ASU-GSV SUMMIT
SAN DIEGO, APRIL 20, 2016

BY BILL GATES

The New Majority & The Future of Education Technology

What's Working in Education, Where EdTech Can Make an Impact

I'm excited to be here today to talk about how the technology revolution can take education to the next stage. The people in this room are the ones who are going to help make that happen. And I think this is one of the most important things we can do.

We are very much at the beginning. Although there are examples of classrooms and software packages that are doing a good job today, we really haven't changed the outcomes.

So it's over this next decade, that by moving to a new level of quality, and really understanding the needs out there, that we can surprise people by making education better—both here in the United States and around the world.

Now to do that, we have to look at the foundation we're starting with. Some things are very good and helpful.

Common standards through the Common Core that really align things across the 50 states and allow the same material to be used everywhere in the country. Standards that were designed with high expectations and a very logical sequence. Standards that take your reading and writing knowledge, and take your experience across different courses—history, English, science—and make sure that you're gaining the ability to read and write at the appropriate level.

We have a commitment to access to a higher education and we have the technical revolution. So all those things are the foundation that we start with.

But we also have to look at the changes. Who's going to school, and what is the baseline? How well are we serving these students today?

High school graduation rates have gone up somewhat. In fact, over the last decade, as that's been properly measured, people have paid more attention to it. Ten years ago, it was simply looking at the number of seniors that dropped out. The statistic that really counted—which is how many kids entered the school system, got through, and got a high school diploma—wasn't being tracked very well. That changed, and we've seen somewhat of an increase there.

But the number that is perhaps the most important, and is still stunningly low, is the percentage of those kids who are college ready. That's only 12% of African Americans, 25% of Hispanic students. And even in white students, only about half graduate from high school ready to go to college.

Now that's one of the reasons why, of all the kids who do go to get a postsecondary degree, over half don't receive a credential within 6 years.

This is a system that is not working for the students. In fact, in the United States, although we're still really high in the percentage that enter into higher education, we've fallen quite dramatically—among wealthy countries, we're below average in the percentage who complete.

As we look at these students, we have to recognize some key demographic changes.

More than half the students now qualify for free and reduced lunch. And the fastest-growing part of our student population are the students who have English as a second language.

If we look at kids going to higher ed, over 40% of those students are over the age of 25. So the typical idea of going straight from high school to college—although that applies in a lot of cases—in 40% of cases, it's somebody who has gone off, has been in the workforce, is now coming back, and has an aspiration to get a degree that will change their career.

One in three of all these college students are the first to ever go to college.

This is what many people call the "New Majority."

I'm sure all of us go out, do school visits and try to get a sense for how these kids think about their aspirations, how they're responding to school. I'll mention three that I've had a chance to meet with—all of whom are part of the new majority.

One student I met is **Lakeisha Crum**. She's a senior at Betsy Lane High School, which is in Appalachia in Eastern Kentucky. She'll be the first in her family to go to college.

Shawn Lee, another student I spent time with, is at Rio Salado College in Arizona. He returned to college after dropping out decades ago—because he was in low-paying jobs and he wanted to get additional qualifications.

The third example is **Hajira Attah**. She graduated from high school with a 1.7 GPA. She wasn't motivated. The learning style that she had wasn't connecting with any of her teachers. But Johnson C. Smith University found her, got her into a special program in North Carolina, and now she has a 3.6 GPA and is actually probably going to go to graduate school.

And so there are lots of students out there like these who expect us to improve the educational experience – make it relevant, allow them to persist, when they get confused, have access to people and materials. Help them out and it's for students like these that our foundation has made education the primary thing we focus on in the United States. We see it as the best lever for giving people everywhere a chance to make the most of their lives.

Globally we invest in health, and in the United States we invest primarily in education. We're hopeful that the work in the United States will lead to lessons that will be globally applicable, but the places we're trying out the new approaches are here in the United States.

Postsecondary degrees – more demand than supply

When we think about the job market, that's changing too and so we really need to get kids to a higher level. New technology alone doesn't solve this. It's a combination of great teachers using the technology in the right way.

Digital solutions can help educators spend their time better, get rid of some of the more drudgery type elements of the job and let them target which students they should spend time with.

A quality education is the most certain path to economic security.

And by 2025, two-thirds of the jobs will require a postsecondary credential. When I say that I mean not only a four-year degree but some of the credentials like in nursing, welding, many other areas where there's a lot of demand for the jobs. But that two-thirds number, that's far higher than what we turn out today. So unless we significantly improve college-readiness and completion, we'll have a lot of people with just a high school diploma or less who will be relegated to either not having a job or having very low wages jobs that won't allow them to support a family.

Overall if we look at the demand and supply, we see a shortfall in credential production of 11 million credentials. That's a pretty steady number. It means this system is going to have to improve very substantially. More kids going to college and higher completion rates.

