

Under the Hood: Randomised Control Trials on Distance Education During COVID-19 in Botswana Podcast Transcript



Noam Angrist:

Hi everyone, welcome to the CSAE research podcast series, it's a series of conversations about projects taking place in collaboration with the Centre for the Study of African Economies at the University of Oxford. I'm Noam Angrist, a fellow at the CSAE and also the co-founder of Young 1ove, an NGO committed to scaling up evidence-based interventions in health and education that enable youth to thrive.

Today we're going to hear about the work of Young 1ove in collaboration with the CSAE and J-PAL, and some of the work that this collaboration led to in generating some of the first experimental evidence on distance education during the COVID pandemic in Botswana.

We're going to go under the hood today of this randomised control trial (RCT) and talk about some of the juicy detail that doesn't always make it into the academic paper. I'm very excited to welcome three additional guests Thato Letsomo, Moitshepi Matsheng, and Claire Cullen, and I'll ask each of you to introduce yourselves very briefly. Thato.

Thato Letsomo:

Thank you so much, Noam. My name is Thato Letsomo. I am the senior manager for content and training at Young 1ove. I'm one of the pioneers of the low-tech programme. I led the content development, the pilot process, the training, and the implementation of the programme. I'm super excited to be here and to chat with everyone.

Noam Angrist:

Thank you so much. Moitshepi.

Moitshepi Matsheng:

Thanks so much, Noam. Hi, I'm Moitshepi Matsheng, co-founder and country coordinator for Young 1ove and in my other role, I am also the chairperson of Botswana's National Youth Council.

Noam Angrist:

Wonderful. And Claire.

Claire Cullen:

Thanks, Noam. I'm a postdoctoral research fellow at Young 1ove and also at CSAE at Oxford University, and I've been working on the replication studies with Young 1ove.

Noam Angrist:

Brilliant. Well, what a wonderful group, it's so great to be here all together. Moitshepi, can you share a little bit more about Young 1ove?

Moitshepi Matsheng:

I would be more than happy to. So, background on Young 1ove. Firstly, we're celebrating a huge milestone. We have reached over 100,000 young people. Our headquarters are in Botswana. But also, we have made partnerships across eight countries. We are working on three evidence-based programmes in health and education. We have signed a memorandum of understanding with the government to reach all schools in the country. I'm really excited about the work that we're doing as an organisation.

Noam Angrist:

Thanks so much, Moitshepi. So happy to be here with all of us together on this podcast because we really are going to be digging into this intersection of research, action, and policy. So, I'm really excited to dig in.

A bit of context on this study before we get into the juicy detail. This was some of the world's first experimental evidence during the pandemic on distance education. As many will know, the COVID crisis was a historic shock to education, and at the height of the pandemic, over a billion children were out of school. And so, the question arose for many education systems: how do you provide education when schools close? So, one of the things that struck me about this work is that many governments responded with higher tech approaches, things like trying things that focused on online, computer, tablets, but often access to these types of distance learning were low in low-and middle- income countries. In contrast, lower tech approaches like using mobile phones were high access and low cost, over 80 percent of households in low-and middle-income countries have access to mobile phones. So, one of the neat things about this study and this innovation is it used mobile phones to meet people where they were with the technology they were already familiar with and provided both SMS messages and live 20 minutes phone calls once a week to do targeted foundational numeracy content.

The results were really striking of this study, with a reduction in the numeracy of 31 percent. Also quite cost effective, one year of high-quality learning for \$100 per child. Now this approach, since the study came out in Botswana in the early part of the pandemic, has gone global. There are now five country studies, five randomised trials with 25,000 students all over the world replicating and

extending this work. So, we're going to come back to this. I want to come back to the Botswana study before we zoom back out to the global effort.

So, let's go under the hood. Young 1ove was implementing in-school education programmes when the pandemic struck in Botswana and 20 percent of total schools. Thato, can you share a little bit about this pivot? How did it happen? Put us there. Put us in the moment. You were obviously leading the charge here.

