

Zeal Educational Services Pvt. Ltd.

The “Third Way” FAQ

- 1 Is it possible to summarise the “Third Way” in very brief?

You can be TAUGHT a subject like Science, you can LEARN Science, you can DO science by becoming a scientist. The “Third Way” refers to “DOING AND BECOMING”.

- 2 Are there really three different ways of educating students? When we were young, there was only one way!

True; in the past, the main idea of education was to teach a child to perform certain tasks correctly. The most important of these tasks was to answer the questions given in the textbook. There is only one “correct” or “official” solution to these questions; other solutions were not acceptable. For example, if you were asked, “Write a short note about King Lear”, the only acceptable answer was to say what a noble man the king was, describe how he suffered at the hands of his two elder daughters, etc., even if you felt that he deserved what he got! All the student had to do was to learn the answers to the questions and reproduce them in the exam. Classes were boring, with the teacher droning on and on about the causes of the First World War (or the properties of solutions of the Legendre Equation) while the student waited for the bell to ring so that they could play a game of cricket and enjoy themselves. Education was imparted with a stiff upper lip, with no hint of any zest for education appearing on the faces of teacher and taught alike.

The second method tried to introduce some fun and interest into these proceedings. Classes became fun when children saw movies about Duke Ferdinand or saw computer simulations of spherical

harmonics. However, teachers still taught the correct solution; it was after children had learnt it that they had an opportunity to try things on their own.

The Third Way reverses this: the activity precedes teaching; in fact, the results of the activity are used by the teacher as starting points of her teaching. Most of what she says is a summary of what children have discovered!

3 Why do we need the Third Way today?

The present age is one of constant change. The rate of change is constantly increasing and the greatest challenge that we face is to cope with change and the new problems that it brings with itself. Learning to solve today's problems is of no use to the child who will be faced with totally different problems after a decade; she has to learn how to solve problems instead.

4 What are these new problems that we keep hearing about?

Here is a short list (incomplete, of course)

- *You are teaching in a classroom, when a mobile rings. What do you do?*
- *You are the principal of a school; one day, you find that a girl student's face has been attached to a nude photo. The entire school is discussing nothing else. What do you do?*
- *You are a manufacturer of toys with a successful business that has been running for 2 decades. Suddenly, there is a flood of cheap Chinese toys on the market. What do you do?*
- *You are a doctor, who informs a patient that he has Parkinson's disease. The next time the patient visits you, he has consulted some web sites and thinks that he knows all about PD. How do you tell him that a little knowledge is worse than none?*
- *You have given an assignment on the role of Bhagat Singh in the Freedom Struggle. A student hands in a very well written assignment – one that is too good to be written by him. You*

suspect that he has copied it from the Internet. How do you confirm this?

- *You are using a computer in an English class when something goes wrong. You are flustered and do not know what to do when one of your students tells you, "Ma'am, just press F3, everything will be OK!" Later, you overhear some students discussing how Ma'am does not even know how to operate a simple PC!*

These are problems that we did not dream of facing when we were in school or college.

- 5 Does not conventional education also help us in solving problems? After all, I went through a conventional education system and I have successfully tackled many such problems.

Of course it does; if it did not, we would never have been able to progress as we have done. But, in conventional education systems, problem solving skills are imbibed unconsciously. There is no attempt on the part of the education system to make the attainment of such skills an important, if not the most important, goal of education. The "Third Way" makes the acquisition of such skills a cornerstone of the lesson plan.

- 6 After all, children must learn Newton's laws (or the use of logarithms, or the history of the Mughal Empire). Why don't we just teach children these things and be done with it?

True; however, all the knowledge that we have gathered so far, be it in science, maths, history or whatever, is due to human effort and ingenuity. While gathering such knowledge, humans have gone through certain thought processes, certain systems of experiments, etc. Taking children through similar processes ensures that children understand why things are done the way they are, rather than just learning how they are done. If one group of humans could develop a concept or idea, why cannot another group of humans redevelop it and maybe improve upon it?

- 7 How can children improve on ideas and concepts that have stood the test of time? After all they do not know anything!**

That's precisely the point: they know very little. As a result, they look afresh at a problem, unbiased by the weight of previous knowledge. Many suggestions that they make are worthless; once in a while, however, they hit pay dirt. Progress comes from such serendipitous events, however rare. A simple example: I was once conducting a simple experiment, wherein I took a glass with a hole at the bottom and filled it with water. Of course, the water started coming out. When the glass is dropped, the water stops coming out of the glass. The explanation is that both the glass and the water are in free fall, so they fall at the same rate. I asked students why the water stopped coming out of the glass; one student replied that it was because of the pressure of air! This set me thinking: how could I rule out air pressure? Of course, I could try performing the experiment in vacuum (would not the water evaporate?) but vacuums were out of the question in my place. After some thought, I got an answer: I held the glass in my hand and moved it down as fast as I could. The water came out, because it was in free fall, while the glass was not; the pressure of air was still there! The point is that this experience made me realise and understand free fall slightly better!

- 8 We hear a lot about the need for "Lifelong Re-education". How does the "Third Way" relate to this need?**

The reason why we need Lifelong Re-education is because of change and the "Third Way" relates directly to change. Another way of looking at this is to realise is that Lifelong Re-education implicitly needs an ability to learn on ones own. After all, when you buy an expensive gadget, it comes with a 100-page manual and you have to learn how to use it on your own! One of the skills that the "Third Way" explicitly encourages the child to absorb is that of

comprehension: the ability to understand instructions on your own, rather than after being taught.

