

**Teaching Bilingual Science
by Kelami Dedezade**

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Kedlami Dedezade introduced the Bilingual Science project which has been supported by the DfES. Kelami has worked in the Borough of Haringey for 20 years, for most of that time in an advisory capacity. He started his career there as an advisory teacher, and is now a school improvement officer. A major part of his work involves looking at the under-achievement of Turkish speaking pupils, all Turkish speaking pupils, whether of Mainland Turkish, Kurdish or Turkish Cypriot origins.

Kelami has had a long-standing interest in the reasons why the Turkish speakers are under-achieving in the British education system.

The following is a transcript of Kelami Dedezade's presentation:

“The statistics that I can recall start in the 1960s under the Inner London Education Authority (ILEA). A very good friend of ours, Professor Soniel, was the first to bring the following to light: ever since 1966, when his records, the ILEA's records, started, the Turkish Cypriots were under achieving in school. They were absolutely at the bottom of the league table. It has been forty years now, and the Turkish speakers are still at the bottom. For me, as a Turkish speaker, this is extremely upsetting. Pat (East), this morning, touched upon issues concerning different ethnic minority groups. But we, in the Turkish diaspora, we think we are the ethnic minority of ethnic minorities, because we are nowhere within those lists. No matter how small our numbers are, and we think we are about 300, 350,000 Turkish speakers in London, this should be enough for us to get some kind of recognition. Having said that there is no definite number, because the census doesn't recognise us: we are “any other white”. But I can give you some indication. I am involved in Turkish radio. The radio has done research on this, and figures we have over 300,000 people in London. We have 80,000 listeners in Haringey alone. It gives you a rough idea where we are. Having been involved in educating all pupils, including Turkish pupils, and having been through the British education system myself as a pupil, I can tell you that not much has been done in the last 40 years. Maybe a lot of things have been tried, a lot of different methods of trying to help this group of students, but nothing, it seemed, was moving them forward. When you get a situation where the students' only success, at an exam their own language, doesn't get them points for university or college entrance, then you get extremely upset.

When I first started in Haringey, I was part of a team advising schools on educating ethnic minority students. At some stage, do you remember that terrible old word? There was some *withdrawal* going on. We had support work going on, we had translators going into classes (the modern day equivalent would be classroom assistants perhaps), we had a lot of different methods of trying to help these pupils. I always believed, 20 years ago, in the method I am going to talk about now.

About 20 years ago when I first started I was lucky enough to be invited to a conference in Liverpool for local inspectors and advisors. We were told we could ask

any questions and I remember, as a new person in the job, putting my hand up and saying to the HMI, the person who was leading the conference, “Have we tried teaching those kids in their own language the concepts of the National Curriculum, whilst they are learning English, so that they can actually transfer that knowledge, once they have got the English language, into that language that we want them to learn?” His reaction was “Sir, the point (pointing with his finger), I draw your attention to the official teaching languages in Great Britain, they are English and Welsh”. Another way of saying “Please shut up and sit down”.

All those years later, three years ago, I came across an innovative headteacher by the name of David Daniels. Have you heard of David Daniels? He’s one of the “super heads”. He gets mentioned in papers week in, week out. He has now been taken on for a new academy in Hackney. He has just been head-hunted to work in Hackney and I believe he’s going to give it a right go! David Daniels and I were talking one day. I said “David, look, you have White Hart Lane School, you have 1200 kids in the school, one third of your population speaks Turkish. There are 400 – odd Turkish speakers at White Hart Lane. What can we lose? Why don’t we try teaching these kids in a language that might mean something to them, while they are building up their English?.” Do you know what he said? “If you do it, we’ll go ahead.”

So that is the beginning of my story. What I’m going to share with you very quickly is what I do. It’s not magic; it’s been done before; I’m not the first person to do it in the world. It’s been done in the United States, with Hispanic pupils, it’s been done in Germany and in Canada. In those places where it stopped happening, it stopped because of political reasons and it stopped because there were not enough bilingual teachers coming up through the system.

