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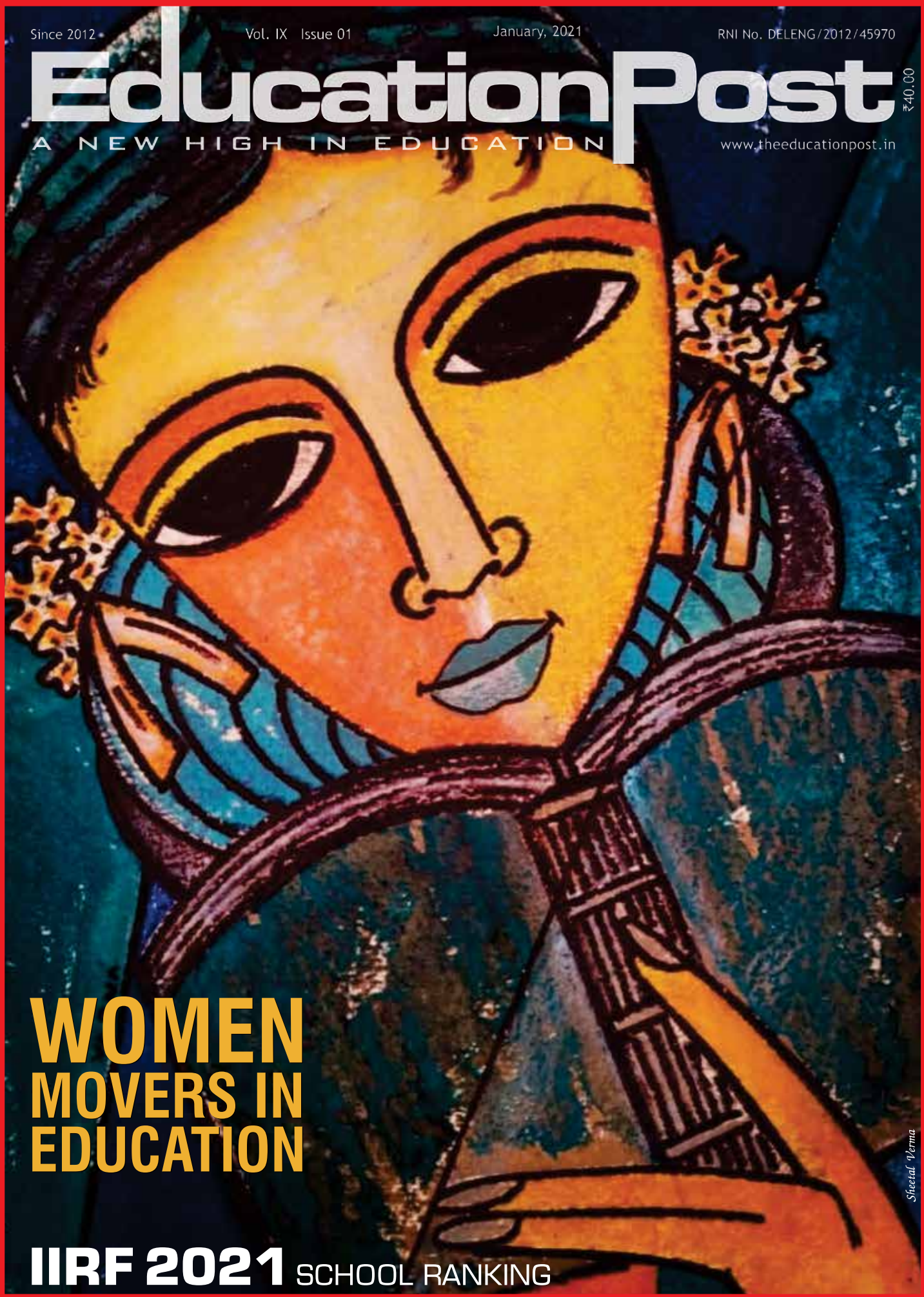