Thato Letsomo:

Thank you so much, Noam. When the pandemic happened, we were in schools doing our normal business, implementing the programme [Teaching at the Right Level](#) in four regions, in different schools. And our field workers were busy with that. Then it was announced by the Minister of Education that schools would be closing in two days until further notice. So, you can wonder when they said, 'further notice', we didn't know when the schools would reopen again. So, for us, we wanted to still be committed to the cause by connecting to our young people, by connecting to the children and making sure that we were still doing something with them. I remember I had to get in a call with Noam and say that we have just heard that the schools were closing in two day until further notice, but we want to stay connected with the kids, what can we do to help the kids while they are home? So, we were brainstorming and figuring out what we can do in just two days. So, we agreed to collect phone numbers, then we will later see what we are going to do with those phone numbers. We agreed on that.

We called our field workers to say, please, in the next two days, collect phone numbers for the parents or for the guardians of our kids who are in grades three to five. And fortunately, some of the schools already had the contacts for them but some didn't. So, we asked the teachers to ask the students to go ahead and talk to their parents to give us their phone numbers so that we could get in touch with them. And we didn't make any promises about when we would get in touch and what exactly we would be doing because we hadn't figured all that out. But, fortunately enough, in just two days, we managed to collect 10,000 numbers from all the schools that we were working in in all the four regions. We ended it there, with just the collection of the contacts. Then we later figured out what we were going to do with those numbers.

Noam Angrist:

Wow. I remember being in those conversations together, Thato, and I still think you have four arms and legs for just such a feat. You mentioned, Thato, that you were involved in delivering in-school programming before this pivot and in particular a programme called Teaching at the Right Level, which many of our listeners might know is another very cost effective, evidence-based education programme focused on really targeting children's learning levels rather than necessarily their age or grade through simple assessments and then targeting instruction.

Can you talk us through how you thought about adapting some of the things that were done in Teaching at the Right Level to these phone-based phone calls and content delivery?

Thato Letsomo:

Thank you so much, Noam. This was a very exciting process, and like I have said, you can imagine all of this happened during lockdown and when the pandemic was just starting, which was a shock to everyone. And for us, it was more about how can we stay committed to our cause and adapt whatever we have to make sure that we are still connected to our kids?

The first thing that we agreed on was to see how best we could adapt Teaching at the Right Level into a phone-based programme. I remember it vividly. I was in my room. I took my phone. I took my brother's phone to record as I'm making the calls. Who were we calling in the pilot stage? We were calling some of our friends who have kids in the ages of 11 and 12. And we were calling some of our colleagues. Or probably even friends of our colleagues. So, it was just a sample from the people that we know with kids who fall within our target group.

So, I was making those calls and borrowing my brother's phone and recording during the process. I was doing this because we were figuring out what exactly we wanted to do.

Noam Angrist:

It sounds like you're going low tech about low tech, you know, no recording studio, nothing fancy. You're just making these calls from home, just like the kids are going to receive them.

Thato Letsomo:

Definitely. What was in my mind was just Teaching at the Right level. Most of you might know what Teaching at the Right Level is and what we do with the kids. It's fun, engaging, we play lots of games. I wanted to try that over the phone. I remember, in the very first pilots, I would even call some kids and try to explain how to do certain games like Stone Throw, and I would be giving all these instructions that were just too much. And remember this was happening over the phone, it's a phone call, and I was giving the kids all the instructions on how to play Stone Throw: get nine stones, draw a circle, the kids were so confused. I could feel it in their voice that the kids were so confused. Who is this stranger who is calling me and giving me a lot of confusing instructions? So, because this was happening during the pilot stage, we had to try different things. And I remember within a lot of Teaching at the Right Level activities, we have a lot of cultural responses, such as 'eita-ola, how are you feeling? better?' so I tried that. I would say 'eita' and the child was saying 'ola'. And I told the child when I say 'ola' you say 'eita', and immediately I heard that the child's face brightened, I heard even the voice literally changed from when I was explaining the Stone Throw exercise. So, it was super exciting to hear all this and to see that we had adopted some of the things from Teaching at the Right Level, and the main thing was to keep it very simple, as much as we could. And we landed there to say, keep it simple.

Noam Angrist:

I love that and how amazing that just an 'eita' and an 'ola' can bring something to life and it's so simple and that you adapted from kind of getting the content across, but also making it doable over the phone and still fun. That's great.

