Global learning metrics

Debate

Cross-national studies

Testing

Is it possible, and is it desirable, to measure students around the world by the same learning outcomes and metrics? Here we feature interviews with two leading thinkers on opposing sides of this issue, courtesy of the FreshEd podcast.

The Sustainable Development Goals for education call on governments around the world to achieve a certain set of learning outcomes for their students, and to measure those learning outcomes in ways that can be quantified and compared internationally. This raises the prospect of global learning metrics—standardized indicators of learning on a global scale. But is such an endeavour possible, or even desirable?

A great deal of controversy has already been generated around this issue. In addition to the IIEP Learning Portal’s own 2016 international e-forum on a global framework for measuring learning, the Comparative and International Education Society also hosted a 2016 symposium on the desirability of global learning metrics. Videos of the plenary sessions can be found at this link, and the podcast FreshEd also features individual interviews with the symposium’s key invited speakers.

Here, the IIEP Learning Portal offers access to the contrasting interviews with Eric Hanushek, educational economist and Paul and Jean Hanna Senior Fellow at the Hoover Institution of Stanford University, and with David Edwards, of the global federation of teacher unions Education International. Listen to their interviews on FreshEd, or take a look below at the excerpted transcriptions of their remarks. For more on the views of each speaker at the CIES symposium, you can see their position statements here.

“*You can’t improve a system if you don’t know where you’re at.***”

Eric Hanushek, educational economist and Paul and Jean Hanna Senior Fellow at the Hoover Institution of Stanford University, has long been a supporter of international learning assessments.
Will Brehm: Eric Hanushek welcome to FreshEd.
Eric Hanushek: Will, thanks so much for having me.

WB: What are global learning metrics?
EH: Well, I don't know if there's any standard definition of global learning metrics, but I think what people use it to imply is: how do we compare the education that we see around the world? And for my own work, I'm interested in ways to compare one country to another.

WB: What sort of metrics exist currently, that researchers like yourself use to compare systems of education across the world?
EH: Perhaps the most common is just how many years of schooling does somebody complete in different countries. That turns out not to be a very good metric, because a year of schooling in Peru is not the same as a year of schooling in Japan. So in my opinion, better metrics involve what people actually learn when they're in school, and what they learn when they're out of school.

WB: What metric would be used to measure what students learn in school?
The most straightforward is a series of tests that we now have to compare countries. Most people today know the PISA test, the Program for International Student Assessment, but there's historically been what is now the TIMSS test, the Trends in International Math and Science Study, which actually started out with a prior version in the mid-1960s.

And it was really rather experimental, but they gave math and reading tests and science tests to people in different countries. At various times, they have been applied to different ages and different subject matters. But it's basically taking a set of questions of knowledge and learning, or analytical abilities, translating them into languages of the home country, and marching them around the world to see how kids do of the same age and schooling levels in different countries.

WB: Can you give us a few examples of your research and what you have found using these metrics cross-nationally?
EH: I think the most important part of my research has been to look at differences in economic growth of countries. If we look around the world we see some countries are a lot richer than other countries. What this richness largely is related to is the economic growth rates of these countries over time. You know at some pre-historic time everybody had about the same wealth but as time has gone on, and in particular over the last few centuries, differences in economic growth rates dictate income levels and economic well-being of people in different countries. So my interest has been: Can we explain those differences?

Economic growth is essentially doing more with the same amount of time and resources. It's productivity, and it's the growth in productivity over time that determines economic growth. It turns out that countries with both more skilled scientists and engineers, and more skilled labor forces, those countries grow faster. What I'm saying is that when we measure skills of say 15-year-olds in the PISA test, or eighth graders in the TIMSS test, they give us an index of the basic fundamental background that schools can build upon. And the simple answer is that colleges and universities develop more skillful people when they have people coming in knowing more.
It turns out that, in measuring the learning that's important for economic growth, these tests are extraordinarily good. If we measure human capital by just years of schooling and call that the difference in human capital, that—and almost anything else we want to include—can explain about a quarter of the variation in growth rates across countries. If, alternatively, I just take an index of their test scores in math and science which are readily comparable across countries, I can explain over three quarters of the differences in growth rates across countries. Now, there's still some that's not explained and we see a lot of that in terms of questions about regulations of economies the economic institutions and other things. But in simplest terms, the majority of differences in growth rates across country can be explained by these indexes of what we call knowledge capital.