WOMEN MOVERS IN EDUCATION

Sheetal Verma

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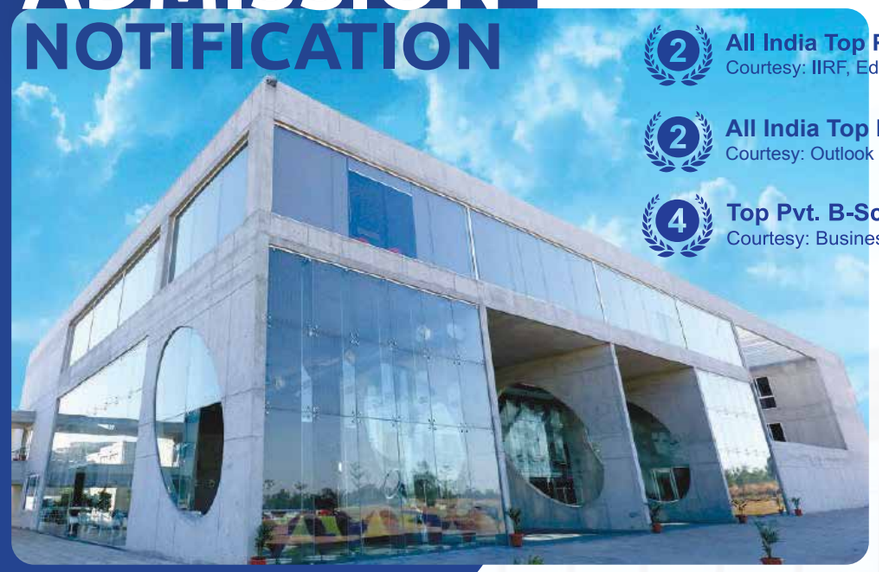

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NEWSPAPER HEADLINES ARE NOT SLOGANS FOR POLITICIANS

I still read newspapers. They educate, inform, and give a direction to the views that I hold. It is newspapers that print stuff that someone somewhere may never want to read in print. It is also the responsibility of newspapers to make sure that they do not filter out the unsavory facts that the powerful wish to gloss over or hide from the general public. However, news reporters and editors must also understand that what they send out has the power to make people act… and misdirected views can create a havoc with perceptions of readers. Courage to speak out begins with the words that newspapers print and I agree with Edward R Murrow when he wrote that '*a nation of sheep will beget a government of wolves*.' We obviously do not want to be governed by wolves, therefore, the habit of reading newspapers must be encouraged from an early age.

Education remains handicapped without the support of the will to know what is happening around the world. This is one reason why newspapers need to report everything without spicing it up with personal views. We are living in times when news is also in the palm of our hands but the speed with which news gets consumed is also racing with the speed with which it is generated and this is where the fault lines can be seen. This cutthroat race to produce and send out news faster than some other publication online can lead to some really disastrous output. It is this element of speedy dispersal of what is happening around us that can result in premature perceptions popping out in most unexpected ways. Look around and you may discover how different apps on your smartphone give entirely different perspectives of what is going on. This is why I generally prefer the printed newspaper as it gets all the time to read a situation and document only what stands upright on deeper scrutiny.

It is high time that news disseminators realise that headlines are not mere slogans that wily politicians can use to forward their agendas. The content, of course, has to be as correct as possible but even headlines do not have the right to say things in ways that twist and misshape the heart of truth. The purpose of news is never to implant subversive ideas disguised as a commentary to help one or the other side but to communicate facts as they happen. No rumours. No implied truth. No buried facts. Always straight-forward and factual.

Only when newspapers stick to documenting an occurrence do they get the right to be called as the carriers of history as it happens. Historians have been charged with twisting the past, poets have peppered their rhymes, and even story-tellers have let their perceptions highlight singled out colours – but newspapers do not have the right to do any of this. Newspapers are tools that educate minds in the present and have nothing to do with the sort of role-play that incites emotions in a particular direction. So long as they do this, they are fine and it does not matter if they are online or offline in nature. Newspapers are free to carry advertisements but must not stoop to being one for one power or the other.

Newspapers are powerful entities and, therefore, must embrace the detached stance of an observer of truth. They are definitely not here to titillate our thoughts or to hand-hold the reader to walk on some particular path. If they do this, they will continue to remain the most persuasive tool of education.

