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Group

INTERVIEW

Fostering an Ecosystem for Innovation in Education

An Interview with Chris Rush

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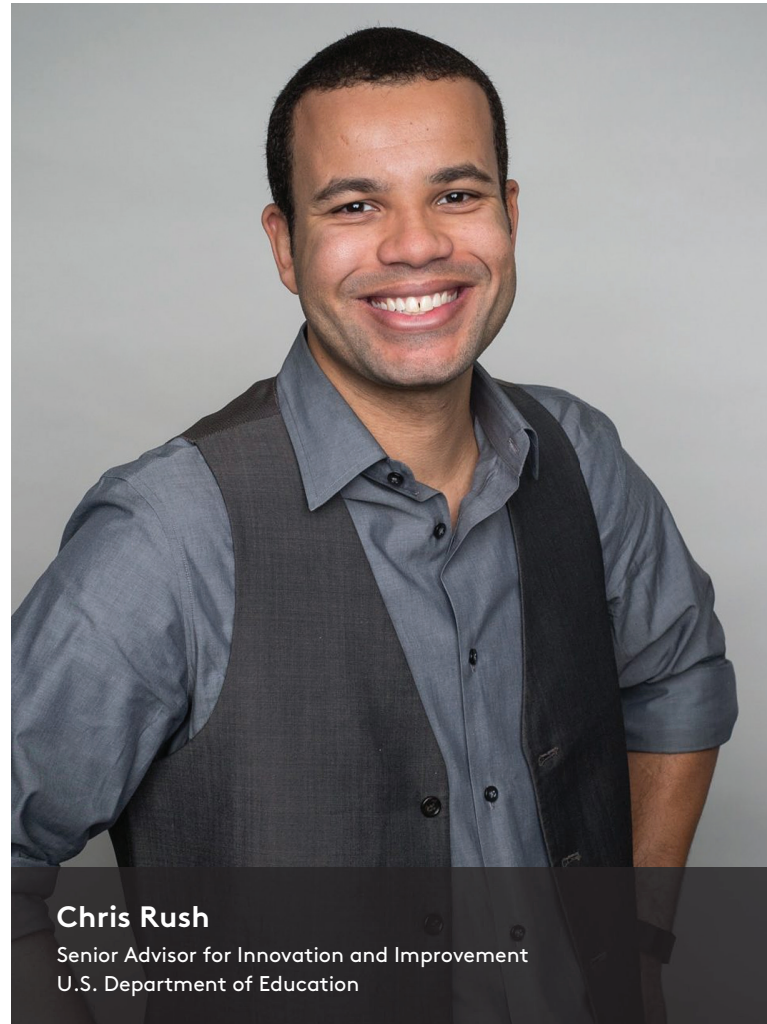
Fostering an Ecosystem for Innovation in Education

An Interview with Chris Rush

As the nation's schools were grappling with the challenges of remote learning during the pandemic, Chris Rush was appointed by President Joe Biden in early 2021 to be the Director of Educational Technology at the U.S. Department of Education. Now that essentially all public schools are reopened and back to in-person learning, Chris has transitioned to the position of Senior Advisor for Innovation and Improvement. In this role, he is reimagining the role of technology and innovation to dramatically accelerate the pace at which the United States invents, identifies, develops, and scales solutions to education's most important and persistent challenges.

Chris brings to the U.S. Department of Education (DOE) a wealth of experience in education technology and education innovation. While serving at the DOE, Chris is on leave from New Classrooms Innovation Partners, a nonprofit he co-founded that focuses on new instructional models, including the Teach to One personalized learning program. He previously designed the prototype for Teach to One called School of One, named one of *Time* magazine's Top 50 Inventions of the Year in 2009.¹

Chris's earlier work included serving in the Office of Accountability at the New York City Department of Education; launching an education-technology consulting services practice at Amplify Education; specializing in financial management and IT development at IBM; and founding a pair of technology startups. At the beginning of his career, Chris taught earth sciences for the Upper Dublin (PA) School District at Robbins Park Environmental Center. He is a Pahara Fellow alumnus of the Aspen Institute and a recurring guest lecturer at Stanford and Harvard Business Schools. Chris currently splits his time between New York City and Washington, DC, with his wife and two children.



Chris Rush

Senior Advisor for Innovation and Improvement
U.S. Department of Education

Here we share an edited excerpt from a discussion with Chris during a recent District Management Council Virtual Roundtable moderated by CEO John Kim, when we had the opportunity to learn more about Chris's work at the Department of Education and explore his thoughts on the role of innovation and technology in teaching and learning.²

¹ "U.S. Department of Education Announces More Biden-Harris Appointees," press release, U.S. Department of Education, February 25, 2021, <https://www.ed.gov/news/press-releases/us-department-education-announces-more-biden-harris-appointees> (accessed April 4, 2022).

