, the highest populations of African-American and Hispanic students.

So you put these two pieces together, and it's much like you heard from the Minister a few minutes ago. It's a scary proposition because we, as a nation, have not figured out, at scale, how to succeed with low-income students. And yet those are the students that are working their way through the pipeline, and they will soon be the majority population at most universities.

That's a good introduction to my home campus, Georgia State University. This is not just a pretty picture of the Atlanta skyline. That is Georgia State University. The white building on the right is our largest academic building. And a number of you in the room came and visited us in that location. Beside it is our Business School, our Law School. Our largest classroom building's across the park. We're just mixed in to the downtown fabric of Atlanta.

34,000 students at that one campus. About three and a half years ago, we were consolidated by the State of Georgia with the largest community college in the State of Georgia. And so overnight, we picked up to 20,000 additional students on six other campuses. And I'll talk briefly about the work we've done on those campuses and our early efforts towards the end of my comments.

So we're a big university, over 50,000 students across Atlanta. We have recently been recognised with some rankings. We're now seen as the number two most innovative university in the US by US News & World Report. We're also number two for the quality of undergraduate education. But the reality for much of our history, not only you would not have heard about Georgia State University, but most people in the United States didn't know of Georgia State University.

We're not a prominent institution. We're not, what we call in the States, a flagship. In fact, for much of our history, we've been overshadowed by other institutions even in our very region. Probably our greatest claim to fame historically may be our geography.

So we have the uncommon-- maybe it's an even unique distinction in the US-- to have our campus bisected by a National Park Service Historic District. The Martin Luther King District cuts Georgia State's campus in half. The office I work in every morning is about three, four blocks away from that brick building at the bottom of the screen there. That's Ebenezer Baptist Church, where the Reverend King and his father before him were head pastor.

You walk up the street a couple blocks, pass Ebenezer Baptist, and you actually get to his gravesite. Reverend King is interred right there. His crypt is right on the Atlanta city streets, in effect, visible as you drive by. Walk a couple blocks past that, you get to that yellowish-coloured house. That's his birthplace and childhood home.

So at Georgia State, we are living and working every day in this geography that is literally infused with historical significance. But for much of our history, we did not live up to that legacy. Georgia State was a segregated institution, whites-only institution well into the 1960s. I pulled these pictures from the archives. And when the Reverend King was living, and working, and winning the Nobel Peace Prize for his civil rights work, you know, that's what Georgia State looked like, all white.

And even much more recently than the 1960s, we were grossly underperforming when it came to our students of colour, and overall. These were our so-called success rates, our graduation rates as of 15 years ago, 2003. Overall, only about 30 percent of our students were attaining their bachelor's degree. And we were a poster child nationally for what we refer to in the States as the equity gaps.

Year after year, semester after semester, the white students were outperforming the students of colour. Our African-American and our Hispanic students are the primary representatives of students of colour at Georgia State. And our middle and upper-income students were outperforming our low-income students. That's just the way it was.

We got deadened to the fact that, of course, every year, white students would outperform students of colour, upper-income students would outperform low-income students. We just thought that was the way it had to be. And what makes Georgia State's story, I think, important, hopefully a little bit inspirational for your efforts here in New Zealand, is what's happened at Georgia State in the 15 years since those numbers were locked in would not immediately suggest that Georgia State would be the site of a turnaround.

For one thing, like your nation, Georgia State was going through a very rapid demographic changes. When I arrived as a junior faculty member at Georgia State right out of my PhD programme, it was a majority white institution. It was still over 70 percent white as far as the student body. But as you can see from this chart, what's happened over the last 15 or so years is Georgia State has become more and more diverse each and every single year.

So about a decade ago, we became designated by the Federal Government as an MSI, Minority Serving Institution. That's a designation that goes to institutions in the US that have over 50 percent of their student body non-white. And every year since then, we have continued to get more and more diverse.

We have no majority population at Georgia State any longer. Our largest single group are our African-American students, about 39 percent. So you take that kind of demographic picture, which would not suggest to the pundits that Georgia State would be the type of place that would have rapidly improving graduation rates, and add to them these-- that also over the last 15 years, our students have gotten a lot less well-resourced financially.

The recession hit the state of Georgia, and especially the city of Atlanta, very hard. It was a boom city, lots of construction, lots of growth before the recession. And when the recession hit, it went headfirst down. At one point during the recession, Atlanta, among all metro areas in the United States, simultaneously had the highest unemployment rate and the highest default rate on home mortgages.

And when those kind of economic factors hit, they don't distribute equally across the population, right? The sons and daughters who sent their-- excuse me, the families that send their sons and daughters to some of our competitor institutions, where the demographics show that most of the enrolled students are upper-income, you know, they may have had some hardship. But they weren't primarily losing their homes and losing their jobs.

The families that were losing their homes and jobs were the families that send their sons and daughters to Georgia State-- low-income families, first in their family to send children to university, families of colour. And over a three-, four-, five-year period, we literally doubled the number of low-income students we enrol at Georgia State.

The marker in the United States is whether a student qualifies for the Federal Pell Program. Last year, the average family in the United States who qualified for this federal grant programme, to provide support for going to university, came from an annual household income about $25,000 a year. And so almost overnight, we moved from an institution where under a third of our students were low income to an institution where 60 percent of our students were low income.

To put this in some kind of perspective, this past spring semester, the one that just concluded at Georgia State, we enrolled a total of 28,900 low-income students. The entire Ivy League, the most elite institutions across the United States-- these eight colleges like Harvard, and Yale, and so forth-- together, they enrolled about 9,800 low-income students. So Georgia State alone is trying to educate three times the number of low-income students as the entire Ivy League.

It's not going to be business as usual. And it's also not an opportunity to create a programme. You heard that also from the Minister this morning. But it's very common in the United States, historically, that when a university finds a problem, what they do is create a programme. Let's create an initiative for African-American males, and for low-income students, and for first-generation students.

But when 28,900 of the students you enrol are low income, you don't create a programme for them, right? You just have to create a different university. You have to create a different approach to all the students that you serve. And if there one difference between Georgia State and most of our colleagues across the United States, that's probably it.

And you've heard Tim talk about that this morning already and heard the minister talk about it. When we talk about the kind of change that is necessary to reverse the trends that we see in the US and the trends that we see in New Zealand, we're not talking about marginal changes around the edges. We're talking about, at times, having to do-- make some fundamental choices and do things in a different way for all of our learners.

Couple other details just to clarify that Georgia State has not been getting more selective in its admissions processes over this time period. Just the opposite. Our main qualifying exams for university in the United States are SATs. And our SAT scores have dropped by 30 points.

I will tell you that in most American contexts-- and I'm the head of enrolment at my university-- this would not be a badge of honour, right? You would be at risk of losing your job for plunging SAT scores, but not at Georgia State. This is intentional. We made an intentional decision to broaden our admissions criteria and admit students who, in the past, didn't have the opportunity to go to--

[CHIME]

--didn't have the opportunity to go to the university. And this is one of the consequences of that. And finally, I'll point out, too, we're not doing this with greater resources. Most of the work I'm going to be describing over the next few minutes was done at the depths of the recession, at a time when we were losing state appropriations-- in fact, over $40 million in state appropriations.

So under these circumstances, it's easy to blame others and point fingers, right? Our test scores for incoming students are going down. The problem is secondary education. When they turn things around, then we'll start graduating more students. Or the problem is the government. They are cutting our resources. When they stop cutting our resources and begin providing us more money, then we'll turn things around.

But a decade ago, Georgia State did something that was initially uncomfortable and then, I must say-- and I recommend it-- somewhat liberating. We asked a different question. We said, are we the problem? You know, if it was the case, and it was, that seven out of ten students were coming to Georgia State with hopes and dreams of a different life and educational opportunity, and leaving with debt and nothing to show for it, you know, whose fault is it?

