

INNOVATIVE TECHNOLOGICAL INITIATIVES FOR POOR STUDENT-TEACHER RATIO: THE INDIAN SCENARIO

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Abstract: According to Census 2011, India has a whopping 315 million students right from nursery to higher levels of education. Along with this India has a less than ideal student-teacher ratio, lack of infrastructural facilities, not fully qualified trained personnel, high drop-out rates and low gross enrollment ratio, making provision of basic education a problem. A solution to this has been provided by technology. Merriam-Webster defines technology as “the use of science in industry, engineering, etc., to invent useful things or to solve problems”. The aim of this paper is to look at a few recommendations that can be adopted to solve the above problems of provision of education. Along with these recommendations, a brief insight has also been provided on Zaya Learning Lab’s ‘ClassCloud’ and ‘MicroCloud’. This progressive initiative by this private enterprise can serve as a model for the nation to incorporate the already existing technology for the education of students today for a brighter future of India.

Keywords: technology, student-teacher ratio, infrastructure, Zaya.

Introduction: Being one of the fastest economies in the world and having a population of 1.4 billion people is too much on one plate for any country. But add to this 315 million students right from nursery to higher levels of education, a poor student-teacher ratio at all levels of education, lack of infrastructural facilities, not fully qualified trained personnel, an extremely high drop-out rate and a poor gross enrollment ratio can make any country feel under pressure and stress of meeting the basic educational needs of all.

Literature Review: The DISE’s Report on School Education in India (2014-15) suggests that at macro level the student-teacher ratio is at an ideal level (20:1 to 40:1) primarily in government schools but the reality changes at the micro level i.e. state-wise analysis. Many studies have found that the student-teacher ratio is actually around 65:1 especially in private schools. The reason for this is the lack of enrollment in government schools and in case of certain states, a lower population levels is the reason. The scenario isn’t much different at the higher education level. According to the University Grants Commission, the ideal student-teacher ratio is 10:1 to 25:1 for various faculties. According to the All India Survey on Education’s Provisional Report (2014-15), India has achieved this ideal ratio at the all India level. But the devil lies in the details. A state-wise analysis clearly reveals that many states are far from reaching these ideal figures.

Apart from this, a number of studies conducted both in India and in other countries of the world has proven the importance of a lower student-teacher ratio. It helps in greater cognitive absorption of information, individualized attention and most importantly this education then has a lasting effect on the minds of the students.

These intense problems can be solved by bringing one very simple aspect into the picture – technology. According to Merriam-Webster, technology is defined as “the use of science in industry, engineering, etc., to invent useful things or to solve problems”.

Thus, the aim of this paper is to see how technology can be used in education to overcome the problem of poor student-teacher ratio faced by Indian educational institutions.

Recommendations: Technology can reach greater number of people in a lesser time. For instance, a video on YouTube can become viral within hours. Also, technology is more time saving than time consuming, it is more interactive and user friendly. Thus, using technology in classrooms can actually help the teacher reach a greater number of students and counter the problem of high student-teacher ratio to some extent. For instance:

- The BBC series on Pride and Prejudice (1995) can help the students learn more about the Austen era.
- A video clip on the continental drift or the formation of the Himalayas can help students imagine and visualize about what happened millions of years ago.
- A documentary like Inside Job can serve as an excellent tool to explain the global financial crisis of 2008.

The technological devices needed for the above suggestions are a laptop/desktop/tablet, a projector and speakers. The funding for the same can come under the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) by the Department of School Education and Literacy. Accordingly, the Centre shall fund the States in a ratio of 75:25 for the use of ICT in education.

Apart from this, with the availability of internet connection and a virtual reality device one can

overcome the difficulty of taking students for a field visit, an industrial visit, an educational visit or meeting the experts. For instance:

- Allowing students to talk to experts through a 'Skype' call.
- Seeing a monument or a location on Google's street view.
- A virtual reality headset to experience anything from the nature to the Universe.
- Watching a 360° video of a news.

One of the most important jobs of educational institutions and most importantly the teachers is to conduct examinations. Along with this, there is always a need to conduct small intermediate tests to ensure that the students have understood the topic. But administering multiple tests becomes a challenge. But this challenge can be overcome by using any one of the following methods:

- Put up objective type questions related to the topic on a projector screen and allow the students to answer the questions. Later, the teacher can display the answers and ask students to evaluate themselves.
- If a computer lab is available, then the institute can arrange for an online test to evaluate the students.
- Another time saving solution is ready made tests which are available online.

India has over 400 million internet users of which over 250 million are mobile phone users. Thus one does not necessarily need sophisticated equipments to facilitate education. A simple smart phone with internet connection can do the job. Like:

- Circulating a mathematical problem on a social networking app like 'WhatsApp'. This will save the teacher's time in copying the numerical on the board or dictating it in the class. Also, this reduces the amount of photocopying and saves paper too.
- Sharing notes via Google groups, Google drive, DropBox, etc.
- Instead of taking down notes from the blackboard or information from the notice board, a picture can be captured on a cellular phone. This ensures zero error in taking down information.

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The plethora of apps available from different operating systems has made life even easier. There are hundreds of educational apps which are not only fun but also very informative. A few examples of these apps are:

- 'Duolingo' helps one in learning a language and more importantly remembering it. It contains exercises on reading, speaking as well as writing in over 10 languages
- 'Math Tricks' can erase the woes that students have regarding the difficulty and intensity of mathematical problems
- 'Hello English' is another language app that is useful both for a novice and for someone who wants to have a command over the language
- There are many apps on current affairs to keep people in the know on the go
- For the artistic ones, plenty of excellent drawing apps are also available

Also, the best part about these apps is that they are absolutely free of cost and extremely easy to use.

One may wonder that a prominent hindrance to these solutions is lack of infrastructural facilities. But a ray of hope shines through the Zaya Learning Lab's Micro Cloud. Zaya is serving in over 100 schools, covering over 20,000 students in an environment which lacks basic facilities like electricity, low motivational levels from students and lack of commitment from the teachers. Zaya designed the 'ClassCloud' which provides better tools for teaching and learning for the teachers and students respectively. ClassCloud is a small, battery-powered device that creates a powerful local hotspot in offline learning centers or schools. This is then connected by low-cost tablets and 60 students can connect to the cloud at one time. The cost of the device is Rs.5000 and then the cost per child per month is Rs.50.

Conclusions: If something this innovative and successful venture can work at a micro level by a private enterprise then definitely government's expenditure on such progressive approach to education can help eliminate many hurdles to ensure a better quality of education and a brighter future for India.

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