

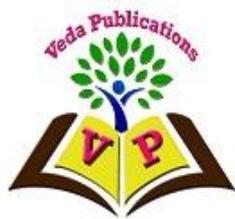
INNOVATIVE TEACHING METHODS IN HIGHER EDUCATION TO IMPROVE THE EMPLOYABILITY OF SCIENCE GRADUATES

Dr. P. Bhargavi

(Asst. Professor, Dept. of Mathematics, LBSGFGC, R.T. Nagar, Bangalore.)

[doi: https://doi.org/10.33329/IJREP.2019.18](https://doi.org/10.33329/IJREP.2019.18)

ABSTRACT



Number of students passing out at the undergraduate level is not in ordinance to the number of students that are placed. Because of this students enrollment ratio into the Science stream is poor compared with the other streams. Though we are living the world of technology, Science stream is taking backseat in producing skill based graduates because of many reasons like the age old conventional teaching and learning methods, syllabus does not expose students to Industrial requirements, lacking of interest among students etc, which are directly affecting the quality of the Higher Education. If this situation persists, for a long time science will definitely take the back seat, which in turn hinders the progress of the society. To change the present picture in the science stream, teachers have to import innovative teaching methods in their teaching learning activities. Learning should not be a burden rather they should enjoy it. It is in the hands of a teacher to make students to understand the concrete concepts in a more practical approach. Curriculum refinement is needed to expose them to the present technology based learning. Project works; MoUs with industries, group discussions should be part of their learning activities which will improve their skills to meet the requirements of industries.

Keywords: *Innovative teaching, Skill development, Curriculum refinement.*

INTRODUCTION

Though the number of universities in the country have tremendously increased after the independence the overall scenario of the higher education in India does not match with the world class universities. India is an educational hub for many countries, we are lagging behind in many fields. This directly has impact on the employability opportunities to the graduates. This is a burning issue that all the learned scholars should address before it spreads its roots. India is a young country, with an estimated population of young people aged between 18 to 23 years to be around 150 million. India needs people who can drive the Indian economy forward through the acquired skills. This cannot be done overnight but it is a continuous process that may take another ten years to make India as developed nation. This can only be achieved through the higher education that should reach to each and every remote village in the nation.

Higher education in any country is the yard stick of that country progress. Because a country progress depends upon its Science and Technology development which needs the progress of the Science Education. Indian Higher education system stands in third place in terms of students after USA and China respectively. There is no doubt that Indian education system will be number one in near future. The growth of higher education sector is taking new dimensions in India. This has accelerated establishment of institutes which have originated over the last decade making India home to the largest number of Higher Education institutions in the world, with student enrolments at the second highest (Shaguri, 2013). The number of Universities has increased 34 times from 20 in 1950 to 677 in 2014. Though this is remarkable growth in the education sector, Indian universities are not placed in the world ranking, and also there is a lack of world class universities in India. The quality of higher education is not par compared with the other developed nations. There are many flaws in the system and has to be addressed rightly to make India a developed country in the education field. Though the country has challenges that has to be addressed, it is not impossible to make the country stand first in higher

education at the international level. However, this should be done phase by phase to see the positive growth, changes in the educational policies, adaptability of teachers to new educational tools, contribution of teachers to bring changes in the curriculum, new teaching learning methods, quality of the research etc., contribute to make the Indian Higher education system number one.

CHALLENGES IN HIGHER EDUCATION IN INDIA

Though India has got the independence 71 years back, our education system has not developed up to the mark. University Grants Commission of India is striving to bring the quality education and working in this direction continuously. UGC is the main governing body that sees to maintain the standards of universities and acts as a bridge to coordinate between center and states. Especially Science education is taking back seat, because of many reasons. Lack of innovative teaching methods, no practical applicability of the syllabus that they study, making the subjects very difficult to students, lack of motivation are some of the reasons that Science Education is leaving the lime light. There are lot of challenges in this sector and some of the reasons are listed below.

Enrolment: The Gross Enrolment Ratio (GER) of India in higher education is only 15% which is quite low compared to the developed as well as, other developing countries. Government initiative programs at the grass root to increase the student's enrollment have shown the progress, but at the graduate level the enrolment ratio is very less. Despite growing investment in education, 25 per cent of its population is still illiterate. Only 15% of Indian students reach high school, and just 7% graduate (Masani, 2008).

Equity: There is no equity in GER among different sects of the society. According to previous studies the GER in higher education in India among male and female varies to a greater extent. There are regional variations too some states have high GER while as some is quite behind the national GER which reflect a significant imbalance within the higher education system.

Quality: Quality in higher education is a multi-dimensional, multilevel, and a dynamic concept.

Ensuring quality in higher education is amongst the foremost challenges being faced in India today. However, Government is continuously focusing on the quality education. Still Large number of colleges and universities in India are unable to meet the minimum requirements laid down by the UGC and our universities are not in a position to mark its place among the top universities of the world. As of 2011, there are 1522 degree-granting engineering colleges in India with an annual student intake of 582,000 (Science and Technology Education, 2009) plus 1,244 polytechnics with an annual intake of 265,000. However, these institutions face shortage of faculty and concerns have been raised over the quality of education (Mitra, 2008).

Infrastructure: This is one of the drawbacks of the Higher Education system in India. Particularly the institutes run by the public sector suffer from poor physical facilities and infrastructure. There will be no quality education without proper infrastructure, resources and good laboratories. Indian Government should look into this matter seriously to facilitate with the minimum requirements to the Institutions to provide quality education.

