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PROFESSOR: So this is, as I understand it, continuing the conversation you've already started on education. And this is sort of the last of the education lectures. So what I propose to do today is to just kind of try to tell a story, a single story that kind of fits some of the facts together.

You've seen some of the broad patterns of dysfunctionality already, as well as some of the local success stories, if you like. I think the last lecture was about this NGO [INAUDIBLE] and its many efforts to improve education. So what I'm going to do today is continue from there, but talk a little bit more sort of big picture, focusing mostly on-- the goal is to tie things together into a story that might make some sense, and help us think forward about, if this is what's going on, where should we act?

That's always the ultimate question we have in mind, which is to try to find a way to an action point or a lever. And it's only by wrapping in these facts into a narrative that we can find a lever. So what I want to do is I want to go from the fact to a lever. And the way we will go there is by talking about a specific interpretation of the facts. So that's what I want to do.

And I'm hoping that you already read some of this material and are sufficiently engaged with it, that we'll have a lot of discussion along the way about, is this a reasonable interpretation of the facts or not? And I'm very much open to the idea that you may think that this is not the right interpretation. And we can definitely, you should feel free to propose alternatives or whatever you think. You think I'm going too fast, or trying to push the logic too far, you should stop me, or if you have questions.

So I think that the first fact, which is I think very, very widely accepted but somehow not necessarily very widely documented, is that education is actually beneficial for the people who get it. And you would think that this is something that we would have seen tons and tons of reliable evidence on. But in fact, the reliable evidence, even on this very basic question, is relatively weak.

The reason why education evidence tends to be weak is that, as you know, education's not like taking a medicine. The nice thing about taking medicine is that I take a medicine. A week later, I'm better. Education is something that has action at a distance. It's like something that I get educated today and tomorrow and day after, the day after that. And then distant future, I get a job, and that's where it benefits me.

So that sort remoteness of it is actually part of the reason why it's hard to find good evidence for education. You need to have a data set where you saw who got educated today, and what happened to their salaries 20 years later. And that's not always easy to find, for obvious reasons. You might imagine that you do need to track people in some way.

So that's why there's not much evidence. The evidence that there is, a significant part of it comes from countries like the US, where the evidence is very clear. Education seems to have a clear and relatively high, stable rate of return. Hasn't changed very much over time. And a few studies like the one from Indonesia which also find the same thing, and actually find, surprisingly, relatively similar rates of return on education.

The benefits of education in Indonesia seem to be similar to that in the US. And that's something that, when it came out, was rather surprising to people. Why would it be surprising? What would you have expected?

AUDIENCE: I don't know, that education here might be better or something.

PROFESSOR: Right. So you could imagine that it would be-- education in the US has higher quality, so maybe the returns would be higher in the US. Anybody want to suggest a

reason for the opposite?

AUDIENCE: Education in the US is more expensive.

PROFESSOR: That's an excellent point. But primary education is what we're talking about right now. So that's not very expensive, right? It's mostly free.

AUDIENCE: If everyone in the US has an education, [INAUDIBLE].

PROFESSOR: Absolutely. The opposite view is that education is scarce in Indonesia. And especially in the early '70s, very few people had primary education. So you might imagine that something that's scarce typically has a higher price. So you might imagine that it would be more rewarding.

So you could imagine it going either way. Turns out, these two effects seem to have cancelled out. And you get on net, roughly the same rate on education in the US as you get in Indonesia. But that's all to say that we seem to think that there is-- it's not that there's a huge amount of evidence. But what there is seems pretty consistent and compelling. So I think most people accept the idea that there is a benefit from education.

And then the next question that then arises is if there's a benefit from education, why are people getting such lousy quality? Why isn't it the case that education systems kind of stand up and deliver? If education's valuable, why isn't there a system that supplies it? Why is it that you have all these schools where kids are going and learning nothing?

AUDIENCE: Unlike other investments, one is it's not made by the primary beneficiary. I mean, parents that fundamentally pay for the investment or the government's a case maybe. And the parents paid the lost wages that that child could be earning. The other thing that, unlike other investments, is the returns, like we talked about earlier, are very long-term.

PROFESSOR: So you're saying that one reason why education might be different is the connection between the cost you're paying and the returns you're getting is weak. So maybe

the government, I don't really think about the returns. The government wants me to send my children to school. So I send them. But I don't really think about it.

So I don't think of all the returns. I don't make the investments in it. I don't really care about it. It's just something the government wants me to do. And therefore, I don't get benefits. So I'm going to try to suggest evidence that that's not what's going on. But that's exactly right.

One very plausible hypothesis is that this is something that people really, they're not buying education like they buy machines. They're getting education from the government as a kind of gift. And therefore, they don't care about it. So that's one kind of explanation. But that's exactly right. That's one possibility. Let's keep going a bit, and we'll come-- go ahead.

AUDIENCE: Well, one of the things that was written was that they have this mistaken impression that the first few years of schooling have very low returns and that secondary education or university education is where you actually get a meaningful increase. So it gives the most incentive to care about effective education [INAUDIBLE] it's someone they're planning on funding later on.