Basically we went back to look at the issues: why we needed to do this. I’m not going to go through all of this because it would be an insult: we know the reasons why we are doing this. We know that children who are literate in their own language are quicker to learn a second language. We know that. And we know that some of our pupils, who came from Turkey or Cyprus, who have had education in their own language, we know how fast they are learning in the British education system as well. We know that. But that’s not the case with most of our students in London schools. Nowadays, most of them have not had education in their own language. They are now attending our primary schools, they are learning Turkish at home, they are coming through from the primary into the secondary and their literacy in Turkish may not be what the first group to come had. They are talking in Turkish, but they are not reading and writing. We also know from research, and looking back at the statistics, that those pupils whose families came here years ago, whose granddads have been here; those people, second and third generation who are in our system now, are also under-achieving, those Turkish students I’m talking about. We know this. The Turkish Cypriot population can tell you that, the first arrivals: their sons and daughters are in that category.

So, what has been done with these kids in the past, 20 years ago, up to now? They need to access the curriculum, so we put them into the classroom. The kids in some cases can’t speak English, but they need to access the curriculum, so we’re putting them in the classroom. They are sitting in a KS 4 Science lesson and they are absolutely lost. And if you multiply the typical kid by another 15 in a typical

Haringey school, in a typical White Hart Lane school, you have 15 kids out of 27 in your class who are switched off because they don't understand what's going on. You can imagine what can happen and what happens. There's a riot. Because they don't understand the lesson, they speak during the lesson, they annoy others, they don't attend to the lesson, they truant, they get involved in undesirable things. We know that, I'm not going to go over it. As a rule they get excluded, and that's just another way of telling them not to achieve: "you've done this in the class, three days, one week excluded". Then there is no access to education at all, they are out there in the streets. That's the rationale behind why we thought we had to try another method.

According to the research, the students acquire conversational English within one to three years. We all know that, we are in the field of teaching English to the kids. The language needed to perform abstract and academic tasks takes within 5 to 7 years, and that is really crucial. Just because one of our students, or most of our students, in Haringey, speaks with the local accent, (you don't notice a foreign accent) doesn't mean to say that they are OK, that they understand everything. That is them learning English in the first 3 years. The academic English needs another 5, 6 or 7 years says Jim Cummins (you must read Jim Cummins, he's absolutely fantastic on this).

Students' ability to learn English depends upon the amount of comprehensible input they receive in the language, which is not dependent only on the amount of exposure to the language but on appropriate teaching techniques. Students' content knowledge in their native language increases the amount of comprehensible input available to them for learning English academically. I've been to primary schools and to secondary schools where, with all the goodwill in the world, teachers and teaching assistants try to make certain science concepts bilingual. Word translation from a dictionary does not work. It really does not work. If used in the wrong context, words may mean what they are not intended to mean. Just one example, a very innocent word in Turkish "Yuz". That can mean the number 100, it can mean "swim", it can mean "the face" it can mean "to scratch", OK? So if I go into the classroom where you are teaching body parts, OK so that's one example, I have seen other examples where words are used out of context. Even spellings can be an issue. In Turkish we have a capital I with a dot, for instance, and a capital I without a dot. Both have different meanings. "Sık", without the dot means "dense", the one with the dot means the F-word. So, with all the goodwill in the world, you're going to get some things going wrong and along the line it's not helping.

What's the next thing to do? The next thing for us was, our starting point was going to be KS4. We knew that the end result would be an examination and therefore the results, the end of module examinations would give us an indication of success or failure. The ideal for us would even be to bring this experiment down to primary levels, but then that's for the future.

The goals of the project were to teach KS4 bilingual science to a group of middle ability Turkish, Turkish Cypriot and Kurdish students in order to raise their grades in the science GCSE exam. GCSE examination in science, KS4, starts in Year 10 of a secondary school. The pupils have chosen their options, what they are going to study. Science is compulsory as a single lesson. If you chose to study it, then you chose double science. This project is for everybody who is doing compulsory science. Basically, we looked at all the students in Year 9, the following year's Year 10 and

we looked at their Year 9 SATs results in science. Can you see what those are (see slide 6 of Power Point presentation) ? Level 3. Not good. These are all Turkish speakers. If you look at the other results in maths and English, they're not good either. So therefore, out of a lot of Turkish speakers, we had to choose about 25, in this case 23. So we looked at the maths, English SATs results, we chose students, all Turkish speakers, for this project. I will show you a couple of examples.