Yeah, it's true that our secondary schools could do a better job. And in the state of Georgia, our secondary schools are not highly ranked compared to others in the United States. And yeah, it's true that it'd be nice if we had more resources from the government. But surely there are some things that we are doing as an institution that are contributing to the fact that all these students are dropping out left and right, literally by the thousands every year.

So we got better with the data. We got serious about the data. But we didn't use the data to point fingers or to diagnose others. We focused the data on our own processes, our own bureaucracy, our own practices, our own teaching, and asked the question, could we do better? We looked for areas where we were the problem, where we were tripping up students. And then we piloted interventions and, importantly, scaled those interventions so they became the norm for all students at Georgia State.

So what I'm going to do over the next few minutes is walk you through the student life cycle. In each instance, I'm going to talk about what we discovered was the problem that we had created and the data that revealed the problem to us. And then I'm going to talk about some of the ways we tried to intervene and then scale those interventions to create a different university in the way we treat all students.

First example, 19 percent. 19 percent was the percent of our confirmed incoming students every year who were never making it to the first day of class. This is a phenomenon we call, in the States, summer melt because, for us, the main school year at the universities begins with the fall semester. And there's a summer period between when students finish their secondary work and when they're ready to begin the university.

And what was happening at Georgia State and other institutions like Georgia State is some of our students were doing everything right. These learners were finishing their secondary work. They were taking their college exams. They were passing those exams. They were applying to college. They were getting into college and the university. And they were confirming their intent to enrol at the university.

In many cases, these students were coming to orientation. They were signing up for classes. They were putting deposits down on housing and so forth. But then the start of classes would begin in the fall semester, and they just weren't there. Not a couple, but we're talking about 19 percent of the students we were expecting who just didn't show up.

So we used the data to do an analysis of who these students were. Maybe they ended up at other institutions, and they're perfectly happily engaged in tertiary work currently. But that's not what we found. We use the National Student Clearinghouse data set to track these students for a 12-month period.

And sadly, 12 months after these students were completely qualified, confirmed, and ready to begin their tertiary work at Georgia State University, almost 300 of them hadn't attended a single day of tertiary work anywhere across the United States. They had just melted out of the system.

And you look at the profile of these students. They're exactly the students we need to succeed within the United States and you need to succeed within New Zealand-- mostly first in their family to go to college, mostly low income, mostly students of colour.

So what was the problem? I think you know what the problem is. It was us. It was all of us in this room. You know, it was the bureaucracy that we create that we expect students to navigate in order even to find their way to the first day of class. So we did an analysis of all the things we expect students to do in the three months between finishing their secondary work and beginning their studies at Georgia State University.

Embarrassingly, we found there are about 14 things they have to do. Apply for financial aid. Go through, what we call in the States, a verification process. I don't know if you have the equivalent of this in New Zealand. But just to give you a taste of some of the US bureaucracy, just like in the United States there are-- when one submits taxes on an annual basis or tax returns, there is an algorithm the Federal Government uses to select certain of those returns for an audit.

So too, when students submit their federal application for aid, the so-called FAFSA, there is an algorithm the Government used to pull out some of those applications and select them for an audit, which they call a verification. This means the student has to provide additional information or additional documents.

But unlike the IRS, which only audits about one percent of US citizens' tax returns, last fall at Georgia State, 34 percent of our students were selected for verification. So they went through all the work of completing the application. That wasn't enough. Now they have to provide additional documentation.

And when we analysed the data, what was happening with the verification process, we could see the beginnings of the equity gaps because this process was not negatively impacting all students equally, right? If you were the son or daughter of a middle-income American family, your parents file a joint return, you were very unlikely to be selected for one of these verifications. If you're being raised by your grandmother because your biological parents are no longer in the picture, which is true for a number of our students, you were much more likely to get a verification request.

So in the middle of summer, when the students are no longer with their secondary school, and counsellors, and teachers, or not yet with us, we had dozens and dozens of students getting requests from the Federal Government. Oh, I see on your application for federal aid, you put down your grandmother as your legal guardian and that your biological parents are not contributing to the finances of your family. Please provide written verification that this is the case.

And for a subset of our students, they were taking the request and sticking it in their pocket. I mean, I think you understand how this works, that in those kind of family situations in low-income families, they're not going to lawyers and, you know, signing paperwork to sign over guardianship. Mom and dad aren't around. Grandma takes over. State of Georgia has a requirement that new university students provide immunisation records.

You know, it makes sense from a public health perspective. Let's make sure all these students are immunised before they start university, but another big differentiator when it comes to economic background, because the middle- and upper-income students don't give this request a single thought. In fact, sometimes we give these students more credit than they probably deserve. It's not that they are more empowered or abled. You know what happens. They hand the request over to mom and dad. And mom and dad send their immunisation records into the university.

But again, if you're that low-income student being raised by your grandmother, you know you don't have immunisation records. You know your grandmother doesn't have immunisation records. And they're hearing from Georgia State University, we need your immunisation records before you can enrol at the university. So each one of these bureaucratic steps was eliminating a subset of our students and disproportionately eliminating low-income students, students of colour, first in their family to go to college.

So what did we do? We changed the way we on-board students at Georgia State in some simple and low-cost ways leveraging technology. So now, as soon as a student is admitted to Georgia State, we send them a survey on their smartphone.

We ask on the survey all the questions you would never ask on a university application. Do you have a disability? Are you working? How many hours a week? Do you work to support your family as well as to pay for college? What courses in secondary school did you love? What courses in secondary school did you dread? The whole point is, from the moment a student is admitted to Georgia State, we want to begin a personalised communication flow with those students.

The second thing we did is we created a portal. The portal takes students through the 14 steps I was describing. And as they complete a step, the colour changes. And there are resources on the page to help them through it. I think the biggest advantage of this portal, in my view, is that we, for the first time, began to get a sense of where the students were getting tripped up by our bureaucracy.

We used to know a student was engaged. They said they were confirmed and coming to Georgia State. And then we stopped hearing from them. Now we know they're engaged up until the point where, for example, we asked for their immunisation records. And then we stopped hearing from them. So we can reach out with much more specific help for the problem that has been identified.

And I'll say, just the benefit of having this data has changed significant practices at Georgia State. We had never had any sense before of how many students were getting stopped from enrolment, were blocked from enrolment because they didn't have immunisation records. We had just never collected that data before. Nobody ever thought about it.

Now that we've collected and then seen that it's a major problem, I'm happy to say that we've invested in a Bio-Bus. The Bio-Bus parks out of-- outside of every orientation that we have for our new students.

And we have a doctor on hand who is available to give the immunisations on site because if you enrol low-income students, it doesn't do them much good to send them home saying, oh, you need to get immunised for measles and these two other diseases, as if they're going to go home and check the Rolodex of the local physicians in the area and make an appointment, right?

We need to provide that service. And I'm going to argue later on, providing these services are not only the morally right thing to do, but they actually turn into be the fiscally prudent thing. That in many cases, these kind of interventions pay for themselves.

The third and final thing we did in the summer, which has gotten the most attention in the States, is we became the first school in the United States to use an AI-enhanced chatbot for student success purposes. What's a chatbot? A chatbot's an automatic texting platform.

What we did is we built up a knowledge base of over 2,000 text-based answers to commonly-asked questions by incoming freshmen, questions about their immunisations, and registration, and their verification process, and financial aid. And we worked with a tech vendor, a startup out of the Harvard Incubator, a company called AdmitHub, to take all of these 2,000 answers and put them on a smart device.

So this is not an app. Students don't have to sign on to an app. What they do is just go to their regular texting platform on their phones and begin a conversation with Pounce. Pounce is our school mascot. And once they begin the conversation, they just can go on their texting platform, and text Pounce 24/7, ask him any question they want.

The AI does not write the answers to the questions. Our legal office would have none of that, that some AI was going to be providing official answers from Georgia State University. But what the AI does is, as the student texts in the question, the AI will make a judgment about whether there is a reliable answer already in the knowledge base.