PROFESSOR: Right. And an alternative view, which we'll come back to and spend some time on, is that people actually don't-- it's not that people don't believe education's valuable. They don't know which part of education is valuable. And that's sort of what you're suggesting.

AUDIENCE: Question. So we just talked about how, in Indonesia, we saw there were benefits to education. And now we're talking about the education being poor quality. So is the idea that even this poor quality education is still incurring benefits that people aren't realizing, that [INAUDIBLE]?

PROFESSOR: So I think that goes back to the conversation we had a little while ago, which is that we would imagine that in Indonesia, education would be a lot more valuable than in the US. Because there's so much less of it. And you would think that when I'm the first primary educated person in the village, that's much more valuable than being

the 2,000th.

Never the less, we don't find high returns in Indonesia. We find comparable to the US. So the idea is, implicitly, that the returns to education are lower in Indonesia partly because the quality is-- actually somebody suggested exactly that, which is that one reason why you might expect lower returns in Indonesia is that the quality is lower. And so I think the concern is education is socially valuable. We want it because there's not many educated people.

On the other hand, maybe the delivery systems are weak. And therefore, it's not worth getting it. So that's a trade off. And the question, if you look at the other evidence, you've already looked at it, it seems like it's hard to imagine somebody who's in fifth grade and can't really read having got much benefit from education.

So our presumption is that at least a significant proportion of the people who are getting to fifth grade without being able to read are not getting anything out of education. They're just going through the motions. So why is it that there are so many people who are going through the motions rather than saying look, why am I wasting my time with this education thing, unless it's worth something to me? That's sort of the question.

And a corollary to that question comes from the fact that, in fact, the Pratham experience suggests, is it's not even that hard to improve quality. It may well be that you could imagine that it's just impossible to improve quality, because kids are very difficult to teach. But in fact, kids are not difficult to teach. The whole Pratham experience is that whenever you have an intervention which sort of provides them with some little bit of extra help and some focused help on what they need, the kids improve fast.

So that makes it even more positing. Because at some level, it's easy to improve them. The kids' education, if you've got a high quality education, that has value. So what's going on? Where's the pipeline broken? Yeah.

AUDIENCE: [INAUDIBLE] education focused on all levels of students, [INAUDIBLE]. So it's not

geared to the basic needs that each student needs?

PROFESSOR: Yeah. I think that that is part-- we're going to come and try to, in a sense, develop that hypothesis and look at how that can help us explain a whole bunch of different things. So that's exactly the kind of hypothesis that we'll come to. And it's good that we already start hinting at it. But I just want to first frame the question quite sharply.

This seems like education is something that, *prima facie*, is valuable. And it's not hard to deliver. Those two things are what you've seen. You've seen that it seems valuable. It seems very low quality. So many of you aren't getting anything out of it. And it's easy to make sure that they get something out of it.

Those three facts, how are they sitting together? That's the question. You would think that one of these facts has to give. That's the puzzle. Why is it that this thing that's easy to improve is not being improved, even though improvements will generate large gains. Yeah.

AUDIENCE: Maybe it's easy to improve on a small scale, but not so much on a large and consistent scale.

PROFESSOR: That's another possibility. Now, part of the reason we emphasize some of the Pratham experience was that large is a relative word. But Pratham operates on a fairly-- like a state in India is often larger than any five countries you would randomly name in the world. So it's not small in any obvious scale of small. That's why we were emphasizing it.

So if you take five countries at random, the sum of the states, the way they work, would be smaller than this. Because India has so many people. OK. So this is sort of the story that several of you have already hinted at, which is a story that parents have the wrong view of which part of an education is valuable.

So starting point of that is we call it an illusory s-shape. So you know the idea of an s-shape, right? The idea of an s-shape is that when you get a little bit of education that has very little value. And then as I get more and more education, the value of the education I'm getting goes up for a while. And then at some point, presumably, it

flattens off. Once you've got your Ph.D., presumably a second Ph.D. isn't worth that much, at least in income terms.

So at some point, it's going to flatten out. So the returns go kind of like that, then like that, and then like that. That's an s. Is that clear, why it's an s? So that idea. One of the hypothesis that I think we've been most persuaded by is that parents seem to believe that there is a real jackpot if you get to the end of the education tunnel.

So they think of education as being this tunnel. Once you get into a tunnel, there's nothing good happening for a long time. When you come out of the tunnel, those who manage to come out of the tunnel, which means you get through the whole school system and you graduate from high school, then you get a government job automatically. That's how they describe it. 70% of them think that if my child could only get through high school, he will actually get a government job.

In fact, the probability that he would actually get a government job is less than half of that. So they seem to, at the top end, they seem to overvalue education. They think that if my child could only get through this whole tunnel, there's a job waiting for him. But in fact, that's not true. There are not enough government jobs around. So you don't get these good jobs.

On the other end, and this is the fact that's much harder to appreciate, you will find out what the probability of getting a government job is relatively easily. But what's really hard to find out is what are the benefits? And especially if you are an illiterate parent, what are the benefits of getting three years of education?

And if you think about it in the US, the US actually, nobody gets three years of education. Therefore, we can't even tell what the benefits are. But I think what is surprising, but maybe not surprising once you think about it, is that the benefits of people who get three years of education's insubstantial. Why are they substantial?

