

# Building Resilient Education Systems: Evidence from Large Scale Randomised Trials in Five Countries

## Podcast Transcript



### Noam Angrist:

Welcome to the CSAE Research Podcasts, a series of conversations about projects taking place linked to the Centre for the Study of African Economies at the University of Oxford. I'm Noam Angrist, a senior fellow at the University of Oxford and a co-founder of Youth Impact, which is one of the largest non-government organisations (NGOs) in Botswana. Youth Impact was founded in 2014 to scale up evidence in health and education around the world, headquartered in Botswana, it is now working in over ten countries and counting with partners.

So today I'm really excited to discuss a ground-breaking new study we've been involved in, titled 'Building Resilient Education Systems: Evidence from Large Scale Randomised Trials in Five Countries'. The project focuses on an approach called 'connectEd', a phone call tutorial programme that delivers high quality education through a mobile phone call. Originally, this approach was tested in Botswana in the early part of the Covid-19 pandemic, and since then the results have come out very early and were quite positive, published in the *Nature of Human Behaviour* journal. And that resulted in a demand to replicate this approach all over the world. We've partnered with governments, multilaterals like the World Bank, NGOs, research organisations like JPAL and IPA, to do just that, and ended up replicating this approach in five additional randomised trials around the world.

I'm excited to introduce the research and implementation partners behind this paper and study to give a behind the scenes look into how it happens and where it's going. The five countries were: India, Nepal, Kenya, Philippines, and Uganda. This was a really historic multi-country replication effort and the results were just released in the National Bureau of Economic Research. So I am very excited to dive in today.

Joining me today we have a fantastic set of folks. First, I'm thrilled to introduce (I'm going to go through and ask everyone questions), Thato Letsomo, Senior Manager of Content and Training at Youth Impact in Botswana, who will tell us a little bit about the origin story. Claire Cullen, a Postdoctoral Fellow in Development Economics at the CSAE at the University of Oxford, and a Research Specialist at Youth Impact. Karisha Anne Cruz, Senior Policy and Project Development Assistant at International Poverty Action Philippines. Michael Ainomugisha, Learning Coordinator at Building Tomorrow, and Sai Pramod Bathena, Co-founder and Director of an NGO called Alokit, in India. In addition to Karisha, Michael, and Sai's organisations, we also partnered with New Globe in Kenya, and in Nepal with the World Bank, with the government and two NGOs: Teach for Nepal, and Street Child. So, a really diverse coalition, five randomised trials across 18 months, providing real time evidence on really critical issues on how to provide high quality remote instruction when schools were disrupted, some of the largest, fastest evidence generated in education.

One of the questions was would this approach scale across countries with different types of partners? I'm thrilled to dive in today and take us back to that original study in Botswana. So, Thato, you were there at the beginning. Can you tell us a little bit about the origins story? How and when did this programme start? What does it involve and what do you think is core to it and needed to stay as it was adapted across settings and what could be adapted? Take it away, Thato.

**Thato Letsomo:**

Thank you so much. Excited to be speaking here in this podcast alongside some of those who saw this programme and replicated it in their contexts across the globe. As Noam has introduced my name is Thato, and this programme started in 2020 when Covid-19 hit the globe. We collected the phone numbers in the schools that we were working with, and we reached out to those households over the phone. We didn't need all high-tech phones, just a simple phone. We were sending SMSs of basic math problems and we would follow up with 20 minutes phone call every week. And in these phone calls, children were taught basic math.

One of the things that we thought of as we were creating this programme was that we needed to make sure that we kept it as simple as possible. And the other thing that we had to really think about was to make sure that we were using basic mobile phones, so low tech, and the that last thing that we were also thinking of was making sure that the content targeted the ability of the child. As we were talking to countries that wanted to replicate or take up the programme, the message we wanted to convey was the principal is keeping it simple and making sure that the content is positive.

**Noam Angrist:**

Thank you, Thato. Amazing in its simplicity and how much of the innovation was actually keeping it so simple and accessible and cheap.

So the phone is obviously a key feature of this. You mentioned targeting. If you had to pick a principle that was really core to the pedagogy, would you say that's what it was? And can you describe that a little bit more?