If so, it will pull the answer out and deliver it immediately to the student. Or it makes the determination that there is no reliable answer in the knowledge base, in which case, it takes the question that the student has texted in and delivers it to a staff person who writes the answer and then adds it to the knowledge base. So the knowledge base is constantly getting bigger, and the platform's getting smarter.

In fact, we launched with 2,000 answers. We're now up over 3,000 answers. So we did some estimates. We projected as we launched-- this was the summer of 2016 in June-- that we might have 5,000 to 6,000 questions answered by our new chatbot in the three months leading up to the start of our fall semester, the beginning of university classes.

In those three months, just for our incoming new students, we had over 200,000 questions answered. The average response time was about six seconds. And what we found in the data was revealing. First off, the use of the chatbot was and continues to be higher at 1:00 AM than it is at 9:00 AM.

[LAUGHTER]

Kind of an indictment of all our business practices because, I'll tell you, Georgia State is very happy to open most of its offices at 8:30 in the morning when the students are not there. And we're closed tight at 1:00 AM when the students are actually thinking about these questions and asking. But Pounce is there for them, right? Pounce is there 24/7 to answer questions.

The other thing we saw, which was pretty sobering, is we did focus groups with the students after that first summer. So the students who'd used the chatbot, we sat down and asked them about their experience. And we had multiple students admit to us that they asked the chatbot questions that they would have never asked a human being.

If you're a first-generation student, first in your family to go to college, you're already insecure, uncomfortable with what every-- all this system that everybody else seems to know and you don't know about. The last thing you want to do is expose your own ignorance. And you think about some of the issues these students have.

You know, if the Federal Government wants your biological father to sign the application for federal aid but you haven't seen your biological father for the last 18 months, the last thing you want to do is go into some stranger's office and spill out your personal family history to that person. And so the students told us they liked the chatbot. They knew it was a bot. They saw it as a tool put in their hands so that they could solve the problem rather than relying on somebody else to solve the problem for them.

And did it make a difference? It made a big difference. In the three years since we made these relatively modest and low-cost changes to the way we on-board students, we've been able to reduce summer melt by 37 percent. That's over 350 students every year, mostly low-income I'll tell you, mostly first-generation students who are in their seats, ready to go the first day of university classes who, just a couple of years earlier, were sitting out the entire college experience.

And I can tell you, it's not because the students got any more savvy over the last three years. It's because we began to realise our obligation to provide the kind of support and services our students need.

Second example, 2.6. 2.6 was the number of majors, academic fields, that the average Bachelor’s student was going through before they completed their degrees at Georgia State about a decade ago. So students were having trouble finding what they wanted to study, and they were bouncing around from programme to programme.

And when we took a hard look at this phenomena, which was devastating, especially for our low-income students because our low-income students are the ones you have to graduate the most quickly because they have the most complicated lives and they have the smallest amount of resources. So you have to get them through the programmes efficiently. But at most institutions like Georgia State, our low-income students are the ones that take the longest to graduate.

And whose fault is that? Again, it's our fault. It was our fault at Georgia State. You think about the confusing bureaucracy we set up for our students. I know there are differences between the New Zealand tertiary system and higher education in the States.

But I will say, at Georgia State, we have celebrated choice. We have over 100 different academic programmes and fields. Every semester, we offer 4,000 different courses. You know, and we'd bring these students in, mostly low-income, many first in their family to go to college, and we'd ask them to pick-- you know, pick from among these hundred choices. Pick a few from among the thousand courses we-- and somehow, we were naively thinking it would work out.

Well, they would pick. They were compliant enough to listen to us. But it didn't work out because they'd say, oh, I think I want to be an accountant. And they'd take a couple semesters' worth of pre-courses, and get into their first accounting course, and say, oh, that's not what I thought it'd be at all. You know, maybe I'll go into marketing. And they'd study marketing for a semester or two, and switch again. We had created the formula and the context for students to bounce between majors.

So we've changed the way we on-board all our students academically at Georgia State. We no longer force them to pick between our hundred different academic fields as they enter. We put all the students in their first semester-- and this is across our community colleges as well now-- in what we call learning communities. These are cohorts of 25 students who travel in all their first semester classes together.

All the national data in the States show-- and I bet it's true in New Zealand, as well-- that one reason that first-generation students drop out of college or university is they feel they don't belong, right? It's an alienating place, and they don't feel part of it. Well, again, many of our institutions create a recipe for students feeling like they don't belong. At Georgia State, with 50,000 students, you could easily, your first semester, take five or six classes and never see the same face twice.

So now we don't let that happen anymore. We engineer it so the students are traveling in all their classes in their first semester with a group of 24 other students-- colleagues. We can't afford to cap every class at 25 enrolment. Sometimes they're in a big lecture hall, maybe even as big as this room. But at least there are 24 other familiar faces. They can be study partners. If you missed a class, you can get the notes and sit down with somebody.

And just from that structure, which literally costs us nothing other than the time to create these block schedules and register the students a little more thematically, we saw an increase in first-year academic performance and first-year retention rates. But then, to deal with the problem of students bouncing between majors, about six, seven years ago we began organising all of these learning communities around what we call career pathways or meta-majors.

So we don't put pressure on incoming students to choose among 100 different fields. We try to find a general area of interest. Are you interested in business, in the arts, in education? If so, we find 24 other students who share that same area of interest so that the students, in addition to traveling in classes together, can also be talking about their interest in whatever that field is. And also, we can focus the courses that the students are taking to be appropriate for that particular area of study.

But the biggest difference is, because the students are organised by their area of interest, we can deliver programming to the students all through their first year with us. So every one of the learning communities has a one-hour-- a brief, but a four-credit course taught by a senior faculty member from that meta-major or that career area. So they get exposure to the field. We do programming.

So we'll do open houses in the academic departments. All the business students will be invited to meet the faculty in accounting, and marketing, and so forth, and to learn about those fields. We'll do alumni panels, bring alumni back to talk about what they're doing with their careers and so forth. The whole point is to give the students a fighting chance to make an informed decision about what they want to study.

And then to help the students further, we've worked with a tech partner to create a portal. This portal scrapes live job data from the Atlanta metro region every morning, so it's looking at all the job listings. And what it allows students to do is, for any career they're interested in in-- in this example, it's nursing-- they can see, for that morning in metro Atlanta, how many jobs are listed, what's the starting salary if you have an Associate's degree, what's the starting salary for a Bachelor's Degree, how long does it take the average student to earn the degree from Georgia State.

But like Netflix and Amazon that say, well, you liked these books or movies, you might like these others, we use algorithms-- say, well, if you like nursing, you might like these other degree programmes we have. We have degrees in health informatics, and health management, and radiologic technology. And the students can see all the job data from those careers, as well.

I didn't know till I looked at our own portal that every morning in Atlanta, there are more jobs for radiologic technicians than there are for nurses. And if I don't know that, then the average 18-year-old who's enrolling at Georgia State doesn't know it either. So it's a tool that's used in all our advising sessions. Every time we sit down with a student, we're also going to talk to them about some of this career data, as well.

And then to get the faculty more engaged in this process of helping the students make informed decisions, we created a seed grant programme. The programme gives faculty members release time to create imaginative assignments that get students within their existing courses to think about the career competencies that they're learning in the class.

So this is a real example represented on the screen. We have a large contingent of courses in US history. It's required of all our graduating students. And so we offer over 8,000 seats of US history a year. The faculty who teach US history got together for one of these grants.

And what they came up with was an assignment where, now, in every one of those sections of US history, the students are given a primary data set of historical data. And then we take them to computer labs, where they learn to use data visualisation tools like Tableau. And one of their graded assignments in these courses now is to take the historical data and find an imaginative and effective way to visually represent some important historical trend via the data visualisation tools.