There are a bunch of stuff that it's hard to appreciate living from the perspective of living in the US now, but are not automatic. So for example, many people don't find out about government programs that are available to help them. Why? Because we

don't read any newspapers or flyers or when the TV person say something, they don't understand what is being said.

So even a minimal understanding of just how the system works actually gets you large benefits. Or another example people often give is that even if you go from first grade to third grade and you learn to read, you can read the instructions on your bag of fertilizer. And your bag of fertilizer says, use one teaspoon, no more. You know you're to use one teaspoon, no more. And put one cup of water with it.

Just being able to read that has a large benefit in a world where people suddenly, lots of evidence of people overusing and underusing fertilizer. So just the fact they can read the instructions on the packet is very, very large, has large benefits. So the reason why even getting a third grade education has a benefit is because there are lots of things in the world, lots of information that's transmitted through reading, for example. Like what the government program is, how to properly use fertilizer, what new seeds have become available for planting.

And that might be in the newspaper. Somebody might have taken an ad. But you don't read the ad, and you never find out. So there are lots of benefits even if you can read a little. You don't have to be able to do calculus to be able to get benefits of education. I think that's the evidence.

This picture that I'm going to show you plots kind of actual and perceived returns in Madagascar to the extent that they can be estimated. The actual returns are pretty constant. The perceived returns come from a survey where parents were asked what the returns were. And the perceived returns look more concave.

This is to say, they are more flat in the beginning, lower returns at the beginning. The beginning, you think that you're not going to get much returns. And then as you go up, they get-- they cross, and you think you are going to get more returns than you actually get.

AUDIENCE: [INAUDIBLE].

PROFESSOR: What that is is really the percentage increase in your earnings for an extra year of

education. When you go to 11, to 12, what's your percentage increase in earnings? So this in some sense is actually not-- this picture sort of gets the idea. But in fact, it doesn't actually tell you how big the effect is.

The reason is that in fact, there are some people who generally overestimate the benefits for education. So some parents think education's extraordinary valuable. And a lot of parents think that education's completely useless. So this yellow curve is an average of very lows and very highs.

So in some sense, the average looks actually less wrong than the individual parents think. So some parents are overestimating their returns. They're all sending their children to school. Others just think education's worthless, at least for their children.

And their children is important in that sentence, because a lot of people think education is something that benefits those other children. People from rich families can benefit from education. Our children don't benefit. So there's clearly a strong kind of self-discrimination, which we'll come back to in a bit. So that average actually masks a lot of divergence.

So what I want to do now is I'm going to take this as a hypothesis, the fact that this what I would call elite bias, the idea that people think it's an s shape. Returns are at the high end, no returns at the low end. Assume that that's true. And look at how that can help us explain a bunch of other facts.

So we're going to look at what this does for the parents, the teachers, the students. You see where we're going? We're going to make a hypothesis. We've made the hypothesis. Now we're going to look at what that hypothesis does.

Particularly, you know a bunch of facts, and we'll try to fit together a bunch of those facts. Then at the end, I'll tell you some other facts that you probably don't know, which also kind of fit this hypothesis. So it's sort of a way to give it a bit more power, if you like. Try it out on things.

So one implication is think of the first implication of this. Imagine that, I believe that you get benefits only if you get through high school. And you have three children.

And you can't really afford to put all three of them through high school.

So in truth, as we saw, the returns are pretty constant. So an extra year is an extra year. If it were the case that an extra year, an extra year, how should you spend the money? Equally. Since all the children, there's no reason to discriminate. Why give one of them a chance and not the others?

Any bias towards equity will make you just spend equal amounts over the children. Because they're all your children. Why discriminate? One year of education is one year of education. So there's no reason to discriminate.

Now, imagine we believed something else. We believe that the first years of education are worth much. But then the final years are worth a lot. How would we spend our money?

AUDIENCE: I'm assuming you have two kids who are identical. You have [INAUDIBLE]. between the two. And you believe that the latter is the most important [INAUDIBLE].

PROFESSOR: Right. You think of it as being-- you guess which of your children will be good at education. And you're going to give all your education to that child, and give the other one nothing. That's one implication of this view, is that you're going to discriminate among your children.

Now, the way you're going to discriminate is probably, you probably don't believe your children are identical. So you're going to look for signs. Maybe in first grade, one of the children was doing better than the other. It means nothing. Some children do well in first grade. Some children do badly in first grade.

Many of you who are at MIT were doing badly in first grade, and then ended up at MIT. I'm sure some people were doing very well in first grade. Didn't get to MIT. So it's a very poor predictor. Your first grade performance, a very, very poor predictor of your long term performance. It's a predictor, but not particularly a reliable one.

But parents, what do they have to go on? They're going to look at which child is doing well in first grade, and then put their money on that one. So you wouldn't

probably pick one at random. But you pick one based on some very noisy signal. You observe whether they come back from first grade with, they chewed up their pencils in first grade more or less or something.

And you decide, well, this one's fit for education. This one's not. And then you're going to put your money on that. You're going to find some way of, since you can't spend equal amounts on both, you're going to find some signal that's going to allow you to discriminate. Right? That's what you'd expect.