And so the future we want for our children requires us to add that capacity. Of course it's not easy to do that without running up the cost. So technology as well as driving relevance and helping people learn it's also going to have to play a role in accessibility and making sure that the costs not only stop the rise that they've had but overall actually become even more affordable.

The Opportunity

Today, a lot of money and effort in EdTech is focused on education models that promote job skills and career advancement outside the traditional system.

And that's good but we also need to focus that technology within the system. An understanding why it's been hard for products to scale up, hard for people to understand which are the best products, really facilitating and growing those markets so that the innovation, we take full advantage of that. That's still a challenge in front of us – making sure that it's well understood which of these products are working and having a process of continuous improvement. Too often in education software, the innovator gets to a certain level and then it's bought, it's put into a sales-driven model and there's not the continuous improvement that would really allow us to do the best possible.

There is a growing market. According to GSV, the market for digital instructional materials in K-12 will grow by $1.1 billion over the next five years. So that's a 50% increase.

If you look at Postsecondary, we will grow even more: $1.8 billion by 2020. And so the overall demand for digital instructional materials will increase dramatically far outgrowing the print market. And the numbers I gave of course are just in the United States. And although it takes some adaptation to focus on the global market, and the sales model there requires additional investment, for the really strong products in most areas they can access an even bigger market because the emphasis – the importance of education – is very strong outside of the United States.

These are positive indicators. And the numbers I gave are just in the U.S.

Last year, funding for EdTech companies in China doubled. So a lot going on although I would say I see the most innovation in all digital areas – including in education – I see the most here in the United States. Now that's not to say there aren't things going on outside the U.S. that we should look at as well.

Many countries, the focus has been largely on tutoring and test prep, not on the courseware, not on helping teachers do their job, not on an advising model, but I do think that will shift over time.

Our foundation is going to do everything we can to help facilitate the creation of great technology to accelerate the adoption and really make sure these tools work for the students that we prioritize – the students who come from low-income households, they go to high school in the inner-city, these are the students where the completion rates are nowhere near where we expect them to be.

SO OUR GOAL IS TO:

1. Help innovators.
2. Help provide an evidence base for what works so that the scale up of good solutions is more rapid.
3. Drive institutional awareness of these digital solutions which often means changing the institution, getting the instructors to be willing to change, changing the entire advising system so that the digital tools are helping focus those resources on the students who are at risk.

Digital Solutions – K12

One courseware project we've been deeply involved in is called **The Big History Project**. It's an interactive course that kind of redefines how you engage kids in science and get them writing about the different things they learn in this area. When it says it's Big History, it really is big. It covers 13.8 billion years of history—starts when the universe starts, and takes it from there. There are a lot of great concepts in this course that should help a student have a framework for all the things they learn in history and science thereafter.

We now have over 1,200 schools who have adopted this, and it works well—even in high poverty, inner-city schools. I think it's a great example of when you design a course from the start, to use digital materials and to think about the engagement model and think about driving certain skills—particularly in reading and writing.

Another new instructional model for K-12 is the work that **New Classrooms** is doing. They're based in New York and they take middle school math and they drive a different approach. Because it's personalized, it's far more engaging than the typical textbook.

Each day, you come in, and you get assigned things that fit for you. And it's quite a variety of things. The level of energy, the level of interaction is way different than in a typical classroom. If you haven't had a chance to see one of these New Classroom schools, I encourage you to go and see that, because I think that really does represent the future—not only of math, but a lot of subjects—in how we're going to engage students in a better way.

And it's showing good results. One study showed that second-year academic gains were far greater than the regular classroom.

In literacy, a product I like is **ThinkCERCA**. It meets kids where they are again, personalized—and gets them engaged. It helps them with writing, and that's an area where we haven't had nearly enough innovation.

It challenges you with text, forces you to identify things, and then looks at your own writing in terms of presenting a claim, evidence, and good reasoning. Again, that's one that is showing good results for students.

One thing that would accelerate more of the innovation we need is deeper engagement with teachers in product design and testing. Finding the teachers who are interested, getting engaged early, and connecting them up with those entrepreneurs.

There's far too many of these digital products that aren't really getting used. Understanding what the barrier is and getting those designs to be optimized—and continually improving—that's really the path to success.

Digital Solutions – Postsecondary

In higher ed, we have even more digital courseware. One area that we focused on—because it's a real area that generates discouragement in drop-outs—is remedial courses that far too many students have to take. As they enter college, and their math score or their reading and writing score is too low, they spend a lot of time and a lot of money on courses that are just preparing them.

That's one area where again personalized learning—where you just find out what part of math they're not good at; and as quickly as possible get them through that so they can be taking the courses that they were motivated to come for in the first place.