The students love it because they're out of the classroom, and they actually see that history is more than memorizing dates. The history faculty love it because they always believed that history really was valuable in all kinds of ways. But now they're showing it in the structure and the assignments of the course. We have about 15 of these grants every semester. So over a five-year period, we'll literally have hundreds of courses that now have these new assignments in them.

And then we created a requirement that, for every academic field at Georgia State, there has to be what we call a Signature Experience. Signature Experience is a simple concept. It's a graded course that the students take as part of their field of study that is taken outside the classroom. It has to be something students are doing outside the traditional classroom structure.

In business, it could be an internship. We're right in the middle of Atlanta. So if you're an art student, it could working for a non-profit or for a museum. We're right near a big aquarium. We do have some of our students in the life sciences doing internships in the aquarium. But this will be a structured experience where the students are graded, but they're getting some experience outside the classroom.

One of the problems if you enrol lots of low-income students, at least in the States, when it comes to internships is, often, low-income students can't afford to do internships because the internship often means giving up their job, their work, and their income. So this is an opportunity for the students to get outside the classroom, do something in a professional context, and still get credit and support for doing so.

And then, because we have the students doing these experiences in their courses that show their career competencies and these Signature Experiences, now we've purchased, for every incoming Georgia State student, a cloud-based career e-portfolio. What is this? It's kind of LinkedIn on steroids. It's an opportunity for students to chronicle what they've done from a career preparation perspective.

But unlike LinkedIn, which largely is limited to posting text, you can post video files, audio files, graphic files. We set up the categories. And as students progress through our curriculum, they're going to find evidence of all the learning they've done in these various sorts of areas. And if you think, you know, contemporary students won't take to a platform like this, over the last 12 months, Georgia State students have posted over 700,000 artefacts to their e-portfolios.

And my goal in launching this particular initiative was not so much that they would share the e-portfolio with their employers, although they can do so. It's to get the students thinking more systematically, throughout their tertiary studies, of the kind of career learning they're doing.

So when they get to that first job interview and somebody asks, well, what have you done when it comes to digital technology, they don't stutter and stumble. They say, oh, yeah. In my US history class, I did this representation of the spread of a disease in the Southeast in the 1800s and so forth.

Do these kinds of changes make a difference? Well, they make a big difference. So three years ago at Georgia State, the average time that a student at Georgia State first visited University Career Services was in their final year with us. Once we began integrating all these experiences, hard-wiring them into the curriculum so students in their orientation classes, in learning communities, students in their introductory classes, students in their Signature Experiences are thinking about and talking about career, it changed the student mindset.

Three years later, the average time that Georgia State students first visit University Career Services is now in their first year with us. And that data point I started this section talking about, the students bouncing between majors-- well, we're not where we want to be yet. But we've reduced by over 30 percent the students who change their field of study after their first year with us because we're creating a context for students to make informed decisions.

The third example, 43 percent. 43 percent was the percent of our students who were taking introductory math and getting non-passing grades as recently as a decade ago. And that's another disaster. You can't have students required to take a certain course like introductory math, and fail it at that kind of rate, and have successful outcomes and completion rates.

And so we've totally changed the way we deliver introductory math at Georgia State. We no longer have any lecture hall sessions of math. Every section of introductory math is taught in a hybrid, flipped classroom using adaptive technology.

So we built some classrooms that look like this. Students sit at their own computer terminals, but with their classmates and their instructors in the room. They're working on adaptive learning exercises, meaning that students are learning the material at their own pace. If you're a slower student, the class does not whiz by you because the adaptive programme gives you more foundational questions till you build up some understanding.

If you're a more advanced student, you don't get bored and tuned out because the adaptive programme is giving you more challenging questions. Every hour that a student is in one of those labs, they're getting almost 100 bits of personalised feedback. And you think of the old model. If you were math phobic, and a lot of our students are, you would go to these big lecture halls, plant yourself in the last row, slouch down, and hope you never get called on all semester.

And then we expect these students to do math on the exams. Well, now the students are doing math three hours a week while they're in the class. And the results have gotten much better. With the same standards, same qualifications for passing, we've now lowered the non-pass rate by 35 percent. Again, not where we want to be yet, but incredible progress. In fact, that's about 1,300 more students every year who are passing math in their first instance rather than having to pay for it and take it a second time.

And because it's worked so well in the math, entirely on their own, we have a group of social science faculty who are converting 15,000 seats a year of social science courses in economics, political science, and psychology to hybrid, adaptive classes as well, because they think, just like it may work in pre-calculus, it may work in micro- and macroeconomics to have the students more engaged and more interactive with the material.

And for the courses that are going through a pedagogical change of this sort, we have one of the largest near-peer tutoring programmes in the United States. So what we do is we find students who have succeeded at the undergraduate level in courses that trip up lots of other students. And then we pull them out of their current work assignments, and we pay them to go through training.

We pay them to sit in on the same class that they already succeeded in for the entire semester so they get to know the new students. And we pay them to do three group tutoring sessions every week. You know, if you have a student who aces organic chemistry in their first year and then they need to work on campus, you know, don't assign them desk work answering phones. Have them help other students figure out how to do organic chemistry.

Oftentimes, the students can learn better from one of their peers. And it's a very low-cost programme. Many of these students are already supported by work programmes as part of their scholarships at Georgia State. And the students in these sections are doing over half a letter grade better in their academic performance. Because it's worked so well, we had over a thousand core sections at Georgia State this past year that had one of these near-peer mentors or tutors embedded in the entire course.

I'm going to talk about two final examples. One, a 1,000. A 1,000 is the number of students we were dropping every semester at Georgia State seven or eight years ago for non-payment of their various fees. And the State of Georgia has state-wide policies that require us, if a student is not fully paid, to basically remove them from their registration in our classes.

And these are the last students you want to lose. These are the students who have successfully gotten through all the academic hurdles. They're registered and qualified to be there. They want to be there. And yet, in effect, we're pulling the rug out from under them every semester by a thousand because they're short, unable to cover tuition and fees.

The lesson from the US data-- and it may apply in New Zealand, as well-- is, you don't want a student stopping out involuntarily from their studies, even for a single semester or a single term. In the US, if a student stops out involuntarily for even a single term, they have less than a 30 percent chance of ever coming back and completing their university degree.

So we took the strategy, starting six or seven years ago, don't let these students stop out in the first place. We began looking at the data of these students who were dropping out of Georgia State for lack of payment. And the most disturbing and surprising thing we found is the biggest group of the students we were dropping every semester were our seniors, the students who were, by definition, within two semesters of graduating.

Why? It's another source of equity gaps. These are the students who are running out of eligibility for their aid programmes. In the States, a lot of our scholarship programmes are tied to a limited time of enrolment. Our biggest state scholarship in Georgia, the Hope Scholarship, covers four years. That's great if you can complete your scholarship in four-- all your studies in four years.

But 90 percent of Georgia State students are working. And at times, it takes them an added semester or two. And what was happening is that we were having students who were making good academic progress, getting within a semester or two of graduating. The Hope Scholarship was running out, and they were dropping out right before the finish line.

We actually talked to our Governor in Georgia about what a waste this is in the investment that the state has put in these students-- in many cases, taking them to 12 years of education, and then another three years or four years of tertiary. And then they're right on the precipice of finishing their university degree, and they're walking away. What a loss.

And so we started a programme at Georgia State. The students do not have to do anything. And this is an important part of the recipe. We do not make students come in and apply for this programme. They don't have to fill out any paperwork in advance. We have all the data. We know which students haven't come up with their payment and the students who we're about to drop because they owe us money. We know which students are close to graduating.

And what we started to do in 2011 is just put the money in the student's account-- a grant, not to be paid back. It's your money. We'd call the students up, say, don't make other plans Monday morning because we just put the last 1,300, the last 800, the last $300 in your account. You're good to go for the semester.