Anything else that struck you as you did this adaptation?

Thato Letsomo:

Yeah. And now that you have said that, maybe let's give it a little bit of a try.

Noam Angrist:

Oh ok

Thato Letsomo:

Let's get that sense of what exactly we were doing over the phone that excited the kids. When I say 'eita', Noam, you should respond by saying 'ola'. When I say you 'ola', you say 'eita'.

Noam Angrist:

Yeah, yeah, let's do it

Thato Letsomo:

Eita

Noam Angrist:

Ola

Thato Letsomo:

Ola

Noam Angrist:

Eita

Thato Letsomo:

Nice one, I can even see your smile, from just here I can sense it that you are super excited

Noam Angrist:

It's here! Evidence based; it works.

Thato Letsomo:

Definitely. So those are some of the things that we were doing, and the other thing that we focused on was the foundational skills. We were saying, oh, we can't do much, but what are some of the things that we feel we can do with the kids so that when they get back to schools after the schools reopen, and we don't know when will that be, at least they have not lost that much? So, we wanted to focus on those foundational skills and make it as simple as we could. So we targeted the kids, helping them with simple addition, simple subtraction, simple multiplication and simple division. And when I say simple, I mean, like just two digits by two digits, two digits by one digit one, when we are doing multiplication and also division. So those are some of the things that we were really focusing on when we were looking into the foundational skills and making sure that we were keeping it as simple as we could. Doing addition of 22 plus 12, for example, 27 minus 13, 22 times three, 33 divided by two. Those are some of the things that we were doing with the kids and taking them through those processes, and it was super exciting to see how it translated over the phone.

Noam Angrist:

Got it So, this focus on foundational skills still constant and still there, even as you made this pivot.

Thato Letsomo:

Yeah.

Noam Angrist:

It sounds like perhaps the jury is still out on some of the higher competencies, but at least on these foundational skills, it seems like that was translating. Anything else?

Thato Letsomo:

There is definitely more that we could talk about now. One of the things that we were looking into as we were adapting this; we were looking into targeted instruction. And I'm sure most of you probably are aware of what Teaching at the Right Level is. In the phone-based programme, we

were not just waiting for the baseline results, waiting for the midline results to check on the children's learning. When we were testing the foundational skills, we made sure that the child understood subtraction, and started them from there. You can't give the child division before you know that they know multiplication. So, this is what we were also looking into, and this is what our focus was on. We were making sure that we were starting the child at the level they were at and making our instructions very targeted. If we assessed you from baseline and we realised that you were only able to do addition, then we knew that we were going to help you from subtraction until, you know subtraction and have mastered it, that's when you can move to multiplication.

Like I have said, we were not only relying on the baseline and midline results that provide an opinion after weeks, at the end of every call we did what's called a check point. A check point is asking the child to solve a problem from the teaching of that day or that week. For example, in a particular call, when I'm calling a child, let's take Keitumentse, I know that this week I am targeting Keitumentse and giving her instructions on addition of two digits by two digits. So, I will choose a problem of two digits by two digits for the check point. We would take Keitumentse through the process of doing 22 plus 18 and after we had worked through it together, at the end of the call, I would ask her, can you please do 27 plus 12 for me? And as you are doing 27 plus 12, ask her to say it aloud and let me hear what she is doing and then give me the answer. So, I wouldn't help her through the check point because it's more like a problem of the day. I want to see where she is. Remember, this is happening on a one-to-one basis. So those are some of the things that we were doing, thinking about targeted instructions, focusing on where the child was at, and also helping them through the check point. We were not waiting for the baseline or midline results that come to us after weeks. Every week, we had to understand where the child was at. Most of the time, we were calling the same people, so you would have a deeper understanding of where the child is and where to start from next time you call her.

Noam Angrist:

Got it. So still being able to target instruction and maybe, in some ways, this one-on-one interaction is even more targeted. So, as we know in class, you can do small groups, you can assess, and it can be quite targeted if you get it right. It sounds like over the phone, one-on-one, there's really scope to target it even further. So that's really interesting. And I know that's something that we didn't actually even expect at the beginning, and we found to be the case.