Faculty: Faculty shortages and the inability of the state educational system to attract and retain wellqualified teachers have been posing challenges to quality education for many years. Large numbers of NET / PhD candidates are unemployed even there are lot of vacancies in higher education, these deserving candidates are then applying in other departments which is a biggest blow to the higher education system. 25% of teaching positions nationwide are vacant, and 57 % of college professors lack either a master's or PhD degree (Newsweek, 2011).

Accreditation: The quality of the Higher Educational Institutions is assessed by NAAC and is accredited with the grade. As per the data provided by the NAAC, as of June 2010, "not even 25% of the total higher education institutions in the country were accredited. And among those accredited, only 30% of the universities and 45% of the colleges were found to be of quality to be ranked at 'A' level".

Research and Innovation: Research and Development is a major indication of country progress. Higher Educational Institutions are not producing quality research and Innovation. There is inadequate focus on research in higher education institutes. There are insufficient resources and facilities, as well as, limited numbers of quality faculty to advice students. Most of the research scholars are without fellowships or not getting their fellowships on time which directly or indirectly affects their research. Moreover, Indian Higher education institutions are poorly connected to research centers. So, this is another area of challenge to the higher education in India.

Structure of higher education: Management of the Indian education faces challenges of over centralization, bureaucratic structures and lack of accountability, transparency, and professionalism. As a result of increase in number of affiliated colleges and students, the burden of administrative functions of universities has significantly increased and the core focus on academics and research is diluted (Kumar, 2015).

INNOVATIVE METHODS TO IMPROVE THE SCIENCE EDUCATION

Despite these challenges higher education system of India equally have lot of opportunities to overcome these challenges and have the capability to make its identity at international level. However, it needs greater transparency and accountability, the role of universities and colleges in the new millennium, and emerging scientific research on how people learn is of utmost important. Then it is not difficult to transfer our country from a developing nation to a developed nation.

ADOPTING ICT IN CLASS ROOM TEACHING

There have been a number of factors impeding the uptake of ICT in Higher education such as lack of funding to support the purchase of the technology, lack of training among established teaching practitioners, lack of motivation and need among teachers to adopt ICT as teaching tools. These teaching methods will strengthen and motivate students if the faculty adopts ICTs into classrooms and learning settings. These have included a growing need to explore efficiencies in terms of program

delivery, the opportunities for flexible delivery provided by ICTs, the capacity of technology to provide support for customized educational programs to meet the needs of individual learners and the growing use of the Internet and WWW as tools for information access and communication. These ICT has made both teachers and students to go along with the technology, which is the need of the hour.

ESTABLISHING THE SCIENTIFIC TEMPERAMENTS

Science and Technology progress is an indicator of country progress. The great visionary and the former President of India Dr. Abdul Kalam has inspired many students through his Scientific temperament. Science Forums, Science Exhibitions, Science Academies should be established in all the Educational Institutions with the aim of imparting knowledge through various scientific activities that ease their learning ability. These Forums should actively conduct need based programs to the students to make them realize the importance of Science and Technology to the society. Students should be constantly encouraged to participate in the programs that make them realize the joy of learning. Students and teachers should work in this direction to enhance their knowledge. Science Faculty should balance the lectures and lab visits that promote socialising and networking events among students.

ESTABLISHMENT OF MORE NUMBER OF RESEARCH INSTITUTIONS

It is one of the fewest research centers like IIT's and IISc's for Science Education that are famous worldwide in India. We are lagging behind in producing top research centers to mold the students as future developers of Science and Technology. These institutions should cater to the needs of the future researcher's with world class facilities. Institution aim is to pursue and promote world-class research and training at the frontiers of Science and Engineering covering broad areas. These should provide vibrant academic ambience to the researchers. Academicians and philanthropists should work in this direction to promote research and development.

PRACTICAL METHODS OF LEARNING

Science is taking backseat because of lack of motivation and innovative teaching methods by the faculty. They taught the subject abstractly rather giving them the practical applications of the concepts. There should be flexibility in choosing the subjects that make them more interested. The syllabus should be more practical oriented which should focus on understanding the concepts in easier way. MoU's with the Industries, Guest lectures by the Resource persons from the industries will definitely benefit the students to be ready for the job opportunities. Teachers should focus on more innovative methods of teaching like Projects works, seminars, Group discussions, debates to make students to work in groups and make the difficult topics learn through the Practical Knowledge acquired.

CONCLUSION

Higher education in India has expanded very rapidly in the last six decades after independence yet it is not equally accessible to all. India is today one of the fastest developing countries of the world. No doubt India is facing various challenges in higher education but to tackle these challenges and to boost higher education is utmost important. In order to sustain that rate of growth, there is need to increase the number of institutes and also the quality of higher education in India. To reach and achieve the future requirements there is an urgent need to relook at the Financial Resources, Access and Equity, Quality Standards, Relevance, infrastructure and at the end the Responsiveness.

REFERENCES

- [1]. Shaguri, Obadya Ray, Higher Education in India Access, Equity, Quality, EAN World Congress
- [2]. Masani, Zareer, India still Asia's reluctant tiger, BBC Radio 4, 27 February 2008.
- [3]. Science and Technology Education". Press Information Bureau, Retrieved 2009 08-08
- [4]. Newsweek, Special Report: The Education Race, August 18-25, 2011
- [5]. Mitra, Sramana, How To Save The World's Back Office of Forbes, 03.14.2008
- [6]. Kumar, Anuj & Ambrish, Higher Education: Growth, Challenges And Opportunities, International Journal of Arts, Humanities and Management Studies, Volume 01, No.2, Feb 2015.