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CONTENTS

10 **COVER STORY**
Woman
A thunderstorm with a touch of lightening
Arvind Passey

28 **Empowering women in science through Mobility Programmes**
Dr. Pradeep Ghosh

36 **Smart Techno Hybrid Classrooms Model A Step Forward**
Dr. Nayan P Gandhi

62 **Transition**
Dr. B B Das

66 **Technological Revolution in Electronics Industry with 5G Devices**
Varun Bhatia

CONTENTS

WOMEN MOVERS IN EDUCATION

16
Prof. Sanghamitra Bandyopadhyay
Director, Indian Statistical Institute (ISI), Kolkata

18
Prof. Karuna Jain
Professor, Shailesh J Mehta School of Management (SJMSOM), Indian Institute of Technology, Bombay

20
Dr. Vinita Sahay
Director, Indian Institute of Management, Bodh Gaya

22
Dr. Vidya Shankar Shetty
Director and Controller of Examination REVA University, Bengaluru

24
Prof. Sriparna Basu
Professor, FORE School of Management, New Delhi

26
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40 **IIRF SCHOOL (10+2) RANKING**

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Arvind Passey

WOMAN

A thunderstorm with a touch of lightening

Women in India have a voice that is heard all over the world. Not that their silence went unheard because it was that deathly quiet that has probably given birth to movements like '*beti bachhao, beti padhao*' and slogans like '*Equal rights are not special rights*', '*Woman is the companion of man*', '*Gifted with equal mental capacity*', '*You have everything to take the world in your stride*', '*A woman can say more in a sigh than a man can say in a sermon*', and '*Next to the wound, what women make best is the bandage*'. Even Bollywood isn't too far behind in picking up women empowerment issues and bolding projecting them through dialogues that have had a positive effect on the social structure that hasn't been strong so far as gender bias is concerned. Besides fighting for getting equal pay to the heroes, we have heard the iconic '*No means no*' from Pink, '*Nail polish kisi bhi time lagana har ladki ka birthright hota hai*' from Mary Kom, '*Aadmi ke marne ke baad biwi bewa hoti hai, rakhail nahin*' from Chandni Bar, '*Roti kamane ke liye aurat ghar se nikli nahin ki tankha dene wala har aadmi usse apne baap ka maal samajhta hai*' from Lajja and hundreds of others that we have all heard. Yes, all this has definitely done a lot to change the way society in our country has been treating women for centuries. However, all this has changed to quite an extent and we are now in a position to talk about women as being that critically vital person in the family who has the power to educate and inspire.

It is not as if the fight or the tussle or the movement for women emancipation is over. There is yet a lot to be done. Yes, despite the fact that we now have women leading corporate board-rooms, blazing a path in politics, commanding troops in the army, leading decision-making in the civil services, and actively pursuing careers like driving trucks, buses, and auto-rickshaws to name just a few. The truth is that women have shown us that a passion for a profession is as much up their sleeves as is managing a home. They have made

Mary Kom

it amply clear that a woman is indeed a thunderstorm with a touch of lightening!

The list of women achievers is long

It is time that the world acknowledged the role of women from India in inspiring and educating the future generations in not just respecting their individuality but also the fact that their contribution leads to results that speak for themselves. The newspapers have been talking about Sneha Mohandas who has successfully

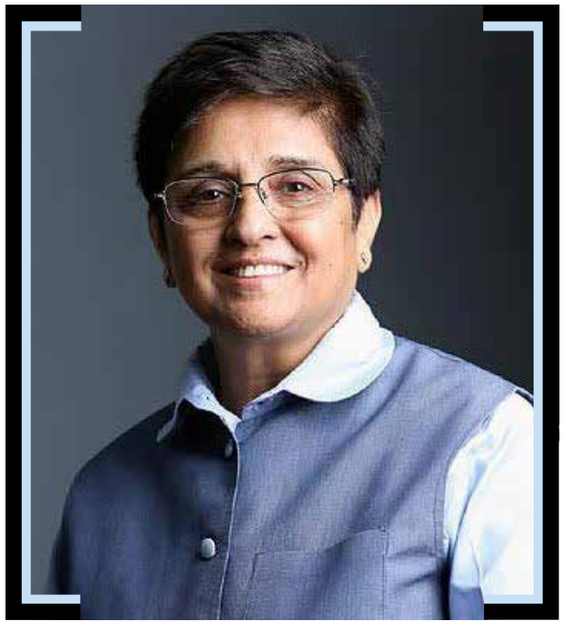
Jhumpa Lahiri

lead campaigns on spreading awareness about breast-feeding, Arifa has embraced self-reliance by promoting the traditional crafts of Kashmir, and Kalpana Ramesh works on the issues relating to water conservation. There are umpteen examples of women achievers who have transcended obstacles that range from severed limbs to social ostracization to fight back and get to a point where life moves up from a simple act of staying alive to living with a goal. Malvika Iyer, for instance, went on to earn a PhD despite having lost her legs in a bomb blast.