² District Management Group Virtual Roundtable, March 17, 2022.

Chris, welcome, and thank you for joining us today. You've been thinking about and working on innovation and educational technology for a long time and from many different vantage points, and now you are tackling this at the federal level. I want to dive right in and have you tell us about your work at the DOE and what you're trying to accomplish.

I agreed to take this leave of absence and come to the DOE during this crazy time in the pandemic because I knew so many were grappling with what to do from a technological standpoint. People figured out they should get on Zoom, but virtual learning looked so different in so many places. The challenge is figuring out how to encourage innovation, how to help drive dollars to support it, how to set up some policies and relax other policies to give people a better chance for success. But



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the office of ed tech had been minimized under the prior administration. So, one of my first jobs was to come in and restore the office a bit—staff it up and hire a great team. I've largely handed that off to a very strong deputy director so that I can now shift my focus to my role as a senior advisor for innovation and improvement.

For me, the question is, how do we create a broader ecosystem that actually supports and tries to drive innovation? Technology is a tool to try to make things better; it isn't an end in itself. When we try to tackle problems, they should have a technological component when necessary, but there is also a people component, a policy component, and a community component. How do we pull all that together to create an ecosystem that supports innovation and drives improvement? Things have been fairly stagnant, as far as results, for the last 50 years, 100 years, depending how far back you want to go. If you walk into a classroom now, it looks very much like it did 30 years ago except there are smartboards instead of

chalkboards or whiteboards; students take notes on their devices; and sometimes they engage in some independent learning. But otherwise, the model for what's happening in school, the structural model—the idea that it's one teacher and 28 kids in a room all marching to a curriculum—has largely remained the same. So, I have the exciting challenge of trying to rethink that.

I want to grab hold of one of the words you used—the ecosystem. What does it mean to have an ecosystem that promotes and sustains innovation?

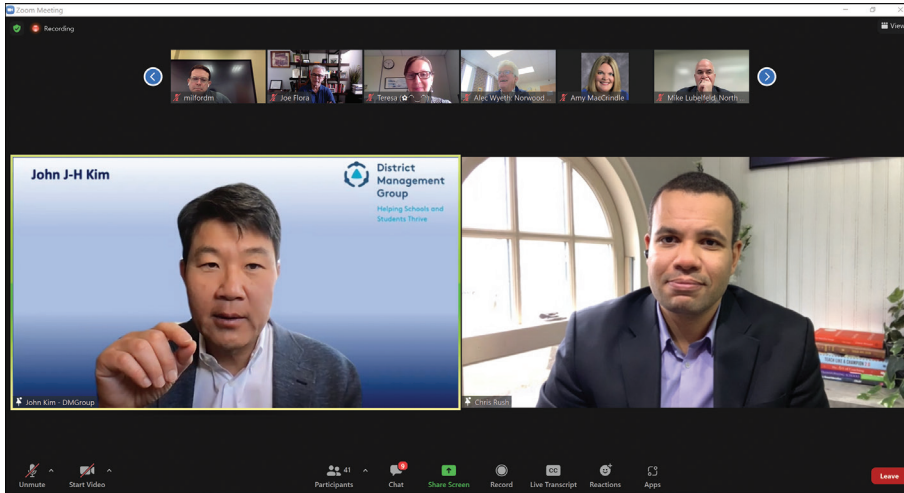
I think lots of folks, especially in education, look for silver bullets ... the single ed-tech program that's going to solve it all and cut through union rules, compensation challenges, mental health issues, conditions like poverty and equity. The reality is that it's more complicated than

that. You need to pull multiple levers, and there are a bunch of reasons why there are good solutions out there that might not succeed. I think a lot of times we try to skip steps in getting to those silver bullets.

For example, many grant makers out there try to skip to what I would call Stage Two of innovation. They say, "We have identified some problem we want somebody to tackle—assessment or social-emotional learning,

whatever it may be; please write back with your solution, where you're going to run it, how you're going to study it, and what results equal success." That approach assumes that there's a solution that someone already has that is ready to scale. As a result, what happens is that most people take things they already have, dress it up in wrapping paper to try to apply it to whatever the grant maker—whether it's the federal government, a district, or a philanthropy—was hoping it would fix.

