



DATA
SCIENCE

DATA SCIENCE CHALLENGE

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THIS DOCUMENT INCLUDES VARIOUS AREAS WHERE GOVERNMENT NEED TO AMEND THE EXISTING TECHNIQUES IN FIELD OF EDUCATION AND INVEST IN MORE AUTHORITATIVE AND REALISTIC MANNER IN ORDER TO PRODUCE BEST OUT THE BRILLIANT MINDS WE HAVE. IT INCLUDES ALL THE FACTORS THAT ARE AFFECTING STUDENT PERFORMANCE , ENROLLMENT, DROPOUTS,OR TRANSITION FROM PRIMARY TO SECONDARY.



Less Formal Schooling = More Options

Students in India start formal schooling at very tender age. They are pushed into schooling. Instead allowing the children to be children, to learn through playing and exploring rather than sitting still locked up in a classroom can transform the whole situation. The kids must start schooling when they are actually developmentally ready to learn and focus. After all this students have these tracks:

- **Upper Secondary School:** This prepares students for the Matriculation Test that determines their acceptance into University. Students usually pick which upper secondary school they would like to attend based on the school's specialties and apply to get into that institution. I think of this as a mixture of High School and College. This is adapted in India but at the same time the vocational education must also be introduced as mentioned below

- **Vocational Education:** This must consist of a three year program that trains students for various careers as well as gives them the option to take the Matriculation test to then apply for University should they so choose. However, the students in this track are usually content with their skill and either enter the workforce or they go on to a Poly-technical College to get further training

(But wait! Shouldn't everyone take calculus, economics, and advanced chemistry?! Shouldn't everyone get a University degree?! No, not everyone has to go to University! Hmmm..... Interesting..... What if we provided options for those who want to become successful (and very profitable) welders or electricians? What if we didn't force students who know that their talents reside outside of the world of formal academics to take three years of high school classes that they found boring and useless? What if we allowed them to train in and explore vocations they found fascinating and in which they were gifted? What if we made these students feel valued and like they had a place in the education realm?). This will transform the whole situation and lead to better future of a child

Less Time in School = More Rest

Students typically start school between 7:30 and 7:45. Actually, Helsinki is thinking of creating a law stating that schools cannot begin before 9:00 am because research has consistently proved that adolescents need quality sleep in the morning. The school day usually ends by 2:00 or 2:45. Most of the quality time for exploring new things is utilized in schooling. Therefore less time is left for rest of the things students' schedules should be kept consistent; however they must typically have three to four 75 minute classes a day with several breaks in between. This

overall system allows both students and teachers to be well rested and ready to teach/learn.

Fewer Instruction Hours = More Planning Time

Teachers have shorter days as well. According to the OECD (Organization for Economic Cooperation and Development) an average teacher teaches 600 hours annually or about 4 or less lessons daily. An average Indian teacher almost doubles that teaching time with an average of over 1,080 hours of in-class instruction annually. This equals an average of six or more lessons daily. Also, teachers are expected to be at school even if they do not have a class. This system must be transformed. Teachers should not attend school whenever they have no classes. This system allows the teacher more time to plan and think about each lesson. It allows them to create great, thought provoking lessons.

Fewer Teachers = More Consistency and Care

In India teachers keep on changing as we get into higher classes. This hinders the ability of a student. Elementary students must have the SAME teacher for up to SIX YEARS of their education. The same teacher cares for, nurtures and tends to the education of the same group of students for six years in a row. And had better believe that during those six years with the same 15-20 students, those teachers have figured out the individual instructional needs and learning styles of each and every student. These teachers know where each of their students have been and where they are going. They track the kids' progress and have a personal invested interest in seeing the kids succeed and reach their goals. There is no "passing the buck" onto the next teacher because they ARE the next teacher. If there is a discipline or behavior problem, the teacher had better nip it in the bud right away or else deal with it the next six years.