**Thato Letsomo:**

That was the main principle and very core to the programme. As we have already mentioned, the core principle was making sure that the phone calls were targeted. And what does that mean as such? One of the things that we were doing was to check the level of a child, and if the child only knows addition, then we'll start them at subtraction and not teach the child everything. So, we should make sure that the instructions are simple, and are really targeted to the level of the child.

Then one of the things that we are doing every week in this call is giving a problem for the day to check if the child has learned something during those 20 minutes on the phone. And make sure that in the following week you are targeting the instruction to the level that the child would be at.

**Noam Angrist:**

Got it. And very interesting that you're using these high frequency mini assessments to target that instruction. And as we know, that is an approach that's been tested in in-school settings before through programme models like Teaching at the Right Level and was adapted to this Covid-19 and phone-based context.

And it also is interesting that because this call is one on one it might also help target even further. You can really address the child's needs, almost like tutoring. So targeting really key and great to hear that come through that it's not just the platform of the phone, but also the pedagogy of targeting.

So, Claire, I'm going to shift over to you. Can you tell us how we designed these multi-country studies to try to answer some of the key scaling questions? Would this work outside of Botswana? How would it need to be effective across these settings?

**Claire Cullen:**

Yeah, absolutely. So, I think there are two aspects to that. So obviously there's the exciting, promising results from the Botswana first proof-of-concept, but then we wanted to see if it worked in multiple other contexts. So, one aspect of scaling is asking does it work when it's delivered to more students in different kinds of places? And so, part of that is this massive five countries randomised controlled trial effort. And then another dimension is we wanted to see if it works depending on who implements it. So, is the programme robust and effective no matter who is implementing it?

We randomised students to receive the programme from either government or NGO implementers in some contexts. So that helps us answer the question: potentially could it be scaled by government features?

**Noam Angrist:**

Fascinating. And we do know that the proof-of-concept studies from other evidence often do not scale to other settings. So really critical. And we also know that there's been studies where NGOs can deliver something effectively and when the exact same thing is delivered by government, it might not replicate. So really critical that this was in the design. Fascinating. What were the results?

**Claire Cullen:**

Super exciting to share and very happy that the results are now out. We found that the phone and SMS tutoring programmes caused really large improvements in learning. So a 0.32 standard deviation improvement in learning outcomes, which is huge. It's also very cheap. It was really cost effective. And so just to give it a benchmark, when we looked at a review of education programmes

out there, we found that this is amongst the most cost effective. So that's really promising. It also mentioned that it was effective everywhere. So in all five countries, there was a statistically significant improvement in learning. Obviously, there are differences across programmes, but it worked. And then also really excitingly, we found that it was equally effective no matter who delivered it, whether it was government teachers or NGO implementers.

**Noam Angrist:**

It's very striking. We know that things don't usually replicate, so the fact that this is replicating and replicating so well and, in some ways, better than the original Botswana study. Fascinating. And maybe it is because it's building on these well-known principles like targeting instruction and tutoring, which are these really effective approaches, and just adapting it to this phone-based setting. So fascinating to see this approach work. Can you share a bit, Claire, on how we thought from a measurement point of view and a research point of view around monitoring and measuring what's common, what's adapted, how to really stay and have some fidelity to the core model but still give room to make sure these fit in local settings.

**Claire Cullen:**

Yeah, that's such an important balance to strike. You obviously need to adapt things a bit in a new context. So, for example, we found that place value is quite a little bit different in Nepal. And so there's latitude with the curriculum to change how that's explained a little bit. But broadly the curriculum, the training (Thato running the training of trainers in different countries) is the same, the tools are the same, and the principles that you and Thato are talking about (the tutoring aspect and the targeting), they were the same, while there's little bits of differences in flexibility. But the way to make sure that our partners made sure that it was effective and to track implementation, fidelity in all contexts was the same. We measured whether the programme was accurately targeted. So, were teachers teaching students at the level that they should have been teaching them? We have a paper coming out in the American Economic Association Papers and Proceedings that shows really cool results that, unlike the story out there that you mentioned Noam, that maybe nothing scales, and everything works well in the first proof-of-concept when everyone's attention is on it, but then when you go to scale things diminish. We actually find that implementation fidelity gets better and better trial by trial and also week by week within trials.