Click. We had multiple students hanging up on us. They thought it was a scam. Didn't believe anybody from Georgia State had just put $800 in their account. But what we found, it was an incredibly impactful and efficient use of institutional resources. So many of our universities-- I know Georgia State was set up this way-- all the institutional scholarship is really dedicated to these freshmen.

I think that's great. These first-year students get these scholarship promises, often the elite and most academically qualified. That's fine. But it's a big investment in students who have no track record. And sometimes you invest in those students, and they're not serious about their studies or other things come up. And they're gone after a semester or two.

These are students who have proven that they're serious about their studies because they're three years in, right? They've done everything. They're qualified. In fact, what we found over the last seven years of running this programme, if you have a student in their final year of university studies and they're a C student, they have as good a chance of graduating as a student in their final year of study who is an A student. We often don't think that way.

But that C student has a track record of showing they can do C work for three years. And they're very likely to continue to do that C work for the last two semesters and get their university degree, if we were only to give them this little boost. And that's just what we've done at Georgia State with this programme.

For an average grant of $900 US, we have about 86 percent of these students graduating within a year. And most of these students were just walking away, never to return to complete their degree programmes in the past. And because it's worked so well, we've given out over 13,000 of these grants over the last seven years.

Now, you may ask how Georgia State can afford to give 13,000 grants even at $900 a shot, because it's still well over $10 million. And luckily, others have asked that question, too-- the Gates Foundation in particular. And they paid for Boston Consulting Group, this independent consulting firm, to come in and look at six years of our data. And there's a report. It's posted on our website. I'll share the website at the tail end of the presentation.

And they concluded, after six years, this programme has generated about 30 percent more revenue than it’s cost us. Why? Because we give the students, on average, $900, we immediately get back the $900 because that's what they owe us in order to complete their payment for that semester. But what Boston Consulting found is the average student who gets a $900 grant has a bill for that semester of closer to $2,800.

So they've already put money in out of loans or out of pocket to try to pay their balance down. And by giving them the $900, you not only recover the 900. You hold on to that additional $1,900 that otherwise might simply walk away. So here's a rare programme where doing the right thing is also doing kind of the selfish thing, the institutionally self-interested thing. And oh, there's a pilot now we're running with 10 other big universities in the US to see if this programme works in their context, as well.

Last example, but probably the biggest undertaking that we've taken at Georgia State, 5,700 and change. That was the number of students who were dropping out of Georgia State every year as recently as eight or so years ago. 5,700 students a year.

And the frustrating thing about dropouts, and I think all of you in this room know this, is there is no moment at which a student drops out of college. It's not like declaring bankruptcy, where you go into some lawyer's office and sign paperwork and say, OK, now my status has changed. What happens is students are enrolled and then they don't re-enrol, right?

And you may call them up, and ask where they are, and try to get them back. But they don't re-enrol, they don't re-enrol. And after a year or two, they just kind of morph into college dropouts. And so in 2011, we asked a really simple data question-- what we thought was a simple data question. What would a system look like that identified the students who were going to drop out of Georgia State not after the fact, not after they had already done so, but beforehand? Six months, 12 months, 24 months before they dropped out.

We ran a big data project. We used two and half million Georgia State grades, 140,000 student records. The point of the project was really simple. Could we find, in the data, recurring student behaviours that correlated in a statistically significant way to students dropping and flunking out of Georgia State. We postulated we'd find a few dozen such behaviours, and we found 800.

So what we've been doing at Georgia State for every night for the last seven years is, every night as we update all our student information systems, we're looking for any of those behaviours. And if one's identified, the very next morning, the staff person, the academic advisor assigned to that student gets an alert in their box saying, over the last 24 hours, one of your students committed an act that puts them at risk of not graduating from Georgia State. And the advisor has 48 hours for some kind of intervention.

What kind of things are we tracking among those 800 risk factors? Mostly this is just common sense advice that we're finally delivering to Georgia State students at scale. So this is our academic map for completing a Bachelor's Degree in Chemistry in four years. It requires the students to do all kinds of things in a particular order.

In the second semester, they have to take MATH 2211 and get a grade of B-minus or better. Great for the chemistry students who take MATH 2211 and get a B-minus or better. But what happens for the student who takes that math course and gets a C? We had never been recalibrating the map for the student before and saying, oh, well, this is what your plan looks like now that you didn't meet that marker in the second semester with us.

Now, with this system, we're monitoring all the registration records as they go on and making sure that the student is in the right class. And if not, they get a message immediately, before the semester begins, so we're not telling them a year later, oh, last spring, you took the wrong course and in the wrong sequence.

In fact, we brand this whole system for our students GPS Advising-- Graduation, Progression, Success. But we want to play on the same concept of the GPS in your car. We want our students to think about it the same way. You know, in the old days before GPS, you were driving and you made a wrong turn, if you didn't realise you made a wrong turn, you could go way off path. And it was really hard to find your way back to your destination.

Now with GPS, as you know, you can't even get through the intersection. It's already telling you, recalibrate. And it's much easier to find your way back onto the road to your destination. Well, this system works the same way. If we can tell students, give them information we never did before, when they're first at the crossroads of making a wrong turn and get them back on path, we can graduate them at better rates.

The predictive analytics at the basis of the platform look like this. These are actual Georgia State data. One thing we found-- I bet it's true of your students, as well-- is that there is a strong correlation between the first course-- the grade a student gets in the first course they take in their academic field and their chances of graduating on time. So as I say, these are real data.

If you look at the middle of the screen, a political science major at Georgia State who gets an A or B in the first political science course is graduating from Georgia State on time at a 75 percent clip. A student who gets a C in that first political science course is graduating on time at a 25 percent clip.

What had we done historically with that C student? No, nothing. Just pass them on to upper-level work. The rules say that you're not qualified to take the next level courses in political science. Whatever weakness is evidenced by that C grade will become exacerbated. And 75 percent of those students, according to data, will begin to collect Ds and Fs. And then we'll reach out to them a year later, when they've already dug themselves in a hole. Or if they're on a scholarship, they might have lost their scholarship, and so forth.

That's backwards. It's crazy. Why don't we help the student at the first sign of some kind of problem? So that's just what happens with that platform now. An alert will go off when that student gets the C grade. The advisor will sit with the student. They may look at the papers and exams. Maybe there are reading and writing issues. Maybe it's just the student is working 40 hours a week. But let's diagnose and try to help the student before they dig themselves deeper and deeper into a hole.

The trick with this approach, and you heard this from the Minister this morning, we have to be systemic. We have to do it for every student every time. And over the last 12 months at Georgia State, we've had over 58,000 one-on-one meetings with our students that were prompted by alerts coming out of this platform.

Now, we didn't correct all 58,000 problems. I can admit to that. But I can also admit that, just seven years ago, these were 58,000 problems that were going completely undiagnosed, right? Students are signing up for the wrong classes. They were underperforming in prerequisites. And we were expecting our students, mostly low-income, first-in-their-family students, to have diagnostic powers that we lacked, you know. We were expecting them to figure it out and come up with the resolution, the recalibration, and get back on path again.

Now, finally, we're taking some moral responsibility at Georgia State for what we should have done all along and say, we owe the students the explanation of how to navigate these incredibly complex pathways that we have created. And so is this system making a difference? It's making a big difference.

We launched in 2012. We immediately saw a significant bump in our retention rates. The biggest gain was not for our traditional, full-time, first-time students. It was for our transfer students, our part-time students, our adult learners. All of the students who, at Georgia State, tended to sail under the radar screen, now were getting tracked for 800 risk factors. And it makes a big difference when they get these kind of interventions and support.

We've also seen, since we launched in 2012, a significant drop in average time to degree. And I can't overestimate-- overemphasise how important taking care of time to degree is, especially if you want to close equity gaps. We've been able to cut over half a semester off the average time it takes a Georgia State student to complete their Bachelor's degree, not because we've eliminated any requirements, but because we have gotten the students into the right major the first time rather than two or three times later.