Women achievers are everywhere. We know women writers like Kiran Desai, Nayantara Sehgal,

Kiran Desai

Shobhaa De, Jhumpa Lahiri, Arundhati Roy, Mahasweta Devi, Anita Nair, Ismat Chugtai, Manju Kapur, Amrita Pritam, Krishna Sobti, Kamala Suraiyya (Kamala Das), Namita Gokhale, Sudha Murthy, Anuja Chauhan, Anuja Chandramouli, Madhulika Liddle, Kiran Manral, Richa Mukherji, Kanchana Bannerji, Urvashi Butalia, Preeti Shenoy… and the list is endless. These writers have explored not just one but multiple genres and have excelled in writing everything from historical thrillers to romance and from literary classics to pulp fiction. Limits in creative expression are not for women. I could, if space wasn't a constraint, go on listing women in social activism, art, politics, sports, education, administration, mountaineering and here again the list can go on to fill quite a few pages. The point is that are no limits to women achievers anymore. The truth is that women are more powerful than being sensual, more inspiring than just playing second fiddle to men, and more outgoing than being limited to the whims of a patriarchal mindset. Women now understand that empowerment is not just about self-respect but goes way beyond this to encircle thought leadership and this is what is poised to usher in an era of a society that will evolve correctly.



Kiran Bedi

Arundhati Roy can 'hear her breathing' on a quiet day which is akin to believing that women now know that they are no longer an artefact of silence. Shashi Deshpande warns that 'ten different mirrors show you ten different faces' and that self-revelation could be a cruel process but a necessary precursor for transforming the inequalities that have carried on from the past. So yes, it is true that things happen only when you 'go out and kick ass' to quote Maya Angelou. This is precisely what the modern Indian woman has done with aplomb!

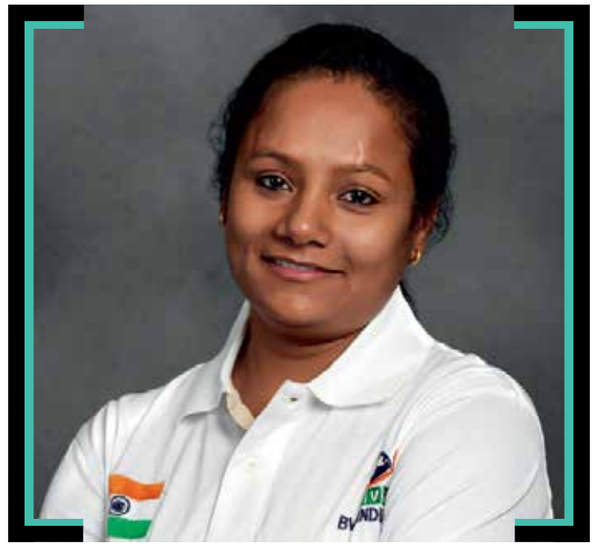
The battle for women is far from being over. Kangana Ranaut believes that 'we have to prepare our girls just the way we prepare our boys' and this is what is now the right path. Stepping up on the dias to get a standing ovation is one thing but to make sure that things do not tumble and fall into the past matrix is quite another. We are well past the stage where we dismiss women empowerment after listing out names of those who have been first to do one or the other thing. Obviously then, one would not keep quoting Indira Gandhi as the first to become a Prime Minister or to be given the title of 'women of the millennium' by BBC, Kiran Bedi as the first woman IPS, Justive M Fatima Beevi as the first female judge in the Supreme Court, Arunima sinha as the first woman amputee to climb the Mount Everest, Shila Dawre as the first woman auto-rickshaw driver, Sania Mirza as the first Indian woman to win the WTA, Saina Nehwal as the first Indian woman to reach the top in World badminton rankings, or Mary Kom who was the first Indian woman to win a gold in Asian Games. Women in India have moved on and have made winning and reaching the top a habit.