So that's a super exciting story and it taught us that collecting high frequency monitoring data is super, super key and very informative and exciting.

**Noam Angrist:**

Fascinating and such an important balance to strike of measuring that thing we know is key and then giving room.

But then also what you're sharing is we even saw that the level of targeting can improve. If you monitor it and you learn from experience, you can get better and better at it. I think this feature of getting better and better and learning from experience does really seem to be key to this scaling journey across settings. And rather than just handing it off, there is some mechanism to coordinating across partners and settings. And as we mentioned at the beginning of this podcast, it really was a diverse array of partners and it was happening in countries Youth Impact had not worked in before with quite large organisations like governments and the World Bank, but that coordination across partners and ability to share lessons, it was really important and fascinating to see that show up in the data. So now I'm actually going to turn to the partners and hear from their perspective in various country contexts.

I'm going to start with Sai in India with Alokit, an NGO that was working with government teachers to deliver this. Sai can you share what initially drew you to this programme and what did it look like in your context?

**Sai Pramod Bathena:**

Right. We implemented this programme in government residential schools in the setting of the state of India. The government here runs residential schools for children from the most modularised communities. In this network, despite the best efforts of the government, only about 20 percent of children are engaged in learning or consuming learning materials shared through WhatsApp, TV or Zoom sessions. An additional challenge is that the students live far away from the school, sometimes almost 70 to 100 kilometres and the governments were finding it very difficult to find a place for students.

We were looking at ways to educate the children that had experienced this loss of learning. The department was also looking for partners. That's when we were drawn towards the connectEd programme and we realised that the connectEd programme was tested and evidence was coming up already. So that's why we were drawn to this programme. We thought we should definitely implement it and pilot here.

**Noam Angrist:**

That's great. Great to hear that. And obviously, there were so many things to pick from, right? It was this moment of uncertainty, of need and so great to hear what drew you to this approach. Moving to Uganda, Michael, from your perspective as Building Tomorrow, what drew you to the programme, and what did it look like in your setting? As we know, in Uganda, there were some of the longest school closures in the world.

**Michael Ainomugisha:**

Thank you, Doctor Noam Angrist. Uganda was no exception to the rest of the other countries under Covid-19 lockdowns. Uganda actually faced about two years of school closure, which left about 15

million learners affected. And prior to the school closures, only about four percent of the learners could do basic math operations by grade four, a situation that was further exacerbated by Covid-19. Our organisation has contributed to stemming learning growths by using a cove of about 7000 community education volunteers to deliver literacy and numeracy lessons to all learners using the Teach at the Right Level methodology under our signature name Roots to Rise programme, and by 2022 we reached about 100,000 learners.

Think about this, for example, a case in point, Aisha who was under our programme and a top performer in her class and an academic inspiration to her peers. After about two years of school closure, she was struggling to correctly understand a concept in class and found it a little bit disturbing. This meant that the teacher had to do so much to get Aisha up to speed with schoolwork. And this was not unique to Aisha alone, but also across about 15 million learners. Working with the connectEd programme, using our community education volunteers, and proving that efficacy of this approach was important for us. We wanted to see how we could scale this approach and stem the crisis.

**Noam Angrist:**

Got it. Very important and great to see this model of community education volunteers being able to deliver this in their local settings, even through the phone, and in a setting where schools were closed for so long, we also know in the Philippines there were some of the longest school closures in the world, and of course, in all settings, schools were disrupted for far too long.

So, we're going to shift over to the Philippines. Isha, what drew you and International Poverty Action (IPA) to the programme? Many priorities, many different sectors, lots going on, lots of uncertainty. Why this program and what did it look like in your setting?

**Karisha Anne Cruz:**

Right. So, in the Philippines at that time, schools remained physically closed due to the pandemic. And while there was remote learning, there was no regular teacher-student interaction for almost two years. So, most kids were learning through what we call self-learning modules, which had really limited student-teacher interaction, and that was a big concern among our teachers.