They get through their math course their first time rather than having to attempt it multiple times. They're registered for the right classes. And so it's taking them fewer credit hours, and, hence, less time, and less money. When you talk about how much less money, this year's graduating class of seniors with Bachelor's degrees from Georgia State saved about $18 million in tuition and fees compared to the group of students the year before we launched this analytics platform just because they're completing all the requirements more efficiently.

So if you think that doesn't matter to your families and it doesn't matter to those equity gaps, I think Georgia State will show just the opposite. Probably the data I'm happiest about with regard to our use of analytics are these.

When we launched our use of predictive analytics in advising, most faculty and staff were very supportive. But there was a minority voice in faculty meetings where I presented what we were going to do that said the following-- that what they feared we had done was create a system for moving students to easier majors. The premise being, if you begin advising students every day based on probabilities, they'll all end up taking the easiest courses and the easiest majors.

Well Georgia State is probably the best test case for this theory in the entire United States because we've been doing this for seven years. We've had over 400,000 interventions with students. Over that time period, our two fastest growing majors are computer science and biology. Nobody thinks those are among the easiest academic fields at Georgia State.

And every year since we've had this platform in effect, we've set new records for the number of students graduating with Bachelor's degrees in STEM fields. And there is just a sampling of some demographic groups in the US that particularly struggle in STEM fields. In the blue, I show you the increase in the number of STEM degrees we're awarding. And the white is the increase in enrolment for each of those groups over the same time period. I wanted to show, it's not just because we're enrolling more students.

And we're not talking about incremental. We're talking about exponential increases in STEM degrees awarded. And what's interesting as we look at the data, it's not because we've had a big increase in the number of students declaring STEM majors. What we've had is a big decline in the number of students declaring STEM majors and wiping out after one or two semesters.

We used to be perfectly happy to let a student come to Georgia State, say, oh, I'm going to be pre-med in organic chemistry. And we'd sit back passively as they struggled in calculus and struggled in orgo. And then after a year, they'd either dropped out, as many had, or we were sitting down with them and saying, oh, we've got to find another field for you because you haven't passed any of the required courses in your academic field.

Now we have alerts going off as early as three weeks into the semester. And what might have been a D in that first calculus course, maybe by the midterm, you can pull it up to a C. And by the final, you pull the grade up to a B. And you have the foundation, then, to go on and continue in the field.

So I'm going to leave some time for some conversation and questions. But let me, in conclusion, pull together and aggregate the impacts of making these at-scale changes across the whole student life cycle. And there have been some changes, some intended and some not fully expected.

One of the changes has been that it's changed the profile of Georgia State University. This is campus a little over a year ago. You may recognise the gentleman on the far right there. When Bill Gates came to visit campus, we did not invite him. He literally invited himself.

He was going to give a keynote on world health in Atlanta. And a couple of weeks before, his people call us up and say, well, Bill is going to be in town on this date. And he's read a lot about what you're doing with data and technology to help low-income students. Would you mind if he dropped by for a couple hours to learn more about what you're doing?

We said, no way-- no, of course we said, that would be great. And they were serious. It was not a ceremonial visit. He didn't visit the President or anything. He came. And he spent two and a half hours talking with me, one of my colleagues, and some of our first-generation students. We had a room where we set up all these technologies, the chatbot, and the predictive analytics. And he was fascinated by it, sitting and talking to the students, learning about their experience.

And you know, that's really important, especially for an institution like Georgia State that had the reputation of being this segregated institution, and grossly underperforming. To begin to be recognised at that national level is very important for the morale of our faculty, staff, and students.

As you heard in the introduction, I had the honour of speaking twice at the White House under President Obama. He also gave us a citation for our Panther Retention Grant programme. It's been a little quieter over the last two years. I don't know if anything's changed--

[LAUGHTER]

--in DC over that time period. But I will say this though. In all honesty, the first-- the Secretary of Education under President Trump, when she was first confirmed, her second university visit was to Georgia State, and she loved the programmes, too. I mean this in all sincerity. We live in political divisive times. But this issue we're talking about today and tomorrow is not a politically divisive issue.

Whether you care about social equity and social justice, whether you're all about the tax base and workforce, and so forth-- whatever your view is, this is a win topic because if we can help students from all backgrounds graduate at much higher rates, we are going to create much stronger communities. And that has been definitely a blessing to Georgia State with these changes.

Another change that we saw-- which wasn't our initial intent-- is these changes have basically put us on much stronger fiscal footing as an institution. So this is kind of a down and dirty calculus. You probably can do a version of this for your own institution. But every one percent we improve the retention rates at the Atlanta campus of Georgia State where we enrol over 32,000 students, that's worth about $3 million a year in additional revenues just from tuition and fees. That's a huge boost to our fiscal stability, especially at a time when the state was cutting our appropriations.

And we haven't improved our success rates or our retention rates by one point. We've improved them by 23 points over this time period. So you're talking about $60 to $70 million of additional revenue. Of course, we're not doing it primarily for the revenues. That's never been my motivation. My academic field is religious ethics. This is the reason--

[LAUGHTER]

--you know, I've been motivated to do it, because it makes a huge difference for the students. Despite all those demographic changes I started the presentation by describing-- our doubling in the number of low-income students, our doubling the number of students of colour we enrol at Georgia State-- we're graduating almost 3,000 more students every year than we were just six, seven years ago, a 67 percent increase.

But if you look even more closely at the data, where have the biggest gains come from? They've come from all the students that struggled the most under the old bureaucracy. So we're up 67 percent in degrees conferred overall, but we're up over 100 percent in degrees conferred to our African-American students, 130 percent in degrees conferred to low-income students, 180 percent in degrees conferred to Hispanic students.

But the interesting thing is, none of the programmes I've described and none of the programmes we launched are targeted by race, ethnicity, or income level. What we've done is looked for problems that we, as an institution, were creating and then solved that problem, or at least addressed that problem to some degree, for all students-- just changed the way we do things.

Every student comes in in learning communities. Every student comes in and has the e-portfolio and gets the Signature Experience. They're all doing adaptive learning math. They're all being tracked for 800 risk factors. Every student equally is treated this way.

But once we began doing that, scaling solutions that help students navigate our bureaucracy, what we found was, not surprisingly, the students who benefit the most are the students who are tripped up the most by the bureaucracy and lack that invisible support system at home-- those parents, and brothers, and sisters, and aunts, and uncles that can nudge them and give them the right advice at the right moment. Those are the students who are going to benefit the most.

And those graduation rates we started with a little while ago, those are the blue boxes, where we were in 2003, and where I started the presentation. These graduation rates have not improved incrementally. They've improved exponentially. So we're talking about more than doubling the graduation rate over the last decade for our black students, almost tripling it for Hispanic students, more than tripling it for our African-American male students.

And for each of the last four years at Georgia State, our African-American, our Hispanic, our first-in-their-family students, and our low-income students have graduated at or above the rate of the student body overall. If you track our students across multiple institutions now, almost 80 percent of our students are graduating within six years with their level seven, their Bachelor's-type degrees. That's transformative.

And this institution in the shadow of the Martin Luther King District that, as recently as the 1960s, was segregated and, as recently as 15 years ago, was grossly underperforming with regard to its students of colour now is conferring more Bachelor's Degrees to African-American students than any other college or university in the United States. And isn't that a more fitting tribute and legacy for this institution in the shadow of Martin Luther King's birthplace and gravesite?

It is doable, these things, to overcome these kind of equity gaps. My last slide, and then we will open it up to some conversation. I mentioned the fact that three years ago we took over the largest community college in the State of Georgia, this two-year institution. Open access, meaning that as long as students have a secondary credential, they're admitted. Majority a non-white institution.

And we began rolling out these programmes at Georgia Perimeter College. In less than four years, in a little over three years, we have just about tripled the graduation rate for these students. And for a special set of students, we had a gift from a foundation. State Farm Foundation, a local corporation, said, what would happen-- because it's going to take you a couple of years to roll out all these programmes at Perimeter College, what if we give you money so you can roll them out for a group of students all at once?