WB: Now why is it that math and science are the subjects that are commonly used for these tests?
Because we can develop questions that are pretty straightforward, that are directly comparable. Basic skills can be easily explained by a simple math problem. If I fly to Tokyo to be with you, I would pay $3,200 for my ticket from California to Tokyo. The exchange rate between the dollar and the Euro is 1 to 1.1 Euros. How much did my ticket or would my ticket cost in Euros? So it's a very simple math problem. It turns out that among the developed countries of the world, 20% of the 15-year-olds cannot answer that kind of question reliably. In the U.S. it's 23%. In some countries, it's much less; and in developing countries, it's much more. I was recently in Honduras, and in Honduras 84% of 15-year-olds who are in school cannot reliably answer that question.

Well it turns out that if we had some [measure] like that, it would provide a simple goal that could be applied internationally to say: How are we doing? The Honduran government could apply that, the U.S. government could apply that, the Japanese government could apply that—if we wanted to say: How are we doing toward meeting an education goal? Now that's not all we want to do of course. We want to eventually have people learn a variety of other specific things and we don't want to drill them relentlessly on exchange rate problems in order to get them prepared. But we do want to prepare them to answer simple mathematics problems along with being in school.

WB: So it would be harder, I would imagine, to have a metric to measure something in the subject of history or social sciences that can be used cross nationally. Is that right?
EH: Well I think it's almost impossible to do something like that. And in fact, I have my own questions about whether we can test reading capacity across countries. The international tests, the PISA or a relative of the TIMSS called PIRLS, include tests of reading ability. But I myself can't see how you can reliably compare people's reading ability when they're being tested in different languages with different language structure and different difficulty. And so, I generally think more about science and math. Now it turns out, though, that it probably doesn't matter all that much because people do reading, history, geography, and math pretty consistently across the board. The curriculum of a country will affect that a little bit, but in general if we talk about skills across math, science, and reading as tested, they're all quite highly correlated.

WB: It occurs to me that issues of inequality need to be addressed at the policy level of particular nation states. And the subjects that should be pushed inside education systems should be done through government strategies—also at the nation-state level. So the question I have is: Why do we need to do tests like PISA on the global scale? Could this not just be done at the national level?
EH: Many countries have national tests and more should have national tests. In the simplest terms, you can't improve a system if you don't know where you're at. And so having within-country metrics are often crucial to making good policy decisions to improve outcomes. On the other hand, if I'm sitting here in Stanford and my kids are going to the Palo Alto schools, I have no way to know how
they compare to my co-authors’ children who are going to school in Munich. I have no way to know what is possible. I view the international test first and foremost as telling everybody what is possible. How much skill can a 15-year-old have in terms of math problems? And secondly, providing some clear goals and things to aim for in local and national school systems.

**WB:** Eric Hanushek thank you so much for joining FreshEd.

**EH:** Thanks so much for having me. I hope this has been an interesting discussion for our audience.

“That’s like saying: ‘We have a sick patient—we need more thermometers!’”.

David Edwards, of the global federation of teacher unions Education International, argues that the international discourse on learning outcomes and assessments has not been effective in actually helping schools improve.

The following is an edited transcript of excerpts from the full interview with David Edwards, posted on the FreshEd podcast series, hosted by Will Brehm.

**Will Brehm:** David Edwards. Welcome to FreshEd.

**David Edwards:** Thanks for having me.

**WB:** What is an outcomes-based approach to education?

**DE:** The outcomes-based approach is one of those newfangled policy terms that’s emerged in recent decades. Really, it’s not very much different than the idea that we had an outcome we’re going for, there’s an objective in our mind, and we’re trying to achieve that with our students. But when you apply the economic principle of outcomes to education policy, and you bring educational investors into it, then it basically is an approach that says: if we put money in the front into education, we want to see outcomes. We want to see test scores hit certain [minimum] scores. So it's an approach to education where the value of education is quantified through an outcome measure.

Outcomes have to be measurable. Outcomes tend to have to be simple, and in the global parlance they have to be easily communicated. They have to be things that you can control for. A lot of those who are in favor of them say that you can control for a lot of intervening variables and things like that. But the outcomes based approach is basically saying: We’re no longer interested in how you make the cake. We’re no longer interested in the ingredients. We’re not interested in the process by which you do it. We’re only interested in one of a series of measures on the other end, of whether or not your cake tastes good.