Even prior to the pandemic, we were seeing poor learning outcomes, especially on numeracy and literacy among our young learners. So, there was really a need to find effective strategies to improve learning and also to stem learning loss at that time. It was great timing when Youth Impact approached IPA to share the great work that they've done in Botswana. And we thought this could be a feasible programme. In the Philippines mobile phones are accessible both for teachers and households, and so we met with them to share this new evidence on learning via phone tutoring and ask whether we can test this programme to see whether this low-cost intervention actually worked in our context and potentially address these learning challenges and support learning recovery.

And so, we were able to engage with this method across all governance levels from the central office down to the field offices and schools. We got their support, and we tested actually two models, for grades three and four learners, the teacher aid arm or the NGO arm, where IPA hired teacher aides to deliver the phone tutoring, and the Philippines Department of Education (DepEd) teacher arm, or the government arm, where the DepEd teachers themselves were able to deliver the phone based tutoring programme.

**Noam Angrist:**

And I remember IPA Philippines and DepEd. This was one of the partnerships where we did have that. We had that randomisation between government and NGO. We also had that in Nepal. And so that's really fascinating and proved very important to understand can this be delivered by government.

So, now shifting gears towards this question again of common things that work versus things that you need to adopt. So, we'd love to hear from everyone again. What did you keep the same and you felt was relevant and important to keep the same. And what did you adapt to your setting? So, Sai, over to you in India.

**Sai Pramod Bathena:**

Yeah. We did keep the similar structure in terms of sending an SMS every week and doing phone calls for the students once in a week. That remained the same in India, really, just like in Botswana.

However, two big things that we changed were involving the school head teachers. This is the first-time teachers were getting used to a programme like this. So, we thought it would be helpful if school heads were also involved in it so that they would know how to support teachers well in the implementation of the programme. So, school heads were also part of the training and were also given updates every week so that they knew how many teachers were able to make calls and if they'd know if any additional teachers were needed. That's something different that we did. The second difference was in terms of the data collection process. In Botswana, I think that SurveyCTO was used as a collection mechanism, however in India, teachers are not very aware of SurveyCTO so we leveraged Google Forms which teachers are more familiar with. So they were the two big changes that we made.

**Noam Angrist:**

That's great. And I know that Alokita also has this focus on school leadership so really interesting to see that engagement throughout multiple levels of the education system.

Michael, what about you? What did you keep similar and why did you adapt?

**Michael Ainomugisha:**

Thank you, Doctor. In our context, we didn't really deviate much from the Botswana trial. We kept the SMS phone arm and the control arm and were delivering weekly phone calls with targeted instruction and numeracy lessons, and also weekly SMSs. But, also in our context we relied heavily on our community education volunteers who were already familiar with delivering literacy and numeracy lessons. The connectEd programme and the trainings that we gave to the additional volunteers only improved the delivery mechanisms of the phone calls.

We also translated the material content that was delivered by our community education volunteers and used the tools that were capturing the assessments and the data to make sure it was all of quality. And to tie it in there, we also had a strong monitoring system which was well supported by our Building Tomorrow Fellows, who are young graduates recruited from university, deployed to recruit the community education volunteers but also on the weekly basis, to engage them to share the challenges and successes that they have experienced, and to give them support. The quality of the delivery of these lessons was the most important thing for this programme.

**Noam Angrist:**

And I recall in Uganda, we actually used these paper-based tools because it was decentralised. So that was quite an impressive operation to be able to do that, whereas in other settings we had to use and we chose to use digital tools. So that was really fascinating and it worked quite well.

Isha, over to you in the Philippines. What did you keep similar and what did you adapt?

**Karisha Anne Cruz:**

In the Philippines we used the same set of interventions, we adopted the SMS and phone call intervention. We contextualised these materials, working with Youth Impact to align with the competencies targeted to our grade three and grade four learners. And we tried to localise the math exercises as well and translated them to the local languages for our learners.

And similar to what the others have mentioned, we also implemented electronic data collection where teachers and teacher aides were able to use their mobile phones to look at the forms, the phone call scripts, and also to submit the data that they collected every week. So that enabled us to do real time monitoring.