So actually, let me go back one slide and just talk about discrimination a little bit more before we get to this. So this is something that if you do field work in developing countries, this is something that jumps out at you. And something that you spend-- like me, I've spent all my adult life in the US. So I'm kind of used to the US now.

So you go to somebody's house. What's the chance you'll hear a parent with two children, one sitting here, the other standing there, and he looks at the child who's sitting there and says, oh, that one, he's an idiot. He's not capable of study, literally. I don't mean metaphorically. I mean literally, that one's an idiot. But this one, she's really bright.

And you hear that all the time. It's something you'll never hear in the US. You'll never hear parents actually pointing to one of their children and saying, this one's an idiot. That comes very much out of this theory that in a sense, there are these, I have the pick the winner. The pressure on the parents is to pick the winner. Because if you don't pick the winner, you wasted your money.

So they're trying to pick the winner. And in a sense, they are, in fact, trying to persuade not just themselves, but also the siblings to go along with it. And you see that very much. I've also seen, which is even more touching, is one child saying, you ask him which school you go to? He says, oh, I go to this school, but I don't really go anymore.

And I said, why? And he says, well, I'm stupid. I can't do it. But you know, my

brother over there, he's really smart. He's going to the private school, and he's doing very well. And so everybody in the system internalizes it. You see that very clear, every word having internalized.

And that's useful for the family. Because the family doesn't want to sustain a feeling of inequality. So if all children believe that there's only one child who is smart among them, then it's good for the family. The harmony in the family remains. Because all the other children are willing to not be educated, because they think they are not fit to be educated.

So everybody buys into this idea that this one child is bright. And you see that all the time. Just prima facie, you see it all the time. We'll also talk about evidence. But I also wanted to say that that's the shape of it, is often, you hear people pointing to this child and saying, that one is an idiot.

And that's very striking. If you come to the US, you never hear a parent say that. And I don't think it comes out of the fact that these are worse parents. They love their children. They'll do lots for their children. But they really believe that there is this sort of-- they need to be very good at picking who's the winner.

Because they need to justify that to themselves. They need to justify that to their other children, the fact that they pick the right winner. That's very important to them. And you see that very much.

So two studies. One is in Burkina Faso, they found that if conditional on my cognitive score, in a simple test score, if my brother is doing well, I'm less likely to be in school. So if my brother's doing well, or my sister's doing well, that hurts my chances of getting investment. So that's exactly what we're talking about, picking winners.

Second, in Colombia, they were given a conditional cash transfer. Conditional cash transfer is like some money which you get if you child is in school. And the way it had been implemented is that some children were eligible for it. So basically, when some children were eligible for it, parents decided, well, we'll invest in this child.

That picked the child to invest in. That meant you stopped investing in the other one. The other child actually were less likely to go to school, if your brother was encouraged by the government to go to school. So the government was actually kind of focused on one child. And you were getting some money from sending one of the children to school. The other one was then neglected. And so you see exactly this pattern of parents trying-- yeah.

AUDIENCE: How did they choose the children to get the investment?

PROFESSOR: In this particular case, I think it was based on some age rule. I think only certain grades were eligible, if I remember right. So it was like seventh graders can get it, but sixth graders can't, or something. I think that was the rule. It was an age rule, age or I think maybe a class.

AUDIENCE: So they chose a class at a particular level. And then they continued that class throughout.

PROFESSOR: Right. I think that's right.

AUDIENCE: I have a question. Well, I have two questions. Does this pattern stay the same if school is free? If it's still one child that goes to school? And also, if it's conditional cash transfer, wouldn't that increase the income to the family? So they would have more resources to spread around?

PROFESSOR: Yeah. So both are excellent questions. I think yes, it's still true where it's free. Because one of the ways you discriminate is by sending your bright child to private school. You actually spend resources to send him to private school. Or you get him a tutor. He gets special help.

Or he doesn't have to do the housework. He gets time to do his homework in the evening, while all the other children are like tying up the goat or whatever, giving food to the cow, or whatever else they are doing. He's the one who gets to do the homework. So that's one sense in which you still have lots of discrimination.

And to answer your other question, it's true that I think that discrimination, again,

that's related. The answer I just gave is also relevant for that, which is that part of the way to operate is not just discrimination in money spent, it's also in time. It's also in this, whose job is to tie up the cow? Whose job is to take care of the younger siblings?

All of those get allocated unequally. So the child who gets to go to private school typically is also the one who doesn't take care of the cow. So you get loaded on benefits from that. Does that answer your question? OK.

So another implication of this is that, this is a related point, which is that parents will often-- another implication of this is that if people associate education with particular forms of getting a particular job, then when there are more of those jobs, they might now start discriminating more against the children. Why? Because now there is a valuable opportunity available for my daughter. She can get this kind of job if she only gets this degree.

And I'm going to now try to, therefore, find resources to make sure my daughter can get that degree. That might mean that I'm going to give up on my son entirely. So discrimination. Another related consequence of this is that when a particular job appears which has high returns, which you perceive generates high returns for education, you would target money towards getting that job.