Over the last seven years, we've invested over $50 million in helping states redesign these programs. A key part is the partnership we've had with people like EdReady, New Mathways, and Quantway and Statway, where they've got the new digital course where the students go at their own pace. We're seeing when we bring these in and we get the instructors properly engaged, completion rates actually double. And those kids go on to then graduate at a far higher percentage than ever before.

A few years ago we did one of my favorite things, which is we had a $20 million challenge asking people who are doing new courseware to show how they could make it engaging. We had a lot of great applications. Some of the winners—companies like Acrobatiq, Smart Sparrow, and Lumen Learning—are now teaming up with the "early adopter" colleges to make sure that their products really work and they drive that right level of engagement.

In fact, Arizona State University is one of the places driving these changes. We're hoping that great things come out of that.

SRI just did a two year evaluation of adaptive courseware, and it really shows that moving away from a lecture format to this blended approach has positive effects—including on students who have the toughest time graduating from college.

Another area where we think technology is very important is to take the adult resources—the advisor resources—and make sure those are applied efficiently and where that's needed. So taking student planning and advising—helping you pick the right courses, helping to see if you're not engaged, getting some advice and understanding how you can be helped to get re-engaged and make sure you don't get off track.

This is very important for low-income, first-generation students. They have fewer mentors, and so, the advising software coming in and really making sure that somebody is intervening when necessary—that has shown very good results.

That field, which is called iPASS, is really starting to have a big effect. And we'd like to see all schools move to have a very integrated advising system using digital tools.

Building An Evidence Base of What Works

Now we have so many different products and different approaches. The idea of how we really develop the evidence—the appropriate evidence—about which ones are best, and drive this idea of continuous improvement … there's still a lot to be done there.

We have online sites like **Graphite** and **EdSurge**. They introduce people and share the experience people have had. That's helping out.

Another partner we have is with **LEAP Innovations**, who is doing a great job of connecting developers with schools and teachers using well-designed trial methods to evaluate new products – and in this case mostly for personalized instruction.

I really believe that head-to-head testing needs to come at different levels. As your product passes the first few comparisons, then be willing to invest in even stronger evidence to drive adoption. This will be an important investment that EdTech companies need to make.

TO MOVE TOWARD THIS EVIDENCE-BASED APPROACH:

1. Investors are going to have to take a long-term approach and invest in this, because these studies are expensive and take time.
2. For entrepreneurs, it means deep engagement with educators and having researchers who can really drive the right type of trial.
3. For district leaders, it means being willing to be involved in these pilots—and really making sure that when the data is there, that the resources are being driven, that the best products are getting rapid and high-volume adoption.

Increasing Institutional Awareness, Adoption, and Implementation of Proven Solutions

We need to invest very heavily—the schools and colleges also need help upgrading their infrastructure. The classrooms will look a little different. It's not just the digital tools, but the whole layout of a personalized classroom will be different.

In higher ed, as we less and less rely on that big lecture hall, the various roles of people in the college will be changed by that.

It's a big challenge. It's great that we've got early adopters who are showing the way.

Summit Public Schools is a great example. They have an initiative called Basecamp that cultivates teams of teachers and principals from a variety of schools over the summer. They come in and see what's going on at Summit and sit and talk about how that could work inside their school.

Organizations like the **Next Generation Learning Challenges** are building a spirit of collaboration between the various innovators.

And a growing number of schools really are diving into this personalized learning area. I believe that over the next five years, the majority of schools should have at least one aspect of their program where they are using personalized learning. We already have the innovators, like Summit, using across all of their courses.

Close

I'm a big believer in the potential of technology. The work you're doing is critical. It's a tough market. It may not be, from a pure profit potential, the mark that immediately comes to mind.

But in terms of impact, and we hope in terms of good success stories, I put it at the top of the list of things that technology can and will surprise people with over the next 10 years.

Many ambitious dreams have been achieved. President Kennedy said we could go to the moon in 1961—within a decade. Amazingly, we beat the deadline by six months.

In global health, the people who believe we could eradicate smallpox were a small minority, but they built a team and they did that. And that success has now lead to the effort our foundation is involved in where we are very close to making polio the second disease to ever be eradicated.

In education, the GI Bill is something many people thought would be a step backwards. That we'd overrun the capacity and reduce quality. In fact, that became a stepping stone that really built on decades of great growth in middle-class jobs.

Right now, our opportunity is to think about the classroom and how we all get engaged in making it better for the students, making it a place they want to be. Make their learning experience every bit as engaging as all the other digital experiences they have.

At the end of the day, I believe success will come to the innovators who focus on these new needs, who look at this New Majority, who look at why kids are dropping out now, why costs are going up. Innovators who really engage the educators and students in their product design, and who invest in real comparisons—almost like in the field of medicine—to make sure that we know what works.

Our foundation is here to support you because we believe in what you're doing. And we want to work with you to close the equity gap in American education. Thank you.