**Noam Angrist:**

And I remember this language issue, which was such a big one, it was in many settings. In many countries there were lots of languages. Botswana only has a few. But in the Philippines and Uganda and India, there were more languages. I remember this question coming up on how to match the caller to the student in terms of common language, which we know is an issue even before Covid-19, certainly after. And it was interesting to see the phone be this flexible tool to actually facilitate that match in a very nimble fashion. You could really make sure that you had the right caller and student speaking together in that same common language. I think we're hearing across all three



countries, keeping a very similar model, this phone call combined with SMS messaging is really working. And some of these adaptations on monitoring, on language, on tutor and delivery agent.

One thing I will say that is that although the story sounds positive with these positive effects of phone calls and SMSs across all settings, the story is not all rosy. I remember we saw that the SMS messages on their own were not enough, so we had a treatment arm in these studies that was only SMS messages and that only worked in two countries, not all five, and the effects were smaller. One of the things we learned from this is that there did have to be a phone call accompanying that SMS. It couldn't just be SMS. And that was really important because SMS is particularly cheap and particularly scalable, but it just wasn't enough to deliver that impact in these settings, whereas phone calls were effective and still cheap and scalable. And I remember that lesson being really important in thinking about which types of these models do we really want to take to scale.

So on that note, I want to ask each partner what is next? What are you taking forward in your organisation? What are you scaling? How are you scaling? We'd love to hear from you on what is next. So again, starting with you Sai in India, what have you learned? What are you taking forward and what's next for you?

**Sai Pramod Bathena:**

What really worked well and something that we are taking forward is the principle of targeting. Post-Covid-19 most children are not in the habit of having a lot of learning activity in India, we had more or less two years of school closures. So, we picked up this principle of targeting that we learned from the connectEd programme, and we adapted that into most of our programmes. So we are training our school heads on how to apply targeting so that they can also train their teachers. So most of the school heads have now adapted this principle to each language both mother tongue and English, and mathematics as well. So that's something that's really worked well for us.

**Noam Angrist:**

That's great. I think this point on targeting has really come out over and over again. I should also reference that there's been other work on this approach and this topic. There was a study in Sierra Leone that did phone calls but did not target instruction, and there it wasn't effective. So this piece on targeting is really key. And we even did see that in the original Botswana study we cross-randomised targeted instruction and those effects were more positive. So that's great to hear Sai, that's the principle that you're really taking forward.

Michael, what are you taking forward, what is Building Tomorrow doing next and how are you thinking about scaling some of these lessons up?

**Michael Ainomugisha:**

For Building Tomorrow, one thing this programme has helped us to learn is the effectiveness of phone-based learning and has actually empowered us to scale up our programmes with automated

platforms to deliver numeracy lessons through interactive voice recognition via 2G fonts. It has also helped us to validate that community education volunteers can be equally effective instructors and we continue to elevate them in our modules so that we can reach as many learners as possible. We are also doing some testing to look at many other factors to see what has been successful in this particular programme. This is important for us as we try to influence policies in our country to ensure literacy and numeracy are for all.

**Noam Angrist:**

That's great. And at this point on, the tutors really can be volunteers, they can be teachers. We're seeing that across these models this approach can be effective. So great to hear about those plans going forward.

In the Philippines, Isha, I know there's been a lot of exciting momentum with the Department of Education. Can you tell us what's next, especially in light of the fact that we explicitly tested a government model in the Philippines and saw that it could work?

**Karisha Anne Cruz:**

That's right. Yeah. We are still having talks with DepEd officials to explore ways to optimise the delivery of this phone-based tutoring, mainly to support learner recovery or remedial education that can be aligned with their plans for national remedial or tutoring programmes. And we find a lot of opportunities to continue education, even post Covid-19 school closures. And actually just recently we completed a workshop with the DepEd central office just to think about ways that we can approach this. And one of the things that we are looking at is running this programme in emergency settings, such as climate related emergencies. In the Philippines we are a very highly disaster-prone country and that has led to several school disruptions in the past years. And so we were actually able to test this programme during a disaster. And we found that it was effective. When the typhoon hit, I think it was around December 2021, we were already about a few weeks into the phone-based tutoring program. And while there were some disruptions because of damages due to the typhoon, we found that the phone call tutorial was effective, and it still improved the learning of our learners. So yes, further optimised for scale. We do plan to conduct more tests with the government and potentially other education partners interested in running this low-cost phone-based training programme. So, a lot of potential. And we are excited to continue this conversation.