And that would increase this tendency toward discrimination. So there's an experiment in India, a very nice experiment. What this guy did is there are all these call centers in India. You must have dealt with one. If you've ever had to call United Airlines, for example.

One of the things I love about this is once they hear my name, their accent quickly changes. And they stop trying to fake an American accent. They figure that I don't care so much. But so these call centers are in this part of North India where this is actually huge discrimination against girls, otherwise.

But what he did in this experiment is he went to these villages near the call center and said, well, there's a call center right there. And if your daughter graduates high

school, she can get a job there. So that was the experiment. And he went and told-- and you immediately find parents suddenly starting to discriminate against their sons.

They start to figure out, my daughter can get this good job. Now I should just put all the money in her education. And what happens to my son doesn't matter anymore.

So you get this pattern of once parents decide that there is a jackpot to be had, it's very easy to get into these patterns of massive discrimination within the family. So in particular, girls' education went up? Why? Because call centers like girls.

Apparently, the view is, may or may not be true, is that girls are easier to train to be call center employees. They're more docile, more, I don't know. They learn English faster. There are all kinds of theories. But in any case, call centers like girls, for some unspecified reason.

So they found out that there was a big demand for girls. The result was that you get this effect on boys. On net, boys were not affected. But parents already, the baseline had said, this son, he's not really fit for education. So those kids are really got hurt when this happened.

Because all of those kids who the parents had decided were not fit for education, their education actually dropped when their sisters started getting these jobs. You started substituting away from their education towards less education for them. So this is all to say that parents are actually using all these cues to figure out which child to put the money on. Because they believe that if I put money on one child, I'll get much bigger benefits than sharing it across children. And then all these cues seem to matter. OK, let's go back to a different fact.

Another thing that of course matters is information in this world. For parents, what matters is their perceived returns. That's what we're talking. We're talking about perceived returns. We're talking about the fact that parents think their returns are higher when you get 12th grade education, and low if you get less than 12th grade education, et cetera.

So Madagascar, parents were shown this particular picture. This picture's kind of a way to capture the returns to education. So without any degree, you get three kg of grain. If you get a few more years, you get four. If you get more, you get seven, et cetera. So this was roughly the right scaling. So this is roughly how the returns are in Madagascar.

AUDIENCE: Is it [INAUDIBLE] the political [INAUDIBLE]?

PROFESSOR: Yeah. So that's the range. For females, it goes from 34 to 163. For men, from 47 to 225. So this was what they were shown. When they were shown this, turned out-- so actually, before they did that, they actually asked parents, what do you think are the returns to education?

Before they showed them, they actually asked them, if your child got an education, how much would his income go up by? So they had written that down. Then they showed them this picture.

And what's nice is that the parents who already thought that children were going to get high returns, their behavior didn't change very much. Whose behavior has changed? The parents who thought that the returns for the children were much lower than they really are. And about 50% of the parents had very low returns.

And for those parents, you get a very substantial improvement in-- no, that's not it. I don't know where-- OK. So it was a very substantial improvement in the children's school attendance, to the point where every intervention we have studied, the cheapest way to improve school attendance that we found, ever, is this one. This really is an extraordinarily cheap intervention. It doesn't cost much money to tell people the returns on education are higher than you think.

If you can do it in a credible way, that improves education very cheaply. And it has a substantial effect. This turns out to be the cheapest single thing that Poverty Action's lab researchers found for improving education.

Obviously, it doesn't do everything. You can't go very far with this. Because it's not going to distill all kinds of other things. If the education system's broken, then people

are not going to learn anything from the school, et cetera.

But to get them into school, this is a very, very cheap way to do it. So there's lots of parents who are clearly discriminating against their children and not sending them to school because they think their children are not going to get anything out of it. Why do they think that?

Well, they think that their children are never going to make it through the 12th grade, or whatever it takes to get real money from education. So they'll already assume that, my child is never going to make it 12th grade. Since he's never going to make it to 12th grade, what's the point?

And therefore, they don't send children to school. You persuade them that even if you went from third grade to fifth grade you get extra returns, then they start sending children to school. So the returns to primary education for many, many parents are massively underestimated. Yeah.

AUDIENCE: I have a quick question. Is it distributed evenly across the incoming classes? So for example, you were trying to say education was for people who are very wealthy. It could be 120% returns to people-- it's education to people who are lower class to be 0.5%, in which case, that progression will be tilted towards the high end. [INAUDIBLE]?

PROFESSOR: Yeah. So people have looked at that. Typically, it's difficult to look at. Because you could imagine that very few people who are wealthy families stop at third grade. But to the extent that you can look at it, you don't see big differences. There's some differences, but not of the order of magnitude you're suggesting.

AUDIENCE: I was wondering if anyone has looked at the peer effects. Like you have a village. And there's several families. And some of them are sending their kids to school, and others aren't.

Are there any effects that just one family sees how the other kids, look, they're going to school. And they seem to be learning. And they seem to be accomplishing

something.

Do they feel like they're just wasting their time? Their parents always complain [INAUDIBLE]. Are there any effects between families?