This system is not only helpful to a child because it gives them the consistency, care and individualized attention they need, it also helps the teachers understand the curriculum in a holistic and linear way. The teacher knows what they need to teach to get them to the next step, while also giving the teachers freedom to work at the pace of their students. Teachers don't feel the pressure to speed up or slow down so that they are "ready" for the teacher next year. Again, they are the teacher next year and they control the curriculum! They know where the kids are and what they have learned and will plan according to the students' needs.

Fewer Accepted Applicants = More Confidence in Teachers

So.....children have the same teacher for three to six years. What if any kid gets a “bad teacher”? we must ensure that there is no bad applicant for the post of teacher. Primary education is THE most crucial stage of life. The elementary education departments must only accept the deserving applicants and must turn down thousands of students annually. A person not only has to be the best and the brightest to become a primary teacher, they also have to have passed a series of interviews and personality screenings to get in. So, it isn't enough to be the smartest in your class, you also have to have the natural ability and drive to teach.

Intellectuals understand that the ability to teach isn't something that can be gained from studying. It is usually a gift and passion. Some have it, some don't. The few universities with teaching programs in India make sure they only accept applicants that have that gift. On top of excellent grades, and a natural disposition to be a teacher, all teachers must get a Master's degree and write a Master's Thesis. This generates a lot of confidence and trust in teachers. Parents trust the teachers to be highly qualified, trained, and gifted individuals. They do not try to interfere or usurp their authority and decisions. I asked a math teacher how many emails they typically get from parents. They shrugged and answered “About five or six”. I said, “Oh, I get about that much a day too.” They then answered...”No! I meant five or six a semester!” Again, what would it be like to live in a society based on trust and respect? This must be applied universally all over in India so that there is overall development of an individual.

Fewer Classes = More Breaks

In India as depicted through the data teaching time is longer as compared to breaks. To resolve this out, students must have three to four (or rarely, five) classes a day. They also have several breaks/recesses/ snack times during the day and these usually happen outside come rain or shine. These 15 to 20 minute gives them time to digest what they are learning, use their muscles, stretch their legs, get some fresh air and let out the “wiggles.” There are several neurological advantages for these breaks. Study after study supports the need for children to be physically active in order to learn. Stagnation of the body leads to stagnation of the brain and unfocused, “hyper” children.

The teachers also have these breaks. The first day I was in a school a teacher apologized for the state of the “Teacher Room.” She then commented on the fact that all teacher rooms must look like this. I laughed and politely agreed, but in my head I was thinking; “What is a teacher room?”. These rooms are always full of teachers who are either working, preparing, grabbing a cup of coffee, or simply resting, socializing, and mentally preparing for their next class.

Secondary level teachers usually have 10 to 20 minute breaks in between classes and often have a few skip (prep) periods as well. These rooms are different depending on the school, but from what I can tell the basic formula is a few tables, a few couches, a coffee pot, a kitchen, a selection of free fruit and snacks, and teachers to talk and collaborate with

So, why don't these rooms of collaboration, support and solace exist in the India.? We do not have TIME! Every day we teach six to seven classes in a row with no breaks. The three to five minute passing periods we do get are often used to erase the board, get ready for the next class, make copies, answer student questions, pick up the mess left behind by the students, and (heaven forbid) go to the bathroom! If we have a spare moment we are then expected to monitor the hallway because we can't trust students to get to class without supervision. The luxury of actually sitting down for 10 minutes and enjoying a cup of coffee with some colleagues is an absolute dream, and having a day with only three classes—that is a fantasy! But this fantasy can be totally transformed in reality.

Less Testing = More Learning

In India testing time is more as compared to learning time as given in datasets. In order to rectify such a thing , let`s look over an example Imagine all of the exciting things you could do with your students if there wasn't a giant state test looming over your head every year. Imagine the freedom you could have if your pay wasn't connected to your student's test scores. Imagine how much more fun and engaging your lessons would be!

Although it still exists, there is overall less pressure on the teacher to get through the curriculum. The teacher is simply trusted to do a good job and therefore they have more control over their classroom and its content. The teacher is able to take more risks and try new things and create exciting, engaging curriculum that allows students to become skilled individuals ready for the real world. They have time to teach skills that allow students to develop into individuals who know how to start a project and work systematically to accomplish a goal. They have time to teach craft education where students get to learn how to do real life skills like sewing, cooking, cleaning, woodworking and more! And while they are learning these amazing skills they are also learning math and problem solving and how to follow directions!