- 9 What are the different types of skills that the “Third Way” student acquires?

There are two kinds of skills that such a student acquires: subject-centred and generic. Subject-centred skills include observation, hypothesis formation, experiment design (all in science), pattern recognition, inductive thinking, deductive thinking (all in maths), etc. Generic skills include team-work, leadership, reporting, criticising, debating, etc.

- 10 In my school, students write many beautiful reports on what they have been taught in class. They even use MS Word to type in the report and illustrate it with beautiful pictures from the Internet! So what’s new about the Third Way’s emphasis on reporting?

There’s a very important phrase used above: “What they have been taught”. Third Way students report on what they have discovered, not what they have been taught! As far as using MS Word is concerned, we too encourage students to use it; however, we emphasise more on the contents of the report than on its looks! The contents of different reports on the subject written by students of conventional schools tends to be repetitive, as they are based on the same sources; in a Third Way school, each group presents different reports, as their experiences are different.

- 11 Does not the method take more time?

Certainly it does, if we take the narrow view. If we compare the time taken to introduce (say) exponents using a chalk and board technique with the Third Way technique, the chalk and board technique wins hands down. However, even after children have been taught the rules of handling exponents, it takes a long time for them to master the rules; this is where the Third Way wins, as students understand the rules and learn them faster.

- 12 Is it necessary for children to understand why a method works? Is it not enough to know how to use a method? After all, you do not need to know the physics of buoyancy to swim!**

Yes, there are many topics where it is very difficult for a child to understand how a method works. For example, understanding the Square Root algorithm is beyond the capacity of 13-15 year olds. In such cases, we have to weigh the pros and cons of understanding vs. using. In the case of the square root algorithm, the disadvantages of trying to understand (let alone construct) the method far outweigh the advantages. However, in the case of long division, using appropriate teaching aids makes it trivial for a student to construct the method.

- 13 Is the “Third Way” only a new way of classroom teaching?**

No, the “Third Way” approach is a comprehensive one. It starts by looking at individual topics in the curriculum to identify the specific skills or methods that we want the child to develop. We then develop a set of activities that will help the child develop these skills. We then develop a set of assignments and tests that will test each aspect of these skills. These tests may (and usually do) involve reporting, criticising other’s reports, making presentations and solving puzzles and problems based on what has been learnt.

- 14 Which subjects does the “Third Way” cover?**

At the moment, the “Third Way” method covers Science, Mathematics and Information Technology. However, we are in the process of developing modules in the Social Sciences.

- 15 I am not yet quite convinced about the method. Can you give some more examples?**

We prefer to discuss these examples in person, as these examples are jointly developed with teachers. However, here are 5 examples:

- *Students arrive at Bernoulli’s principle by performing and analysing a series of experiments.*

- *Students arrive at Hund's rule for filling electron shells by looking at experimental evidence on valency.*
- *Students solve simple problems in surveying (e.g., measuring the height of a building) and arrive at methods of constructing triangles.*
- *Students look at different types of mirrors (plane, concave and convex) and classify the different types of images (virtual/real, erect/inverted) that they form.*
- *Students are given a case study of a kingdom which has no ruler and proceed to discuss various ways in which such a ruler can be elected/ selected.*

16 How can we find out more about this method?

The best method of finding out is to ask for a workshop to be arranged in your school. The workshop would last for 6 days, about 6 hours a day. Up to 25 teachers could attend the workshop. If desired, you could tie up with other schools in your neighbourhood and arrange the workshop jointly.

17 What facilities do we need to provide Zeal?

A room, where the teachers could work together, preferably equipped with a PC and LCD projector. All materials would be provided by Zeal.

18 Who would be conducting the workshop?

The workshop would be personally conducted by Dr. B R Sitaram and/or Sandhya Sitaram, Directors, Zeal Educational Services.

19 Who are Dr. Sitaram and Sandhya Sitaram? What experience do they have in education?

Dr. Sitaram worked as a scientist at the Physical Research Laboratory from 1983 to 1996 and as the Director of the Vikram A. Sarabhai Community Science Centre from 1996 to 2002. His main interests are in the teaching of science and mathematics and in the use of computers in education. He was one of the chief designers of

the syllabus for the teaching of computers in Std. VIII-X in the state of Gujarat and was the subject expert for the textbooks for the same. He was also part of the State-level Implementation committee for the same. He has served on committees in Science education at the Ministry of Human Resource Development, New Delhi. He is a Fellow of the Gujarat Science Academy.

Ms. Sandhya Sitaram, a gold medallist (M.Sc. in Zoology) from Bangalore University, taught Zoology in MES College, Bangalore before shifting to computers. She has worked in various organisations, including NIIT as a senior faculty member and technical head of the Ahmedabad centre. She has been involved in giving personalised training for Computer Engineering students in languages like C, C++, Visual Basic and others. She has also been running the Prosoft Children's Computer Club for over 13 years and has been a pioneer in the use of computers in Education for children. She has also been a consultant for educational software development.

20 What is Zeal Educational Services all about?

Zeal Educational Services was set up in September 2002 by Dr. B R Sitaram and Ms. Sandhya Sitaram to provide specific educational services to institutions. Since then, we have worked with schools in Ahmedabad, Surat, Vadodara, Valsad, Kalol, Himmatnagar, Mundra, Mahesana, Allahabad, Faizabad, Udupi, Guwahati and Dhaka (Bangladesh), Gurgaon, Hyderabad, Rajkot, Jamnagar, etc. Our main work has been organising workshops based on the "Third Way".