PROFESSOR: Probably. Nobody's looked. I mean, people look at this. But the problem is that when you study peer effects, the first problem is that typically, your peers are not randomly chosen. So you hang out with families that are like yours. So therefore, the peer effects tend to be over estimated. What looked like peer effects could be just the effect of, who do you hang out with?

So there's lots of evidence of peer effects, but not so much at this level. Because it's hard to randomly assign peers. The one place where you can randomly assign peers turns out to be in college. So there is a nice set of studies, like of Dartmouth, for example.

In Dartmouth, there's a college lottery. And you get different roommates based on your lottery. So if you get roommates who are more inclined to study, you're more inclined to study. You get roommates who are more inclined to drink, you are more inclined to drink.

There seems to be clear evidence of some kinds of peer effects. But it's hard to find because of this reason. If you look at the data, it looks like there's huge peer effects. If you look in the US, and you look around Boston, you'll find that in Somerville, people who live in Somerville seem to live with other people who don't get much of an education. And people that live in Lexington live with other people that get a lot of education.

That's not because of large peer effects. It's because people who want to get a lot of education, good education, go to live in Lexington. Or other characteristics of people who live in Lexington, rich people live in Lexington. It's not because of peer.

So peer effects are hard to detect. But I think that where people have tried to look at it, like with this Dartmouth lotteries and stuff, they find it. But it's hard to detect for the reason we just discussed.

OK. So now what I want to do is switch to the teachers. So we talked about the effect of this on the parents. The parents do two things. One is that they don't invest in most of their children. I'll come back to the parents, actually, later. And the second is that they discriminate.

Let's go to the teachers. Same hypothesis. Teachers also believe, and maybe teachers don't intrinsically have to believe this, if parents believe that the only goal of the school is to get their children to 12th grade or whatever to get through school, then teachers will have the same incentives. So the teachers will believe what the parents believe.

Because it doesn't matter what the truth is. I'm going to get paid if the parents like me. And the parents like me if I have the belief that they have. So it's not clear that the teachers even need to have the wrong beliefs.

But I suspect parents, teachers do have the wrong belief. I'll tell you why in a little bit. So first thing that that implies is that teachers will teach to the top of the class. If you believe that the goal of this whole thing is to get children to complete 12th grade, and in addition, you believe that you live in a country where most people don't complete 12th grade, then you're going to say, well, most people are not capable of completing 12th grade.

Because in fact, that's what you see. Only 20% complete 12th grade. In Madagascar, maybe 10% complete 12th grade. And you see that, you say that most people are not going to complete 12th grade.

So therefore, doesn't make any sense to try to get the bottom of the class to-- if I believe A, that completing 12th grade is the only thing that I care about, and B, that only a small fraction of these kids are capable of reaching 12th grade, I think both of which are probably false, but imagine I believe those two things. How should I teach? I'll teach to the top of the class.

Because those are the only people who are going to make it. So I might as well concentrate my resources on that, and forget about the rest. The rest are here as

passengers. They're going to come. They're going to listen. They won't get anything. They'll leave. I don't really care, because that's not the goal.

And in particular, there's a nice instance of this. I'll talk about an experiment in a little bit where the school got an extra teacher, let's say for eighth grade, or fourth grade. And in fourth grade, this class was split up. And half the class was given to the extra teacher. And half the class was given to the original teacher.

In some of the schools, it was done so that the better performing children went to one teacher, and the worst performing children go to the other teacher. This was done by lottery. So there was a lottery. And one teacher got one, and the other got the other.

The teacher who got the bottom half of the class was really upset. Because they really believe this is pointless. They thought that this was just, why am I teaching the bottom half of the class? There's no point in teaching them. Because they, too, believe that the bottom of the class can't learn.

Because their whole goal is not to get them from fourth grade to fifth grade, but to get them from fourth grade to 12th grade. So the goal of teaching, it's pointless to teach people at the bottom of the class. Because people at the bottom of the class can't learn.

So once you believe that people at the bottom of the class can't learn, then you focus your effort at the top of the class. Now as you can imagine, what is the consequence of that on the students? What would that do to students at the bottom of the class?

AUDIENCE: Well, they were probably discouraged. They'd feel more discouraging if the teacher is actively or subconsciously [INAUDIBLE].

PROFESSOR: Right. Is that what you were going to say? Yeah. So they're going to get discouraged. Now what happens when they get discouraged?

AUDIENCE: Poor performance.

PROFESSOR: Sorry?

AUDIENCE: I said poor performance.

PROFESSOR: They perform poorly. What does the teacher think?

AUDIENCE: Stupid.

PROFESSOR: Yeah, they're stupid. So it's a vicious cycle. Because once I believe the start from this theory, that the bottom of the class can't perform, then I give them no attention. They're all discouraged. They're not trying. They're doing badly.

I think they're stupid. Then I feel like, you know, I was right in focusing on the top of the class. So you get into this vicious cycle of false beliefs.

The other thing that this would mean is that teachers also really-- so teachers also, in class, they will look for the kids who can get to their view of whatever the goal is, getting through high school. And if there are a few kids like that in high school in this class, they're going to stop putting in effort. You also expect why teachers would not put in a lot of effort, because they'll think, look, I got stuck with a bunch of dodos who can't learn. What am I doing here?