Any other principals, Thato, that you wanted to highlight?

Thato Letsomo:

I probably wouldn't do justice to this discussion if I didn't mention the issue of teacher-student ratio, which I think was one of the biggest and most exciting lessons. When we approached this adaptation to the phone-based programme, and remember, we're just coming from the in-person classes when the pandemic happened, our ratio of teacher to students was one to 30 or even more. So, when we came to the phone-based teaching, we were thinking of using the same ratio, around one to 30. Believe me, this was one of the biggest lessons that we had to learn in this process. We

realised that over the phone, it's not going to be possible to target one facilitator or teacher with 30 students or even more. But we started like that when we started the pilot. So, what happened for us to arrive at the fact that a ratio of one to 30 doesn't work in the phone-based teaching?

Allow me to use an example of the child Keitumentse, as I did earlier. When I call Keitumentse, remember I'm calling her via the parent's or the guardian's phone, and before I reach Keitumentse, I have to reach the mother. At times the mother is not with the child. At times the mother is not picking up the phone. At times the phone is unavailable. At times they are saying, I'm not with the child, please call back at six o'clock. When I call back, they say I'm still not with the child, please call at seven o'clock. I call at seven. They say, OK, the child just left, I've sent her to the shop, please call back in 30 minutes. So, you can think of all that time before you reach the child. It's not just the 20 minutes to 30 minutes call that you are making. There is a lot of time that goes into just reaching out or talking to that child because the focus or the target, at the end of the day, for you to say it was a success, is to talk to the child, not just to reach out to the parent or to the guardian. So, you realise that for each and every child, it probably takes around two hours for you to end up talking to the child. So, we realised that, ok, we will not use a ratio of one to 30 but use one to 20. And when you are giving one facilitator 20 households to call or 20 children to be calling, that means it's almost 40 hours of their time and that is almost full-time employment. And this is one of the things that is very important. When you go beyond 20, you are not going to find the eight hours for you to focus in a day, you are not going to find enough time. Chances are that you will miss some of the kids for that particular week because there was a lot of time that was invested in calling looking for the kids. So, believe me, one to 20 really works and that is almost 40 hours because for you to reach one child, most of the time, it would take two hours of your time.

Noam Angrist:

That's really interesting, because it's not just the programme, it's also the delivery model, getting the ratio right, and half the battle is just reaching the households. Yeah. So that's really striking. Well, thank you so much for highlighting some of these core principles and active ingredients to make this work. It's clear it's much more than the call. It's good pedagogy and a good call, the right platform and the right pedagogy.

Shifting gears a bit, Moitshepi, from your hat, both as a leader of Young 1ove and also through your role as the chairperson of the government's youth council and kind of the overall government view. Can you walk us through some of the policy implications? What were some of the other popular government responses? How does this relate to those?

Moitshepi Matsheng:

Thank you so much, Noam. So, during the pandemic, the government, through the Ministry of Basic Education, rolled out a TV and radio programme to make sure that students were learning whilst out of school and during the lockdown period. While this was done, particularly also at national levels, there were challenges in the actual rollout. For example, we've heard from the young people that we worked with that the time in which the programmes were played students were usually not

available. We also heard that the content was not relatable because it needed that youthful element, and therefore the students didn't engage much with it. That means that, essentially, there was a low take up rate. We found that only 20 per cent of students were able to tune into the TV and radio programmes. Relatively speaking, we have found with the phone-based learning, we have found a higher take up rate of over 70 percent from the numbers and the contacts that we reached out to, many who were parents as well as students. So, we find that because the phone-based learning allowed for this one-on-one connection it ensured that students were engaged, but also a higher take up rate as compared to some of the government programmes that they rolled out.

Noam Angrist:

Really interesting. And what do you see being the big implications of this work for government and for policy? And I know we've had a lot of conversations directly with the Ministry of Education on what this can look like as part of the core government response.

Moitshepi Matsheng

I think this is a very important question. Firstly, let me say that this is not the first-time disruptions have happened, and the COVID-19 pandemic has shown us that the schools may shut down in some instances. In the future, there could be natural disasters where schools may close for a long while. And therefore, it is important, as we reflect with the government, to develop a toolkit that will be based on phone-based learning and how to support students when in school classroom is impossible. In case of any emergencies or anything that may come out, we need to see how to provide a toolkit as a base to ensure that learning doesn't stop, and learning continues.