In reality, there's an earlier stage where you actually really work a problem and try to come up with solutions where there are no solutions. We all lived a flavor of this with the pandemic. We all remember Moderna was the first one with the vaccine, and they came out with it so quickly. But what everyone doesn't realize is that there was a project by DARPA (Defense Advanced Research Projects Agency)—the folks who made the internet and GPS and things like that. They started with a problem: what if we need to create a vaccine in short order due to



actually do some of that Stage One work. I have been working to include language in current and forthcoming bills to allocate funding for more innovation including ARPA-like projects, an advanced research project space for Stage One innovation in education. And we also need a Stage Three, to invest in incubators, accelerators, so that when you do actually have something that works, you can try to get it out to market and drive adoption and scale.

a biological attack? That project ran from 2013 to 2019. So, when Covid appeared and people asked what are we going to do, there was a solution in hand that they thought would work. We had all missed seeing Stage One of innovation, but we all watched Stage Two—where it goes into controlled trial studies and is tested to see if it performs and if the results are good enough to be released to everyone. Then there's Stage Three, which is once you have something and it works, how do you get it out there? How do you distribute the vaccine? How do you get people to adopt it? In education, we often skip Stage One, go right to Stage Two, and when we occasionally have something that works in Stage Two, we have a really hard time getting schools, communities, teachers, students to adopt it. So, first off is creating that ecosystem—the space, resources, and expertise to examine problems and generate innovative solutions.

And there are some other things—we currently have some policies that inhibit innovation: for example, you have to adhere to a strict scope and sequence of grade-level-only material even when the student is missing key prerequisite knowledge or skills—that can be a limiting factor. And there aren't a lot of incentives to innovate, so a lot of the innovation happens in secret, and there often aren't ways for people to share what they're learning. Ideally, that information, those learnings, go into a robust shared knowledge base as part of a healthy, supportive ecosystem that would really drive a world of improvement and innovation in education—all that is absent right now. So as much as my roots are in some of the ed-tech parts of this, once we got a strong team stood up, we realized that there's not really anyone whose job it is to champion that need for a broader innovation ecosystem. And that's what I've started to shift to.

How do we create that ecosystem for the education sector?

I really like this idea of the ecosystem having three stages. The first stage is where you can experiment. Inherent in experimenting is the fact that there's going to be a bunch of failures; otherwise, you're not really trying different things. In the second stage, you're applying the learning from Stage One

Private industry and other industries like a Google, a Microsoft, an IBM, etc., they put a group to the side—Google X, Bell Labs, IBM's Watson Lab—where they

Chris Rush



1998–2002
Penn State University
B.S. in management science and information systems



1998–2000
Upper Dublin School District (PA)
Earth Science teacher



2003–2004
American InterContinental University
M.S. in information technology



2002–2005
IBM
IT Analyst & Development Team Lead



2007–2008
NYC Department of Education
Product Executive
Office of Performance and Accountability

and testing to make sure that it's effective. The third stage is scaling it up. For district leaders and people who are on the ground, day in and day out, who have to answer to their stakeholders, what's your advice to them as to how to innovate, to try different things, to get to Stage Two? "Experimenting" is kind of taboo in our sector.

A lot of the innovation or experimentation activities have happened to communities, to students, to families, to educators, instead of happening *with* them and happening *for* them. It's a very different conversation if I'm a district leader, a teacher, a parent, and I say, "I have a problem." And someone responds that there's not a lot of great stuff out there to address that problem, but there are some new innovations, some new early-stage programs that might help; would you be interested in trying that out? It's a very different conversation when you anchor it in a specific problem or need that a group of people wants to solve. And the ability to opt in makes a whole world of difference. So that would be my first bit of advice to a district leader. Second, don't pretend Stage One stuff is Stage Three stuff. A lot of times, those who want to try something innovative are told by those in charge, "Yeah, I want to give you room to do that." But at the end of the day, they need you to pass that state test, to do this, to do that; they say, "I need to see this," or "I need a RCCT [randomized concentration-controlled trial] study on it." When you acknowledge Stage One but still hold it to the standards of Stage Three, that's a challenge.

Some districts have been starting to create what's been called an "innovation zone" where new innovation happens.



But, a lot of times, they give you a little bit of room to do that earlier-stage stuff, but they're really focusing more on trying to scale something that exists. I'm exploring the idea that we create zones that understand that they're at earlier stages. Maybe these are more like R&D zones that focus on Stage One and Stage Two, and there are innovation zones that get to Stage Three.