So once teachers start believing that children are unequal, then you get this phenomenon that lots of teachers also give up. So the Pratham experience is, I think, illuminating here. So one of the experiments you must have talked about was the summer school experiment. The summer school was basically, some villages randomly got a summer school.

The teacher was given some extra money to run a summer school. This is the same teacher who teaches in school where the schools are very low performing. Yet, when this teacher was given a small amount of money and was asked to run a six weeks summer school after a few days of training, that had very large effects on the children's learning.

The children who went to summer school learned a lot. So why is it that this teacher

who can teach these children quite effectively in summer school, why doesn't he teach them effectively during the school year? What's going on? How can it be that the same teacher, when he teaches summer school, he gets large gains. But when he teaches regular school, he does so badly?

And one explanation is that in summer school, his job is to attend to the worst performing children. In the regular school, his perception is that his job is to attend to the top of the class. So in the regular year, he's not teaching these children. He's teaching the top of the class.

When he's actually told, teach these children, he actually can do it just fine. It's just that's not what the system is telling him. His view of what his job is is that I have to get the top of the class to learn the entire curriculum, and be able to get into whatever, into a better high school or something. He doesn't see his goal as teaching the bottom of the class.

When you actually ask him to teach the bottom of the class, when that is his assigned job, he does just fine. So that would also be consistent with this view that the real problem is not that the teachers don't have the incentive to teach, or they don't want to teach. But they're being told to teach the wrong thing. They're trying to teach these children something that actually isn't.

So here's the experiment I talked about. This is very much on this point. I already talked about this experiment, 120 schools were cut into two, in 60 schools. All schools were given extra teachers. And then half of those schools, the extra teacher was assigned to, the class was split at random.

So every class, they used to have one teacher. Now they have two teachers. Class was split at random. So half the class went to one, half went to the other. In the other half of the schools, they were not split at random. They were split by baseline competency.

So the better performing children were sent to one teacher. The worst performing children were sent to the other teacher. The teacher assigned was random. So you

didn't get a better teacher or a worst teacher, but you got to be in a classroom with children like you.

What would our theory say about what's going to happen? If you have any of the top, what would happen in this setting?

AUDIENCE: In both situations, you teach to the top. What it means for the teacher in the randomly assigned room is that the people who were respectively at the top of the class one, they still get taught to. But it means the people, when it's divided into the high performer, low performer, is you teach the top of that little [INAUDIBLE].

PROFESSOR: Exactly. So what this does is, I always wanted to teach the best four people only in the classroom. But the best people in the classroom have changed. When I divide the classroom in this way, the best people in the low classroom is someone who would have never got any attention in the original classroom. Or if it was divided at random, he would never be at the top.

So it changes who gets attention. Moreover, because I'm now paying attention to somebody who's not at the top of the class but in the middle of the class, the children who are at the bottom of the class are more likely to get something out of the class. Because what happens is that the distance between-- imagine that this is a class which has me and someone else. And I can't really read. And somebody else can read Shakespeare.

Now, if you teach to the top of the class, I'll get nothing. But if I'm put it in the classroom with somebody who can read a little better than me, but not that much better, then. If you teach to him, I'll still get something out of it because I'm closer to him.

AUDIENCE: Do the teachers know something? That they've got better--

PROFESSOR: Yeah. That's why they were protesting. And I said this before. They were actually protesting. But once they found out, they decided fine, we'll teach the best of this class. But the best of this class is still much less different from the worst of this class, then the difference between the best and the worst in the original class. So

even the worst in this class gets something out of the teaching, where you would have got nothing before.

AUDIENCE: So do you think that it'd be more effective to try to re-educate teachers such that they don't have the attitude that they only teach to the top of the class? Or is it better just to accept that as a reality, sort of like in this survey. And then just trying to make some circumstance to get a [INAUDIBLE]?

PROFESSOR: That's an excellent question. I guess my view is that it's difficult to get the teachers to believe that they should have a different attitude as long as parents have that attitude. So you need to start with the parents. Because after all, the demand for education comes from the parents. So the parents are the ones who are demanding this education.

So in other words, to go back to where we started, in this view, what's wrong with the school system is that the parents think that there's no point in educating their children unless the children are good enough to graduate high school. Therefore, they want the entire education system to focus on the few people in the classroom who are high performing, and ignore the rest. If that's what the parents want, the teachers will deliver that.

And it's going to get too hard to get them to do anything else. You'll first have to start with persuading parents that even if their child is not going to get to high school, he still should be educated. I think that's sort of the, I think, this-- so in fact, that's exactly what they found.

They found that when you do this, when you divide this class up, everybody benefits. The top children benefit. Because they're now being taught. The teacher is focusing on them. The top children of the bottom class benefit, because the teacher is benefiting from them. The bottom children of the top class benefit, because they are now closer to the top of their own classroom.

And the bottom children in the bottom class benefit because they are closer to the top of their classroom. So everybody is better off in this outcome. Because as long

as you can't force the teachers to teach the bottom, then what you can do, next best thing, is to bring the bottom closer to the top. And this is what this does.