I must also add another point is that this intervention has been one of the most cost effective programmes in the literature. This has provided 0.89 standard deviation learning gains per \$100 USD. And then we find that often at times the government has and spends large budgets on ICT. We think that this could be repurposed to focus on pedagogy, rather than hardware, which the government usually provides.

I would just like to share a story that I heard from a parent. Enayla's mum usually rushes home after work because she knows that she is soon to receive a call from a Young 1ove facilitator. This approach has really brought parents and students together. It has really shown that parents and students can be involved in their child's learning. The status quo is that the parent only meets the teacher or the school heads at the end of every term when they go and collect the report card. But we find that this approach can certainly provide long term implications for the role of technology and parents in a child's education. Rather than engaging parents only on information, such as collecting the report cards, parents and students are really able to learn together, but also be involved in ensuring that they can be able to know what is happening in their child's education.

Noam Angrist:

Thank you so much. So, we've got an approach for education in emergencies that helps ensure resilience, using technology to meet people where they are not just throwing hardware, but really focusing on the pedagogy, and direct parent engagement. Some really striking examples of important policy implications. Thank you so much for that.

We've heard a lot about some successes with this approach, but as we know, there's always a lot of failures. I would love to hear a bit on what did not work, what has been a failure, and to really dig into the good, the bad and the ugly. So, Thato, can you share a failure?

Thato Letsomo:

Yeah, I would say probably one of the biggest challenges for us was scheduling. Scheduling, scheduling, scheduling was really a challenge. I think anyone who was listening to me talking about the problems with ratio was already imagining how this could have been a challenge. You don't just pick up a phone, call, then reach the child immediately. This was one of the biggest challenges on our side. And believe me, there were times when facilitators were feeling demotivated, and they needed a lot of motivation. I remember there were a lot of times when I had to post (we had a WhatsApp group) and remind them or try to say, I totally understand, let's figure things out together. What do you think would best work? And also remind them of our cause. We have a slogan that we use 'Ngwana ko pele,' and immediately when you say that, they know it means "a child first". When anyone says this, they know that this means we need to motivate ourselves, so we don't just say it all the time. This is one of the things that we say when we are faced with challenges. So, when I say that, it reminds them that we have to think about those children and no matter how many times we try to call the guardian or the parent and don't reach them, we should be thinking that if we don't get a hold of the child, they might be losing something that would probably benefit them. So, I would say that it was one of the biggest things, and they needed a lot of motivation. They needed a lot of hyping them up and an understanding of what they were talking about. I took part in the pilot, I made the calls as well. And for me, I was calling people that I knew, I was calling some of my friends' kids. I was calling some of their relatives, even when we were calling the number of someone that we know, it takes them time to respond. At times they don't pick up the phone, at times the phone is unavailable. But now think of when a stranger from Young 1ove is calling you and you don't know them. It's just like, OK, I don't feel the pressure to pick up this call.

So scheduling, scheduling, scheduling was a challenge for us.

Noam Angrist:

Scheduling, scheduling, scheduling, I won't forget that. Thank you, Thato.

Claire, anything on your end that you wanted to highlight, something that didn't work so well?

Claire Cullen:

Yeah, absolutely. So, I think at the start of the pandemic there was a lot of optimism, maybe from governments, researchers, Young 1ove and others that SMSs would prove to be a cheap and scalable option to improve learning given school closures. However, unfortunately, I think our research is seeming to suggest that SMSs on their own just don't seem to be improving learning.

Noam Angrist:

Got it. And that would be so cheap and scalable, but it does not seem, at least in our study, to have borne fruit. So, thank you for highlighting that. And I know we actually did a follow up AB test in Botswana after the study to see if we doubled the dosage to two SMSs per week, could that make a difference? And it also didn't. And so, it does seem the phone call coupled with the SMS, is quite key. So that's an important lesson on what can work as well as what can't work.