I'm currently exploring options for district leaders to raise their hands to possibly leverage relief dollars and create R&D or innovation co-ops where there are four districts that have a similar problem and a similar desire. And what if there is a third party—whether that's the federal government or not—that can facilitate this work? What if we pool your dollars together and we match you up with a set of providers who want to tackle this problem? And they are going to take you from Stage One to Two and Three, and you're going to agree to be the initial buyers for this. You can do it at 25% of the cost if there are four of you, plus maybe even less if there's match funding. This way you can be in it together with some backing, with some understanding and some standards.



2005–2011

Amplify Education
Executive Director of
Consulting Services



Innovation Partners for Learning

2011–present

New Classrooms
Co-founder and Director of
Educational Technology



2014–2015

Aspen Institute
Pahara-Aspen Education Fellow



2021–present

U.S. Department of Education
Senior Advisor for Innovation
and Improvement

And how do you address “experimentation”?

When doing earlier-stage innovation that borders on true experimentation, you have to consider what happens if it doesn't work. I have more years than I like to admit at this point in doing innovative activities with schools. One of the things that made people trust me to do that work was because part of our conversation was, “we're going to try this; we hope it works, and here's the contingency plan if it does not.” One of the standards I'd love to establish is that if we're doing earlier-stage R&D, we are committing to your students, schools, and educators to come up with a solution, to figure out something that works. We're not just going to leave you high and dry.

I want to build on that. At District Management Group, we believe if you're going to innovate, you need to have short-cycle rapid learning. What are your thoughts on short-cycle learning, capacity building, and focusing on results?

The shorter the cycle, the better. If you try a program and you have to run it for a year even though you see it's not working after three weeks, you're sort of stuck. I think lots of procurement mechanisms—and other high-stakes structures—try to set us up in these longer-term cycle waves. But it depends on what problem you're trying to solve. If I take it back to the stages: there are some problems that are very apparent for short-cycle iteration, where you can be looking every week or two at whether or not it's doing what you need it to do. But if the problem you're trying to solve is how to catch kids up as fast as possible to get them to proficiency, you're going to inherently end up on some longer cycles. Then there need to be some milestones along the way. Try to shorten the cycle as best you can, but also recognize that you need to calibrate it to whatever the problem is that you're trying to tackle. You have to give things enough time to actually work.

I want to touch on assessment because you've done a tremendous amount of work in that area. Given that the instructional core and academic achievement

are at the heart of what we care about, how can formative assessment, interim assessments, and progress monitoring play a role in innovation cycles?

For learning to happen, there are a few different aspects to consider. First, you need to be able to absorb the material and understand it. Here, I think formative assessment is critical. But, just because you actually achieved understanding of the material doesn't mean that you will be able to retain it, which I think high-stakes tests start to go to. And different learning programs really perform differently—I'll call it learning acquisition and retention. I would encourage people to measure things on both fronts, but you have to pay attention to both. One of the fallacies—one of the things that trips up formative assessment—is trying to pretend that because you had initial understanding, you did acquire that knowledge and it actually is retained. But there are a few different layers to that acquisition. There's: can I do the basic procedural skills? Then there's: do I understand it conceptually, can I apply it, and can I distinguish it? There's a difference between “I just worked on this chapter; I know that the questions are trying to ask me to do X, Y, and Z, and I can perform it,” versus being able to recognize the need to use that skill and pull it out at a given time. There's a number of models out there that try to articulate these different levels of learning. To summarize, I think procedural understanding is an important part of it, but you can't ignore the other aspects of conceptual, application, and retention.

To have real innovation, do we have to relax or even eliminate rules around state tests and accountability systems?

When it comes to innovation or improvement, relaxing accountability comes up. I'd like to distinguish between relaxing specific accountability rules and substituting them with alternative accountability rules that are more applicable to what you're doing; from it being a binary—accountability or no accountability.



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Instead of saying there should be no accountability because I'm innovating right now, we should consider proposing temporary modifications to the accountability—how would you alternatively like to be held accountable?

Let me give you an example from the music industry. You go back to the 1990s, and a successful artist was measured on CD or album sales. That's not how it works now; the industry needed to shift the metrics to something like number of streams. If we hold the metrics of success constant, we can't actually adopt and embrace some of the other advancements that are happening. Instead of saying there should be no accountability because I'm innovating right now, we should consider proposing temporary modifications to the accountability—how would you alternatively like to be held accountable? Even if the innovation is successful, we need to be held accountable because otherwise you get higher highs and lower lows, because some people might do it well and some people might do it horribly. How do we protect against the lower lows, while incentivizing the higher highs?