I am a bilingual science teacher. I actually have my qualifications in science, in physics. We teach modular science: that means that in two years we need to cover about 6 modules in science: module 1 could be human biology, module 2 could be electricity, etc. I'd prepare bilingual materials for each module and hand outs. But I do my teaching, in the first year, for up to 6 or 7 months, 80% in Turkish. So, when the pupils come into the classroom, 80% of my teaching is through the medium of Turkish. The write up on the board (and we have an interactive board, which is very easy and the kids like that) is in English. Delivery is in Turkish, write up in English. Any hand outs, and you'll see examples of my hand outs in a minute, are bilingual. Homework is bilingual for obvious reasons. There might be an older sister or brother or mother or father who are literate and want to help at home etc.

As we progress throughout the year, towards the end of Year 10 and the beginning of Year 11, the final year and heading towards the exam, the balance in the teaching changes slightly. I say slightly: I use whatever language I feel that the pupils are comfortable with and they answer in whatever language they want to answer in as well: in short, it's as simple as that. I find that some pupils within the group prefer to ask their questions in Turkish and have their explanations in Turkish, some pupils would want it in two languages, in English and Turkish as well, and some pupils prefer it in English. So we're not fussy about that. But we know that there is not one person in the class who can turn round and say "Sir, I did not understand what you are telling me. I don't understand the concept of digestion. Can you explain to me what digestion is?" Which language do you prefer? Where did you not understand? I will tell you it in two languages, see me after class. It works, because at the end of each module the pupils have an end of module test and, this is the second cohort that I've had since the project started, in both cohorts there has been an upward movement. The pupils are scoring better in end-of-module test results. The first group I took over half way through their GCSE and it was very evident, that they actually scored higher. The second group I have nothing to compare with, except other Year 11 pupils, therefore that isn't a good control. But I have good news, one of Pat's (East) colleagues at the university (Londonmet) and at the University of Barcelona, they are going to come in September and record this and write an academic report about this project, hopefully for all to share and hopefully we can move forward better then.

Before I go to show you a couple of examples of hand outs, we know, until he failed to get elected into Parliament, that the Schools' Minister, Stephen Twigg, absolutely backed this project. If he had stayed in power, he would have pushed this through and it would have become officially recognised. At the moment the DfES are observing this project very kindly, they are saying good things about it, but nobody has actually come out to say, "Yes, we'll put this as part of our good practice." We're waiting for politicians to decide what will happen. The second thing is that, because the DfES is not officially backing it as yet, we need backing from elsewhere. One company, BromCom, the electronics company, are likely to put some money into this project.

They were actually kind enough to back this present course with quite a lot of money, so we don't have to depend on others. I believe in this system and that's why I have taken it on. This is a hand out (demonstrates slide 7) for when we are doing halogens, the writing in blue is in English, the red is in Turkish. We would have covered this in both languages, but mainly in Turkish and the pupils would have understood what halogens were, that they are gases that belong in group 7 (group 7 are represented in pink), and what they are etc. Hand outs are an expense, but because we are sponsored they are all in colour, it makes it more interesting. The hand out covers Group 7 halogens, what they are, what they do, a little bit about their molecular formula, how reactive they are etc. and this is on a CD. I actually do a lot of this material, it's interactive. It's not available on this presentation here, but in class, if you press the button the fluorine flies in and goes to the top and the pupils love this. Ofsted, when they came to look at this session, one of the comments was how useful the interactive materials were. Again, the properties: colourless gas, greenish-yellow gas, red liquid, they are all bilingual. So pupils know what they are.

Homework.: homework in two languages. Obviously the final exam is in English. We are heading towards everybody answering in English; although initially I don't mind in what language the answers are as long as they are correct. But towards the end, towards the middle of Year 11, everything is in English. If you noticed, in the other hand outs, all the key words and key phrases are in English.

Lastly, we've had assimilation, partnership teaching, in the past, integration has been tried, withdrawal systems, special English classes that I went to when I first came to this country, it was called special English. We have support in the class, but I believe that we are going to head for the next best thing, which is bilingual teaching. Thank you.