Role of policies in empowerment

Women empowerment is a continuous shift of perspective from one triumph to another, from one tale of inspiration to another, and from one reason to speak out to another. The effort has also been made by those who take care of our policies at the national level. For instance, a lot of these achievements could happen because empowerment is linked to community engagement and welfare of the girl child. Saying that an achievement is the sole output of the determination of a person is like believing that the upsurge in India's literacy figures is ONLY because there are people determined to get literate. Discounting the role of the government in promoting good education or the role of policies in making this possible is never going to paint the entire picture correctly. Thus the government and the public sector have definitely played an important role in the emancipation of women. The '*Beti Bachao Beti Padhao*' scheme addressed the declining Child Sex Ratio and gender-based sex-determination and also ushered in anera of education, survival, and protection of the girl child. We have Mahila-E-Haats that has helped women entrepreneurs to leverage technology and showcase their products and services. Mahila Shakti Kendras have encouraged community engagement to empower rural women to move towards skill development, employment, digital literacy, health, and nutrition. The STEP or the Support to Training and Employment Programme for Women connects competence, training, and entrepreneurship and has helped women to be achievers in agriculture, food processing, handlooms, tailoring, stitching, embroidery, handicrafts and even soft skills orientation in the sectors of tourism and hospitality. The Sukanya Samriddhi Yojana is all about connecting the benefits of banking and savings to tenets of empowerment.

The real conversation is from one woman to another

In one word: everything. The first step to take when any concept has experienced a radical change or transformation, is to prevent the possibility of a slip-back. No one wants to regress into the dark past with women relegated to the background and, therefore, the right thing to do is to make literacy and self-reliance powerful enough to stop any attempts to reverse any good work done. This is an area where women achievers can definitely have a major role to play. They can inspire other not-so-aware mothers to make sure that their daughters get all the benefits of education and being self-reliant. Begum Abida Ahmed too insisted that '*we must have educated mothers. If a mother is educated, it is her first duty to treat the male and female child equally and in the same way, so that the girl does not develop a complex from the beginning*.'



Arunima Sinha

It is not as if men must stand aloof and just watch… quite obviously, they need to be just as participative. However, women who have tackled hardships and obstacles that regressive past systems had laid, know best how to communicate the tactical steps necessary. We know that the existence of voiceless women has been existing for ages and as an article published in India Today pointed out, women '*face deep-rooted prejudices in social relationships-they do not, generally, have equal status in marriage. The dowry system is still rampant. Clandestine bigamy and child marriages are persisting in contravention of the laws, with complete impunity*.' These evils still exist and bringing in legislations to remove basic legal inequities in the socio-economic system is not enough.

The major conversations need to be from one woman to another… from an achiever to one who has the right to dream of being an achiever… from those who have raced ahead of the arrogance of these regressive times to those who are still caught in the strange twilight of systems that must no longer exist… and from those who have the answers to those who are still searching for them. Dr S Padmavati believed that a women's weakness was a myth in a man's imagination… maybe, but the more important truth is that the silent voice inside a woman's mind can roar only when her own vocal cords are primed and activated. No one can help a woman prime them but another woman and the final activation needs to be done by her alone.

It is women achievers who fully understand that self-esteem is all about an intuitive handshake with her own desires, needs, and wants. What to wear, what to eat, how to do something, where to be and at when are all facets that meekly appear in a queue when the biceps and triceps of self-esteem are awakened. The woman who is still struggling to find a voice needs to be told by these achievers that low self-esteem is all about negativity that can be damning and almost undefeatable. The intelligence to counter this comes from educated awareness and a direct conversation which, in these times of technology revolution, is far easier than it was before.

Among other vital things that achievers must communicate is the necessity of speaking out without inhibitions and without any fear. Yes, this can be

Saina Nehwal

difficult but then communication here is not about getting up on a dais to make a speech. Communication here is being to express one's ability to create a format of personal space with dignity, the need to distance themselves from the feeling of being suffocated by circumstances and allowing the fresh breeze of freed thoughts to enter, and the need to let the world know that they know how to survival. No, there is no battle with men here but a simple conversation where a woman stands up to speak what is in her mind and the world sits up and listens.