How do we set up healthier space for innovation? We don't leave room for failing fast and learning from it. We only deem it to be successful when it is successful right away. This means most things get one try, and so it's highly risky to try something, because you don't know if you're going to get it right on the first try. In fact, I don't know many things that get it right on the first try. We have to create a culture, an environment, and an understanding that you are trying to evolve something, and the third or the sixth time might be the charm.

One of the challenges is that we don't admit when we're innovating. People often don't even know that they're innovating or that their sons or daughters or teachers are involved in it. Most schools won't even admit they

have a problem because they get attacked—they must have done something wrong. That's where the pandemic has changed things. It has created this window of opportunity where schools and districts and states, et cetera, can all acknowledge that kids are behind without it being their fault. It has become more acceptable to acknowledge a problem, recognize that you're bringing in a solution, and create policies and communication that can help support that.

Let me shift gears because I want you to talk more about what you are bringing to the federal government from your experience running the innovative teaching and learning nonprofit New Classrooms. Maybe you can share with us what New Classrooms is working to achieve, and how that work might relate to district leaders?

At New Classrooms there was a recognition that what was happening in the traditional classroom wasn't setting every student up for success. The theory of action when I was there was that if you can meet a student where they are and can teach them in ways that better connect to them, you can build a ladder from where they are to where they need to be. The traditional school model is more of the factory model: in seventh grade, you teach seventh-grade material. If there's material you don't know from sixth grade or fifth grade or fourth grade, maybe a teacher every so often, if the whole class is missing something, will spend a quick lesson period on it, maybe they'll give the students some homework on it, maybe they'll do some tutoring after



school or during lunch. But the reality is that once a student falls behind, the chances that they will actually catch up gets worse and worse. This is why prison system capacity in this country is often planned off of third-grade test scores: because you don't tend to change your trajectory. The idea at New Classrooms was, how do we change a student's trajectory? Let's reimagine what teachers and students are assigned to do every day.

At New Classrooms, we created this cycle that was both an R&D engine and a model that would assess students, understand where they are and identify their learning gaps, build a roadmap or plan for them to be successful, personalize a sort of library, and create a playlist that would take them through those activities. Unlike other tools that have emerged since then that are all virtual tools, New Classrooms is about rescheduling the classroom and mixing live instruction, group instruction,

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collaborative instruction, and group projects. Students walk into a room, see a big-screen television like when you go to the airport that has all the gates, and this screen tells every student where to go. They would be assigned to a 35-minute lesson period, and then go to another 35-minute lesson period in a different modality of learning, etc. And at the end of the day, they would be assessed to see whether or not they were successful. If they were successful, they would move on to something new with a new set of students, with new lessons, and additional modalities. If they weren't, they would get another lesson on what they were working on, but presented in another way. There were a set of algorithms that would coordinate all of this—before algorithms were all the rage—and that would help figure out how do you learn best. So it was the Pandora or Spotify of your learning practices to try to speed you up more and more.

For anyone who ever saw the movie *Finding Nemo* (I have small children), the movie is this epic journey. Toward the

end, Nemo gets swept up in something called the East Australian Current, which zips him along. Our idea is about learning how you learn, and learning what you know and what you don't know. How do we essentially get the student into the East Australian Current so that they can zip along and go at two times, three times, four times the speed that they normally would and actually catch back up?

Coming to the federal government, one of the things that I bring is an awareness of the policies that incentivize or encourage versus discourage or block innovation. I go in with my former hats, and say I would have loved this, and I would have hated that. Use me as a test case for whether or not your proposed policy is something that I could agree with. Or include me to help generate other alternative ideas that would accomplish your objectives on the federal level, on the policy-making level, to create a win-win out there.

We all yearn for a greater level of innovation to serve students and communities in a stronger way. But we have built this very large infrastructure around accountability and support. Figuring out the roles that the federal government, the state departments of education, and the local districts can play in the ecosystem to innovate seems to be a key step forward.

The reality is innovation, in every sector or space, is hard and messy, and it's not going to just happen because some policy gets waived or created at the federal level or state level. It's going to take all of us to move this, and the more people I see engaged and passionate in this, the more people trying to find a way through, the more hope I have that one day we're going to get there.

Change will happen in steps and increments and not fast enough for me. But it does happen fast enough to make a difference. So whatever innovation you're doing out there, please keep doing it, please keep advocating for it, please keep trying. And we are going to move this needle together.

Chris, you're truly an innovator and entrepreneur. It's terrific that you're bringing your experience, insights, and ideas to the federal level. We're thrilled that you were able to spend time with us. Thank you very much. ♦