Shifting gears and in a similar spirit, this approach is not going to be a silver bullet. And it does seem clear from this conversation, and I know from our work, that there are some core active ingredients to really get this right. And it's important that we get it right because as was highlighted, this can be, if done well, part of the package of approaches for education in emergencies, which are going to continue happening, as well as thinking about broader themes of technology, parental engagement and learning when school is out.

Claire, could you share a little bit about some of the replication trial where we've been actively working in five countries with various partners all over the world, now reaching 25,000 students, to test when this does translate across contexts, when it doesn't, how scalable it is. We'd love to hear a bit more about that to foreshadow what the Botswana study has inspired.

Claire Cullen:

Yeah, absolutely. So, as you mentioned, we've finished or almost finished randomised trials in five countries: Kenya, Nepal, India, the Philippines, and Uganda. And this is all in less than 12 months, which is kind of wild. And we worked really hard with partners in these countries to generate this evidence so quickly. And we think that this might actually be some of the fastest multi-country, rigorous evidence generated in education, which is very exciting.

Noam Angrist:

Again, we've got four arms and four legs, very, very striking and who says rigorous evidence can't happen quickly. I think we're seeing that it can and can be used to inform real-time responses as well as the literature, and I'm reminded of efforts like Teaching at the Right Level, like the graduation model, which are also multi-country evidence and studies which have been really critical to inform what can work across settings and at scale.

Claire, could you share a little bit? What are some specific questions that we're looking at in these replication trials?

Claire Cullen:

First and foremost, we want to know when and how does this programme that was developed in Botswana work across heterogeneous contexts? And so that's why we're testing it in so many different countries and regions. And then we're also hoping to answer some questions around scalability. So, for example, does it make a difference if the government's implementing it versus NGOs? And we really can't wait to share the results in the next few months.

Noam Angrist:

Really exciting. In addition to our direct replication work. There's also been a series of efforts in Sierra Leone by the Centre for Global Development. Some co-authors in Bangladesh, as well as in Kenya who have been working on similar approaches, so really excited to also see how the entire literature starts to shake out and see what we're learning across these settings.

So, shifting gears, Claire, a lot of folks tuning in will be very interested in this intersection between evidence and action. And you've been a joint postdoc at Young 1ove and the CSAE, so we'd love to hear about your experience in this dual role. What has really been exciting for you?

Claire Cullen:

Very happy to share. So, I guess I always had a hunch that I would learn a ton of things from working with Young 1ove's master implementers, we've just all heard from Thato, so I know she has a lot to teach everybody, but honestly, I've been so blown away by all the things I've learnt. So just a few of them. I've learnt what goes into really careful, high-quality implementation. And again, we've just heard some of the details from Thato. So, this gives a small window into it. I've also learnt that high frequency monitoring data is possible and has been really invaluable in some of our contexts for getting a quick sense of what's going on and when something might be going off track so that we've been able to course correct.

Another thing that I've learnt is that really rapidly generating rigorous evidence is doable, which I would absolutely not have thought a year ago. And ultimately, personally, I've discovered that the joy that I get from running a regression or coming up with a new research question is about the same kind of joy that I get from working with the Young 1ove team to convert the research insights into action. So, it ticks all the boxes. It's super rigorous, scientific, systematic, but it's also immediately useful and immediately used, which is just so rewarding.

Noam Angrist:

It's so wonderful to hear that, and I think we've all really come to appreciate there is some method to the madness, both of the research and of the implementation. So that's really wonderful.

Well, thank you, everyone. This has been such a rich conversation and it's been so great to get under the hood. I've got a few big takeaways from this conversation around some of the core ingredients of this work, and it's been great to share this with our audience, the potential to use rigorous evidence to inform real time policy, as well as speak and connect to a broader literature and really excited to share results from the replication studies to any of those who are interested. And I also want to share that the Botswana study paper is out, and that's joint with Peter Bergman who's the co-chair of J-PAL's EdTech Initiative. The replication study will be a multi-country effort with a huge collective, and we're so grateful for all of the partners who supported this work and made this possible.

Thank you for tuning into this podcast. Please also stay tuned for more CSAE podcasts. Thank you, everyone.

Thato Letsomo:

Thanks, everyone.

Moitshepi Matsheng:

Thank you.