The other aspects that achievers can let women still on the other side know is that knowing your worth is what prosperity really is and that when her wage, salary, or income is in a tangible form, the smog of regressive policies is emphatically pushed back. If this smog still persist, then fighting for what is right is the obvious next step.

Women in education are the core of the empowerment corps

Empowerment is inevitable when the right set of beliefs about the benefits of education and self-reliance are communicated to those who need it most. As I mentioned it earlier in this article, a woman to woman conversation transcend all boundaries of disbelief and reticence. The hesitation to step forward and assert one's rights is one hurdle that must be overcome and we are lucky to have in India a host of women achievers who are convinced about this.

Besides women who are in the media or are writers or activists, it is women from the world of education who are best suited to lead this communication revolution.

Prof Sanghamitra who is the Director of Indian Statistical Institute in Kolkatta and serves on the Prime Minister's Science and Technology Innovation Advisory Council, Professor (Mrs) Karuna Jain is a Board member of IAMOT and lending her expert views to a lot of advisory groups, and Dr Vinita Sahay, Director of IIM Bodh Gaya are examples of women who are on the fore-front of lending their expertise to the academic empowerment of women in India. This isn't the end of the list of achievers who have dedicated their lives to this task. There are others like Sarika Baheti, Transformation Coach at AMpower, Member of Committee at PVI at All India Plastic Manufacturers' Association and Founder-Chairperson at Neeranjali that spreads awareness about water conservation, Dr Kusum Aggarwal, an expert in Gandhian philosophy working towards a peaceful co-existence for all, Dr Sangita Passey, a Commonwealth scholar and a mathematician dedicated to teaching making girl power sturdier, and

P V Sindhu

hundreds of others who have made empowerment more than just a cliché and a mere buzzword by their work.

The not-so-final truth

There is no final truth or verdict or answer as the world in which we live has a constant need to keep the flow of problems and solutions going on. As things stand right now, it is women achievers who not only need to tell other women to join the success camp by linking-up with education and self-reliance, but also accept those men who wish to be a part of their force. Men may be from Mars but this planet is still in the same solar system as Venus is in. EP

WOMEN MOVERS IN EDUCATION

Prof. Sanghamitra Bandhopadhyay is an academician with a burning desire to excel and has achieved the highest echelons in her professional arena. She is an inspiration for all women, as she has attained the honour of becoming the first women director of the Indian Statistical Institute (ISI), and also the first person to hold the position twice. With her visionary approach, she has provided guidance to all ten centers of ISI, spread across India. Apart from her position at ISI, Prof. Bandhopadyay has held several leadership positions like membership of the Board of Governors of several institutions including IIIT Hyderabad, NIAS Bangalore, NIT Agartala, HRI, Prayagraj, Member Senate, IISER and Member Education Commission of West Bengal.

Prof. Sanghamitra Bandyopadhyay

Director
Indian Statistical Institute (ISI), Kolkata

She exercises the power to impact policies of national importance, serving on Prime Minister's Science and Technology Innovation Advisory Council (STIAC). It is the nation's highest level think tank formulating and driving the long-term strategy for the country's development in Education and Research through national mission projects in strategic areas. Other nations too have acclaimed her success, as she has been recognized as the Senior Associate, International Centre for Theoretical Physics (ICTP), Trieste, Italy, from 2013 to 2019, and got the Humboldt Fellowship from AvH Foundation, Germany, for 2009-2010.

Prof. Sanghamitra attained her master's degree in computer science from the Indian Institute of Technology, Kharagpur and went on to complete her Ph.D. at ISI. As a champion of the cause of quality research work, she has made immense contribution by setting up institutes dedicated to research and development. She has established the first Bioinformatics Laboratory in the Indian Statistical Institute (ISI). Prof. Bandyopadhyay has been instrumental in setting up the Technology Innovation Hub in ISI under the Cyber-Physical System mission with a funding of INR 100 Crore.