So two years ago, we admitted a group of students. We put them all in learning communities. They all had access to the chatbot. They all got the predictive analytics tracking, and the proactive advising, and so forth. We just hit the two-year anniversary of this group's first enrolment.

100 percent of this group, underrepresented minorities, the vast majority African American-- 100 percent of this group were low-income students. 85 percent of them completed their two-year credential in the minimum time, in a two-year period. You know, demographics are not destiny.

And you know, the example of Georgia State is important, I hope, not just in the States, but in New Zealand because it is not just a story of transformation. It's a story of what's possible. And I'll say-- I'll be the first to admit it. As we launched some of these programmes 11 years ago, I did not imagine that they would have the ability to eliminate the equity gaps.

But once that we've done that and once we've shown you can do that without a lot of resources and without any kind of magical formula-- in fact, by many ways, Georgia State was doing this at a time of restrained resources and tough demographic changes-- then there's no excuse for any of us to be complacent about the equity gaps any longer, that we have an obligation to stand up and do what all of us have dedicated our lives to doing as we commit to a tertiary education, which is, serve the students, and serve the families, and serve the communities that we are entrusted with.

So thank you so much for your attention this morning. Kia ora. And I'm happy to answer any questions. Thank you.

[APPLAUSE]

*Raise your hand. I will just quickly ask, while I'm here, about money because Tim Fowler was just saying this morning, we need VCs on board, we need CEOs. As the Senior Vice President, was that in your hands as well, so you could just put the budget in? I mean, apart from your new friend, Bill Gates, but--*

Yeah. Yeah. And actually, none of these programmes are really funded by the Gates Foundation. They've been more aggressive about funding analyses of the programmes that we established. No, in all reality not. And I think that's a lesson in and of itself, that in launching these programmes at your institutions, you have to build up alliances. You know, we did, in a number of instances, go to different offices-- like our chief financial officer-- and begin to share some of the data and get him to rethink what is a good investment.

Historically at Georgia State, if you hand a grant to students, that wasn't seen as a money-maker. That was seen as a money loss, loser. But once we began to pull in the data and show how many of these students were coming back, 85 percent of them coming back for the next semester, he could do the calculus and see that this was a winner of a programme.

So no, I do not have the ultimate budgetary power at Georgia State. That falls with our President and our Chief Financial Officer. But we have changed the culture at Georgia State to imagine what it means to create a fiscally responsible institution. And once we did it in a couple areas, now it's the norm that we're looking at the ROI of just about all these programmes that we're running.

Yeah. So if we approach it from return on investment, it's quite different. OK. Do we have some questions, I believe? Kia ora.

*Thank you, Tim, for-- thank you for your presentation. Do you have any data around graduation to employment--*

I do.

*--and what that looks like?*

I do. First, a kind of little footnote at the beginning. It's much tougher to get that data in the States than it is in New Zealand, as I understand it. We have all kinds of restrictions on the use of federal records and so forth in order to track our students. But the news is very encouraging. And I'll give you two data points.

One is that there is a Harvard economist by the name of Raj Chetty, well-known in the States, who has had access to US tax records. And what he's done is a ranking of sorts of US universities based not on their graduation or completion rates, but on the social mobility that they provide.

So his marker is, an institution is successful not just if they graduate students. Because we all know, if you admit a lot of very academically qualified students from very wealthy backgrounds, they will not only graduate at high rates. They'll probably do very well in the workforce afterwards because they have connections and they come from that background.

But Raj Chetty says, what is the difference that each institution makes from the income that the family has upon first matriculation to the income that individual has 15 years after first matriculation? And so he's done this study looking at movement of students from the bottom quintile of Americans by annual household income to the top half of Americans by annual household income.

He's looked at over 2,000 institutions. And Georgia State is number 25 in the nation for social mobility, for moving students from lower-income status to at least above the median in the US. The second thing-- and this might be something that's of interest to some of your campuses, I don't know-- we're one of the first schools in the country to use a big-data approach to trying to track our alums.

So when we do surveys of our alums about what you're doing, and what's your career, and so forth, we often get less than five percent response rate. And it's a statistically unreliable five percent because those who choose to respond are not a cross-section of your students. These are going to be, in most cases, either the most proud of what they've accomplished or the angriest about what they haven't accomplished and wanting to report back.

So what we're doing now is working with a company that is scraping the internet for records of Georgia State students. You think about it, between LinkedIn, and Facebook, and all these other-- almost every individual has some kind of presence out there. We have about 190,000 living alums of Georgia State. In the first three months, they've found about 140,000 to 150,000 of them.

And they're able to tell us very detailed information about them-- what company they're working with, because who's working for a company where there isn't some website or on LinkedIn that shows what their job is? But more than that, they can make really very good, approximate estimates of salary. Because if you know somebody is working in San Francisco as a middle Human Resources Manager and they've been doing it for seven years, you can use big national data sets to say, that salary is likely, you know, $74,000 a year, or whatever it is.

So we've been able to get a much better glimpse of what our students are doing from a year-to-year basis than we've ever had before, in part because we don't have access to federal tax rolls and so forth. And that's very encouraging, as well. The average Georgia State student coming in from an annual household income of less than $25,000 a year. The average Georgia State alum is making about $68,000 a year.

So there are other institutions in the States-- you know, the Harvards-- where that number would be much, much higher. But for the type of institution with our demographics, that's an exceptional transformation.

Kia ora. So the social mobility continues. Ara kei a koe.

*Thank you very much for that, Tim. That was great.*

Sure.

*I was really inspired by what you had to say. Great, great use on how to diagnose problems and what the issues might be. I'd like you, if you can, to just dig a little deeper into what interventions are the ones we should focus on. And I know you mentioned some. You talked about giving students more money, or reducing bureaucracy, or advising them to change majors, and so forth.*

*But I'm wondering if there are any other interventions. If you see some students who are already enrolled who are just struggling across the board, what are the interventions that work and which ones don't?*

Yeah. That's a great question. And I'll say, you know, we have gotten, over the last decade, fairly detailed and nuanced in our use of data, as you may have picked up. But a lot of the most impactful things we do are just common sense interventions that are systematically delivered. And even if you don't have a fancy analytics platform, there are some things you can look at.

You know, one of the things we found as one of the most potent indicators of a student who's struggling is a student who's dropping or withdrawing from a course in the middle of a semester. We have students by the hundreds that do that every semester at Georgia State. But historically, we had never done anything with that student.

In fact, we had sat back, and let the student drop or withdraw the course, and maybe talked to the student at the end of the semester or a couple semesters down the road, saying, well, we saw, you know, last spring, you dropped this course. Was something going on? What we found now is, intervene immediately. Find out what's going on.

In some cases, we found the student is making a rash decision. They took the first course-- you know, quiz in a course and didn't do well. And now they're bailing on it, even though you know that for the last 20 years, that organic chemistry professor scares every student for the first quiz by failing two thirds of them. And so you can talk to them and give them that context so they can make a more informed decision.

But in other instances, a student who is dropping or withdrawing from a course that they need to graduate and they've already paid for, you know, there's something going on in their life. Either they're feeling academically overwhelmed, they've just gone through a breakup, there's a death in the family. And so intervening at that moment, you know, the student is sending you a signal. And at least most campuses that I know of don't listen to that signal and have that kind of conversation.

What we've found is there's less uniformity in what kind of intervention is most appropriate. That's why we've hired more and more academic advisors, because we want them to be the ones to make a personal judgment about how to deal with this circumstance that was identified. But what we found is really potent and has been the source of some of these gains that we've had is just identifying the problem and making sure you do so early.

And that has been the commonality, is finding things like students who are struggling in the first grade or the first course they're taking in their chosen academic field, students who are dropping and withdrawing from classes, students who are changing academic field. Hit them at those pressure points and have a conversation.