**Noam Angrist:**

And that typhoon was such a shock. And I remember it was such an incredible effort that IPA and DepEd collaborated on to keep learning going and I think that really does show the ability of this approach to provide resilience in education systems to withstand multiple shocks. And this really has opened our eyes to this broader issue of school disruption. Obviously, it was historic during Covid-19 in scale, but it happens in other settings. As you said, it happens with weather shocks,

rainy seasons, typhoons, monsoons. There are other types of disruptions such as in conflict settings. I know there's a semi-autonomous region in the Philippines that has some conflict disruptions as well as this happening in many countries around the world. In one estimate, Education Cannot Wait estimates that 22 million children are currently experiencing disrupted schooling due to some kind of education emergency. So having this evidence on a way to build resilience into education systems so that they can withstand these shocks is so key, and these two parallel tracks in the Philippines that you're pursuing on emergencies as well as what it looks like during normal times with the government is really exciting. I know there's been a lot of momentum with undersecretaries and directors, alignment with policy in making this happen.

So very, very excited to hear from folks who were on the front lines and really made this happen. Thank you so much, Michael, Isha, and Sai.

I'm going to bring us back to Botswana. Thato, what kept happening in Botswana is this approach spread around the world. Did you stop? Did you keep going? What were you doing in Botswana while this was radiating to multiple countries?

**Thato Letsomo:**

Thank you so much. It's also exciting sitting here and listening to what other countries have done and how they're thinking of us going forward. It's so humbling and exciting to see how much a lot of learners across the country have benefited from this programme. And in Botswana, we have never stopped because the demand is still very high. There are a lot of parents who are calling and saying, why is my child not part of this programme? There are children or students who are bragging to other learners when they get back to school. Saying that I have someone who's calling me over the phone, and they have taught me how to do division, something that I have been struggling with. And those are some of the stories that we received from the field, that have enabled us to keep going and press on.

In general, most of our learners are still lagging behind in basic numeracy. So, one of the things that we have done and we are still doing is running repeat innovations every school term on AV testing. And one of the AV-tests has also been able to record some of those effects. So, it's exciting to see what the programme has done and it's exciting to see the demands applied from the Minister of Education, from the household, from the parents, and even some of the teachers. There was a time one teacher called when the schools reopened and said, in my class I have not yet introduced division. And when I introduced it, one child just raised up their hand and said she knows how to do this. And I ask them to come to the board to show how they do division, and the child did it so well in a way that even I, as a teacher, was not going to be able to explain to the learners. And when she asked the child, the student said someone called them over the phone from Youth Impact and they taught them this concept over the phone. And the teacher called to really appreciate and say she has used this child as a teacher or facilitator to teach other students.

So those are some of the things that show us that the programme is still working. And like I have said, the demand is still very high.

**Noam Angrist:**

It's so great to hear, Thato, that this kept going and that you kept learning. I think this is one of the striking things. On the one hand, this approach and this evidence base has become one of the largest multi-country evidence bases in education, six randomised controlled trials and counting that we've been directly involved in. Other authors and organisations are also testing this approach. The Inter-American Development Bank has now tested this approach in four countries, the Centre for Global Development, and others. And it's exciting. On the one hand there is so much evidence, on the other hand, there's so much more to learn. We're just scratching the surface on what this type of approach can do, where it can work, where it won't work, and how to scale it up. So, it's just so great to hear that this has kept going and continued to improve in Botswana simultaneously.

I want to thank all of the folks who've joined us on this podcast. It's always so wonderful to hear from people directly who make these studies happen. We often see the paper, we see the results, there's a lot there and there's so much more behind the paper. So, thank you so much everyone. Thank you, Thato, thank you Claire, Michael, Isha, Sai, and it's just a treat to have collaborated with you and to hear your perspectives on this and looking forward to seeing where this effort can go. Thank you, everyone, and looking forward to being in touch.

**Thato Letsomo, Claire Cullen, Karisha Anne Cruz, Michael Ainomugisha, and Sai Pramod Bathena:**

Thank you so much and thanks to everyone for listening. Thank you.