Under her stewardship, ISI created a HiPC data centre as part of the DBT funded systems medicine bio-cluster targeted towards cancer studies. The bio-cluster comprises six leading Institutes in Eastern India, with a total funding of INR 140 Crore. As Director, she has founded the Centre for Artificial Intelligence and Machine Learning (CAIML) in ISI Kolkata, Centre of Excellence in Economics of Climate Change, Food Security, Environment and Energy (CECFEE) in ISI Delhi and a research cluster in pattern recognition and document analysis jointly between ISI and University of Technology, Sydney.

Recipient of many awards, Prof. Sanghamitra has made her institute proud. She has been conferred with the TWAS Prize for Engineering Sciences in 2018, Infosys Prize in Engineering and Computer Science in 2017 and Shanti Swarup Bhatnagar Prize in Engineering Science in 2010. She has also received prestigious fellowships of IEEE, TWAS, IAPR, INSA, INAE and NASI, apart from the JC Bose Fellowship and Swarnajayanti Fellowship in Engineering Sciences.

Prof. Bandyopadhyay is one of the first computer scientists in India who forayed into problems in Biology and quickly established herself as a leading figure in the Bioinformatics community specializing in algorithm development. She has also done considerable work on pattern recognition in biology. She has made fundamental contributions in single and multi-objective genetic algorithm-based clustering. Her work is considered state of the art in evolutionary clustering.

She has co-authored three books namely "Classification and Learning Using Genetic Algorithms", "Unsupervised Classification: Similarity Measures, Classical and Metaheuristic Approaches, and Applications" and "Multi-objective Genetic Algorithms for Clustering" which are used both as texts and references. Moreover, she has published over 250 papers in peer reviewed refereed journal and high visibility conference proceedings. Prof. Sanghamitra leads a group of young and vibrant researchers many of whom are well-established now, setting up their own labs and publishing in top tier journals themselves.

An inspirational research mentor, institution builder par excellence and a nationally prominent distinguished academic leader, Prof. Sanghamitra has positively changed the way statistical science was perceived and utilised for other domains. She continues to inspire research students and practitioners in computer sciences theory and application. EP

Recommendation by

Prof. Vijay Chandru, Ph.D. FASc FNAE
INAE Distinguished Technologist,
Indian Institute of Science

Prof. Goutam Dutta, Ph.D.
Indian Institute of Management, Ahmedabad

WOMEN MOVERS IN EDUCATION

Prof. Karuna Jain

Professor
Shailesh J Mehta School of Management (SJMSOM)
Indian Institute of Technology, Bombay

With over 30 years of exemplary professional experience, Prof. Karuna Jain is a torchbearer in the field of technology and operations management. As a member of many boards dedicated to science and management, she provides direction to technical advancement. Her interwoven technical and managerial expertise has earned her a place of repute on numerous academic, professional and government bodies. She acts in various capacities like President POMS India Chapter for years 2021 and 2022, Board Member of IAMOT 2020 and 2021, Director, PMI- GAC from Jan 2018 to Dec 2020 and re-elected for the term Jan 2021 to Dec 2023.

Currently, she is a Professor of Technology & Operations Management at Shailesh J Mehta School of Management (SJMSOM), Indian Institute of Technology Bombay. She has served as Director of National Institute of Industrial Engineering (NITIE) from 2013 to 2019, Dean of SJM School of Management IIT Bombay from 2007 to 2012 and MHRD IPR Chair at IIT Bombay from 2011 to 2014. She also shouldered responsibility as the Chairperson of Academic Advisory Group (AAG), PMI India from 2013 to 2015 and recently as Director, PMI Global Accreditation Center (GAC), from 2018 to 2020.

Her research work for high impact factor journals is noteworthy. She has published extensively in journals of repute like DSJ, EJOR, NRQ, IEEE- TEM, IJPE, IJPM, TASM, and TFSC to name a few. She has presented her research in many national (ORSI SOM, PMIRAC, ISDSI, POMS India) and international conferences (POMS, DSI, IAMOT, PMI). Her article titled "Enhancing Organizational Effectiveness Through BPR – A Case Study" published in July 2005 issue of Industrial Engineering Journal earned her the **Best Case Study Award** (Traditional Area).