Fewer Topics = More Depth

I have observed several fifth through ninth grade math classes. I have looked at the curriculum covered over these five years of education and I realized that I attempt to teach the content of five years of math education in one year. Each math topic

Presented in every grade level I have observed here is include in my seventh grade curriculum.

If I am to get through everything I am expected to do in one year I have to introduce a new topic/lesson every other day and I always feel “behind”. Behind *what*, I am not sure, but the pressure is there pushing me and my students along. But some teachers take their time. They look deeper into the topic and don’t panic if they are a little behind or don’t cover every topic in the existence of mathematics in a single year. Also, students only have math a few times a week. In fact, after Easter Break, all of my seventh graders only have math ONCE a week! My heart still panics a little when

I hear this! I can’t believe that is enough math time! How will they be ready for the tests?! Oh— wait. There are no tests. There is no need to rush through. The students get to actually understand the material before they are forced on to a new topic. One teacher showed me a course book and said that it had too many topics for one five week grading period. I looked at the entire book and had to stifle a chuckle because it essentially covered what would be found in ONE chapter from my textbook. Why do we push our kids to learn so much so quickly? No wonder they are stressed out! No wonder they give up! We need to adopt this system in India as well.

Less Homework = More Participation

According to the OECD, students must have the least amount of homework in the world. They average under half an hour of homework a night. Students should not have outside tutors or lessons either. This is especially shocking when you realize these students are outscoring the high performing Asian nations whose students receive hours of additional/outside instruction. From what I can observe, these students get the work done in class, and teachers feel that what the students are able to do in school is enough. Again, there is not pressure to have them do more than what is necessary for them to learn a skill. Often the assignments are open-ended and not really graded. Yet, the students work on it in class diligently. It is very interesting to see what happens to the students when they are given something to do. The students who were not listening to the lesson at all put away their phones and start working on the task set before them. Even if it is just a suggested assignment, they give it their full attention up to the end of class. It is almost like there is an unspoken agreement: “I won’t give you homework if you work on this while you are in my classroom.” This system has really made me think about the amount of homework I get assigned on a daily basis. But the situation is almost contrasting in India. And we must have to work upon it

Fewer Students = More Individual Attention

This is obvious. If you have fewer students you will be able to give them the care and attention they need to learn. A teacher must have about 3 to 4 classes of 20 students a day- so they will see between 60 to 80 students a day. But in India, I see 200 students every single day. I have 30 to 35 students in a class, six classes in a row, 6 days a week.

Less Structure = More Trust

Trust is key to this whole system not structure. Instead of being suspicious of one another and creating tons of structure, rules, hoops and tests to see if the system is working, simply trust the system. Society trusts the schools to hire good Teachers. The schools trust the teachers to be highly trained individuals and therefore give them freedom to create the type of classroom environment that is best for their individual students. . The Parent's trust the teachers to make decisions that will help their children learn and thrive. The Teachers trust the students to do the work and learn for the sake of learning. The Students trust the teachers to give them the tools they need to be successful. Society trusts the system and gives education the respect it deserves. But there is lack of such powers in India . It works and it isn't complicated.

Attendance Ratio

In India , there is 70-75% of students who attend the school regularly during the whole academic year. But what about those students who are not able to attend school due to medical reasons, financial status, narrowmindedness, etc. There must be some alternate in order to help them out figure out this issue. This can be done by launching an open source website so that they unprivileged can also get access to these resources and contribute to nationwide development. That website should include all the video lectures of experienced teachers so that they can attend the lectures that they had missed and can continue their studies.

Reservation!!

This is the major issue that is being provoked in India widely. Reservations are provided in every aspect be it admission or be it any entrance exam or same.

But these reservations should be eliminated for the class which is capable enough to compete with the main stream of society. Reservations should be provided to economically depressed classes in order to uplift them and allow them to join the main stream of society. Therefore focus must be shifted from reservations to more important notions in field of education.