If teachers are going to teach to the top, then you should try to have classrooms where the bottom is close to the top. And that's what you see. The evidence is very clear, everyone benefits from creating these tracks. This is the table. I won't go through it. Because we're going to run out of time.

This has already we've said. Who else gets hurt by this is the children, obviously. The children get hurt because they get discouraged. Most children get discouraged. Because they think education is not for them.

And this is especially true in historically discriminated populations. So historically the discriminated populations in many countries tend to be either by race or in India, it's by caste, or girls, depending on the particular structure of discrimination. Historically, discriminated populations tend to already assume that since they have very few people who have been educated, they assume that that's perhaps because they have no talent for it.

And then if you go and tell them, look. So another way to put it is that if you happen to be from a family who believe that you can be educated, then if the teacher says, you're stupid, they won't believe it. They're going to go and argue with the teacher. And say, look, in my family, everybody has a Ph.D. What do you mean, my son is stupid?

Whereas if you're actually from a family where no one has an education, it's much easier to persuade them that their child is not fit for education. So what you're going to do is you're going to reinforce stereotypes in society. Because who's going to believe you when you say your child is stupid? It's going to be the people who have been told historically that they're not fit for education.

They're going to be the most likely to believe you. So this kind of stereotype, the existing stereotype will be reinforced by, if you give people the message that their child is stupid, the existing stereotype would get reinforced. So that's something that

you see a lot. You see that the parents in these kind of very poor families tend to be more likely to believe these negative stereotypes of their children.

Another thing that this would explain is why children don't come to school. One thing that people don't emphasize is how rarely children show up in school. A lot of children basically completely don't believe that school is for them. And they may be enrolled in school. So on a given day, up to 50% of the children don't show up in a class.

Now, that's also true at MIT, as it turns out, but probably not for the same reasons. But many of these children basically hate being in school. And they hate being in school for the right reason, which is that they're constantly being told that this is not for you.

One interesting additional fact that was, this goes back to the stereotype, this is a nice experiment. So children were asked to solve mazes. You know what mazes are? Like these things where you have to draw a line, and there's a point of entry and a point of exit. And you have to find your way out of it.

So they were given these mazes and asked to solve them. I've done this, actually. It's fun to do. You can take a bunch of sheets and get people in the village to give their kids, and get them to solve them. And it's a very good test of cognitive abilities, it turns out. So that's what people usually do.

Now, somebody has a good idea of trying to follow it. They went to a village in India, and they got together a group of historically low caste people, people who were discriminated against. And combined them with people from high castes, and put them in the same group.

And one experiment, they just asked them, play the maze. Do the maze. And they found no difference between high caste and low caste. They got the exactly same scores. Not everybody didn't get the same score, obviously, but on average, there was no difference.

Second experiment, before they play the game, everybody was asked their caste.

So caste was made salient. And immediately, you see a big difference. You see that the people who were historically discriminated self-discriminate. They start playing badly.

They believe that they can't compete with the other guys. And they do much worse. So once you make caste salient, it's exactly this fact that once you prime my belief that I already am unsure whether I can do these things, you prime my belief that I am from a particular caste. I'm playing against these guys from a superior caste. I'm just going to think I'm going to lose.

And it's very simple. You just have to get them to remember what their caste is. And there's another experiment which is also interesting. I'll just say that and then move on. In another experiment, teachers were asked to grade the same paper.

And in some, they were told that the paper was from a high caste person. And some, they were told that the same paper was from a low caste person. Same paper, exact same paper, photo copy of the same thing with the same answers, but you're asked to grade it. And in one case, I said, this is from Caste A, the other case, I say it's from Caste B.

That was the experiment. Then the teachers themselves, some of them were from a high caste, and some of them were low caste. Who do you think discriminated? What was the pattern of discrimination?

AUDIENCE: I'm guessing the high class discriminated against the low class.

PROFESSOR: Turns out the opposite. The low class discriminated against the low class. Low class were scoring their own caste people lower. Because they also believe that people from their caste cannot do it.

So you have this underlying stereotype. And now you prime that by saying, this kid is stupid. What are they going to do? They're going to give up very quickly. As they already believe that they are not really capable of doing it.

AUDIENCE: In the maze experiment, did the results from the high caste [INAUDIBLE] change

[INAUDIBLE]?

PROFESSOR: I think they went down, if I remember correctly. They went down, but the others went down.

AUDIENCE: In the grade paper example, did the high caste graders discriminate also against the low caste?

PROFESSOR: No. No discrimination from the high caste. Only the low caste--

AUDIENCE: Did they grade the high caste papers any higher?

PROFESSOR: No.

AUDIENCE: OK.

PROFESSOR: Zero effect of the high caste. Only the low caste teachers discriminated against the low caste students. It was dramatically-- it's not what I expected. But it does show this self-discrimination is very powerful. The reason I emphasize that is that that's the problem here.

Once I have a classroom full of kids who are being told they're stupid, the ones who are from a high caste are going to say, look, I know my grandfather was a religious teacher, and my father's a religious teacher. I know I am fit for education. I'm going to continue. It's the people who have weak self-belief who are going to be hurt by a system which basically discriminates against them.