It may be different advice goes to student 1 than to student 2. That's where the human and the personalised touch is important. In fact, there was a report written about Georgia State. And the title of it was "High-Tech, High-Touch." And I accept that because we are using the technology to find things and identify things we didn't have in the past.

But from a student perspective, it's much more personal experience because they're not getting all the technology delivered directly to them. In many cases, it's a human being who, rather than just reaching out and saying, well, we haven't talked to you for a year; what's going on, it's an advisor saying, oh, I see that you're an accounting major, but you're struggling in math. Let's talk about how we can build up your math skills before you begin taking upper-level accounting courses.

*Kia ora. Like you were saying, I was watching a lot of faces go, that is common sense. But it's confronting because then you go to, that means that the system is illogical, but being--*

Yeah. I completely own that. I think many, many things that Georgia State has done and continues to do are completely illogical. And I would like to be able to dismantle every one of them. But if I can't dismantle every one of them, then I think I have the obligation to explain to the students the illogic and point them in the right direction. And that, we can do.

*I think you're amongst friends with this audience. They understand, and also relate to 1:00 AM questions. I saw a lot of people relating to that. Kia ora. So I have a question right here, I believe. And then we'll come over here.*

*Yeah. I think I'm working. Thanks for the presentation. And I also wanted to congratulate you and the team on everything you've achieved because it really is quite mind-blowing. But I wanted to pick up on the scary chemistry professor. And it led me to want to ask, how have you managed, or what have been the challenges on bringing academic faculty onside and getting them to come along the way? And how have you been successful in that, if you have been?*

Yeah. Great question about the role of faculty in this kind of transformation. And I have two observations. One is, we intentionally started-- when I said, are we the problem, I meant that literally. Are we, the administration, the leadership of the university that sets up these policies and so forth, the problem?

And one of the encouraging things about what we've done at Georgia State is a lot of these gains have been made without us having to directly change the day-to-day lives of faculty, and what they're teaching, and how they're teaching it, and so forth. It says something about the bureaucratic structures that most of our institutions have that you can double and triple graduation rates by mostly dealing with how you on-board students, how you register them, how you advise and guide them, how you support them financially, and so forth.

But with that said, there clearly are instances where the faculty have been instrumental. The clearest example I gave was with the transformation of math. There, we've taken the approach that, while I can force my staff to do things in ways that they haven't in the past-- so our approach to academic advising, which, 10 years ago, seven years ago was highly personalised, but also highly unstructured and differed from one advisor to another, now is much more structured.

Every advisor will do the same kind of note-keeping about their meetings. Every advisor will respond to the alerts as they come out of the system, and so forth. I know that we can't do that with faculty. You can't just go to faculty and say, you're teaching it this way. Now teach it this other way.

So what we've tried to do is enable those faculty that want to be at the vanguard of change. And so in the case of math, we had some junior faculty members who had come out of PhD programmes where they had used these adaptive programmes. And they said, we want to try that. And I knew I couldn't convince all the senior math faculty to go along with that. But what we could do is use a little bit of institutional resources to build out a couple of those classrooms.

We actually created a random control trial, where students from the adaptive sections and the new and the old lecture sections came together and took the same midterm and final so we'd have good comparative data, and so forth. So we enabled them to be able to try this new approach. And then we shared the hell out of the data, right?

We got up there-- when we found that it worked better, we broadcast it. And it was at faculty meetings, and so forth. So that's a way to change the culture. The seed grants that I talked about, another way. You know, not all faculty buy into the idea that they should be talking at all about career competencies in their classes. But there is a group that say, yeah, that really is important. And I'm proud of my discipline, and I want to show its impact upon our students after in life.

So give those seed grants. And the faculty who want to be at the vanguard will take you up on it and lead. The most important observation I have about faculty is the following-- that I think one of the problems with higher education, certainly in the States, is that it tends to attract people who are idealistic, want to make a difference for exactly the kind of students we serve at Georgia State, and most of your institutions serve here in New Zealand.

But people become deadened after a while. And you know, you're in this big bureaucracy. You're trying to make changes. And at times, it seems all our efforts are swallowed up, and for naught because the numbers don't move.

And there are rules that say you can't do this and that. And after a while, you know, people who came in with the idealism and the hopes of making a difference begin to lose faith. And so I think the important thing about these efforts is they can change the mind-set of those faculty and staff and reawaken the original reason that they came to higher education in the first place.

Because once you begin to see those needles move, and once you say, oh, yeah, now we're graduating a hundred more, and then 800 more, and then a thousand more African-American students every year, and so forth, then people begin to say, you know, I had that idea that if we redid our micro- and macroeconomics courses and used more adapt-- and that begins to come to the surface.

And that's what you want because it's not-- as you heard from the Minister at the-- in his opening comments, this is not a task for a single individual. This is going to be a task for the entire campus. And the way to get that buy-in and get that enthusiasm is begin to get people to believe again that they can make a difference. And they can. And Georgia State shows that.

*Kia ora. So we have a question here, and then we'll come over here.*

*Just two quick--*

*Just two quick?*

*Just two quick questions.*

Sure.

*What is the percentage of female graduates? And the other one is, you ask the students about their background, like being low-income. Are you able to share what your background before you got into education?*

Sure. Happy to do so.

*Thank you.*

Yeah. We're a majority female institution. And just under 60 percent of the students who graduate from Georgia State are female. That's actually not entirely a positive because what we've seen in the States, especially for families of colour and low-income families, is a lot of the male students not being part of the process in the system. So we've been working to try to get a higher percentage of male students enrolled.

But right now, just under 60 percent of our graduates are female. And that's pretty true of just about every racial and demographic group. As far as my own background-- yeah, I think I'm brought to this because I can identify with a lot of the students. My family is career military. My father, who's deceased, was in the Navy in the Merchant Marine. I grew up in relatively modest, maybe lower-middle-class circumstances.

I ended up doing well in my secondary work and going to elite institutions. So I went to some of those Ivy League schools I was alluding to a little earlier in my presentation. But I felt incredibly out of place, and I didn't understand so much of the terminology.

I mean, I can remember those first weeks and semesters on campus not knowing what a syllabus is, and what requirements and prerequisites-- none of that terminology was even part of my world. And I didn't have parents who could help in those circumstances. So I think that that-- it does inform some of my sympathy with and empathy with the students we enrol at Georgia State.

You know, we're not doing the work for them. They still have to do every-- take every exam, every quiz, get through every bit of academic hurdle. There is absolutely no evidence that anybody has lowered academic criteria at Georgia State. But we certainly can do a better job of helping them with all those peripheries-- you know, all the bureaucratic mumbo jumbo in all-- well, [INAUDIBLE]

Here it is. [INAUDIBLE] New life.

[LAUGHTER]

The data says that your battery has run out, so here we go.

[LAUGHTER]

*And a religious-- was it Religious Ethics?*

Yeah. I'm Religious Studies, a Religious Studies faculty-- yeah, that's like one of those Agatha Christie stories, or I could-- and the answer is-- like everything goes silent. Yeah.

[LAUGHTER]

The killer is-- yeah. So I think we can do a much better job of helping students navigate. And you know, it's just amazing-- and that's been a surprise for us-- how much a difference helping students make informed decisions at junctures where, in the past, they were making blind decisions can impact the ultimate completion rates.

*Nō reira tēnei ka mihi ki a koe. We send you off and home eventually, whatever part of the time continuum, you end up at home with our thanks and with our hopes for what can be of relevance to our education and to our learners, as well.*

*You've got some great compliments. You've had phenomenal. You've had great. You've had-- people actually before you even came on said to me you're very cool, which is one of the coolest things that you can say in New Zealand. Nō reira, Professor Tim Renick tēnei te mihi ki a koe.*

Thank you. Thanks so much. Kia ora. Thank you.

[APPLAUSE]

[MUSIC PLAYING]