**WB:** What do they miss, by focusing only on outcomes?

**DE:** They miss huge issues around equity. They miss huge issues around opportunity. They miss huge issues around the different kinds of processes that, to them, are inside the black box and, because of the assumptions that are built into their modeling—that is an economic and econometrics approach, so they make certain assumptions about human behavior, human motivation, what the purpose of education is, who the benefit beneficiaries are, they tend to see it primarily as the individual beneficiaries—they miss those wider social benefits that accrue to the society around having
an educated population. They miss the different types of ways that teachers actually teach, how they instruct, how they tailor instruction, how they make real time decisions with students based on their needs, their styles, information that they have from them. A whole variety of things that they [economists] don't know. And basically, what they do is they want to connect a dollar of investment with a number on the other end. And generally, that tends to be a test score.

And for those of us who work in education it becomes very frustrating because those test scores are just a snapshot of one thing. Many times, there's cultural bias built into those. Many times, the child maybe didn't eat. Maybe you're doing it at an age where most kids were pushed out of school or where there wasn't a secondary education available to them. So, behind the whole thing there's a premise that access is more or less been dealt with. Everyone's in school or everyone has the opportunity to go to school. And that's just not true. It's completely false.

Education has a sister sector, which is health. And in the global development education policy world that some of us live in and work in, many times we hear donor agencies saying that: “We need to be able to say, just like how many kids were vaccinated, how many kids are now literate.” Full stop. Whatever “literate” means.

WB: So is the focus on the delivery side, to produce a particular outcome that would justify this investment. Is this why this approach is partly culturally unaware? Because it assumes that if you perfect delivery, it can be done anywhere—regardless of context or culture or background?

DE: That’s the assumption. That’s the fundamental assumption that’s built into the model, and that’s the one that we contest—those of us that actually work in schools at the grassroots level. That there is some sort of global approach that brain science has given us to decoding and teaching literacy.

It's easier to measure how many words a student can read over a given period of time, than did they really get the point of what they were reading, and were they able to extrapolate from that, synthesize that? Were they able to use higher-order thinking in terms of coming up with new learnings and applying those? That became the holy grail of 21st century skills. But that's hard to measure.

Generally, my feeling on it is that the people who are with the students for 180 days a year, day in and day out, who know these children, are better placed to give examples, to give “evidence”, and data points; however you want to conceptualize it. But then they also do this really radical thing, which I think is the difference [with international assessments]. When teachers do assessment, or teachers assess outcomes, or teachers assess results, or teachers assess student learning, the main purpose of it is to then feed it back into that system to improve. So: “They didn't get this. Let's try it this [other] way.”

But that's not actually, I think, what's behind the outcomes movement globally. It's not about improving the experience, the learning opportunities, tailoring. It's not about personalization. It's really about control. It's about having information on a dashboard so that you can flip switches and see what happens. And it's fundamentally not about improvement, because if it was about improvement then the information would feed its way back into the hands of the people that are best positioned to make decisions to improve—whether those are curriculum developers, teachers, parents, or students themselves. And that's really not happening through those types of mechanisms.

WB: It seems like one of the big issues is about quality, because if you're producing a widget, you can ensure quality in pretty concrete ways. But when it comes to education, the idea of quality just
seems so messy, and abstract, and varied.
DE: Yeah, it does become a big issue and you know for the longest time there was a raging debate about quality and learning. We see quality as something that you actually can’t pull apart from equity.

Now I also have to say, from Education International’s perspective, that the whole learning crisis—you know, you’ve heard about the 250 million children that are not learning at grade level—this is not something new. And when it first happened, we at Education International, we said: well, of course. You’ve basically crowded all these kids into classrooms. You’ve given them volunteer teachers, and sometimes you haven’t paid the teachers. And now you’re saying: “We’ve got this huge problem, because kids aren’t learning what they should be learning”. We’ve been saying we have a problem with literacy. We’ve been saying we have a problem with numeracy. So, welcome to the party!

And then we ask: So what are we going to do?

You’re going to test them? No, no, no—we already know we need to fix the system. And they say: We need better tests. [That’s like saying] “We have a sick patient—we need more thermometers!” What? And that’s the sort of the sort of frustrated conversation we are having.

We don’t want to be against learning—we’re in favor of learning. We’re the learning profession. But it’s been co-opted and has become such a sliding signifier that you actually don’t know, when people say, “I’m in favor of trying to really improve and deepen learning,” whether what they’re not really saying is “I’d really like to get some more tests. I’d really like to deploy a lot more assessments and tests.” Is it really about thinking deeply? There are a lot of people that are working on this and trying to push the paradigm on that front.

**WB:** David Edwards thank you so much for joining FreshEd.
DE: It has been my pleasure. Thanks very much, Will.