Prof. Jain also has several awards to her name. Her academic journey has been adorned with laurels, and she received **Gold Medal in B.E.** for securing first position in the B.E. Electrical Engineering, APS University Rewa, M.P in 1981. Since then, a series of awards have been conferred on her. In 2010 CMO Asia adjudged her the **Best Professor in Operations Management** in Asia.

In recognition of her inspired leadership of sustained excellence and valuable contributions to the field of project management, PMI India has conferred upon her the **'Distinguished Fellow Award'** in 2019, at the award ceremony held during 5th Project Management Research & Academic Conference at IIM Kozikode. This award recognised her institution building in the academic or industrial sector for competency enhancement, inter-institutional and industry-institute linkages and advocacy.

International Association of Management of Technology (IAMOT) Board has conferred upon her the '**Distinguished Service Achievement Award'** in 2019 for exemplary service in the area of MOT. On the same occasion, Prof. Karuna received **Certificate of Recognition Award** for serving as the Chair of IAMOT 2019 Conference Organisation Committee. She also received **Education Innovative Leaders award** for her impactful work in the education sphere in 2019.

The latest contributions by Prof. Karuna are beyond the field of education, and have promoted social upliftment. The most remarkable among them are Modelling Supply Chain for Medical Supplies and Essential Items under Disruptions with Risk Mitigating Strategies: An Analysis on COVID-19 Case and a Study on Technology Transfers from BARC. She has been working as a Partner Investigator in the Wadhwani Foundation– Indo US Collaboration Research Grant on Collaborative activities in the area of entrepreneurship: National Network Project since 2003.

Recommendation by

Prof. Goutam Dutta, Ph.D.
Indian Institute of Management, Ahmedabad

WOMEN MOVERS IN EDUCATION

Dr. Vinita Sahay

Director
Indian Institute of Management, Bodh Gaya

An astute understanding of management and marketing practices, ability to establish efficient organizational habitats and a research based academic approach are the qualities that define Dr. Vinita Sahay. She has been shouldering responsibility as the Director of IIM Bodh Gaya since 2018, the second woman ever to rise to this post. She is a member of All India Board of Management Studies, constituted by All India Council of Technical education (AICTE), under Management Expert category. She also serves as an expert for Scrutiny Committee for Graded Autonomy granted by AICTE to standalone institutions running PGDM programmes, as well as a member of UGC for Recognition Granting Committees for Universities.

Prior to her role as the director of IIM Bodh Gaya, Dr. Sahay was holding the position of Professor of Marketing at IIM Raipur. During her tenure as a Professor, she also acted as Chairperson of International Relations, Doctoral Program and Students Affairs divisions. Under her guidance, the number of partner institutions for International Relations increased to 18, and the student exchange program saw a rise of 100%. She also laid a strong foundation for student's activities while heading the Students Affairs arena. As Chairperson (Fellow Programmes), Prof. Sahay started FPM in 2012 and EFPM in 2013, making it one of the most sought-after doctoral programmes within a short span of five years.

Dr. Vinita has also held the charge of Chairperson, PGDM Programmes at IMT Ghaziabad, while teaching there from 2007 till 2012. She brought about radical changes, leading major academic restructuring, adding various new electives keeping in the mind the industry's requirements and bolstering several administrative systems.

Travelling across the world, Dr. Vinita has earned international repute. She has been a visiting professor at Aarhus University, Denmark for over nine years. She attended 'Global Colloquium on Participant-Centred Learning (GloColl)' at the Harvard Business School, Boston, U.S. and Harvard Centre, Shanghai, China. She was an Adjunct Professor at GlobalNxt University, Singapore. She also participated in "Developing Leadership, Governance & Management in Higher Education" programme conducted by Leadership Foundation for Higher Education & UKIERI in Birmingham, UK.

Dr. Sahay has spread her wings beyond the field of academics and has collaborated with corporate organisations for training and development of executives. She has conducted many management development programmes for their middle and senior level officers of BPCL, ONGC, SCERT and IOC. She has also carried out many consulting assignments for central and state Government bodies.

As a researcher and author, she has co-authored many notable books on marketing, shopping experience, value creation for customers and supply chain management, which are used as textbooks and for citations. She has also published papers in well-known journals and edited three books. Her papers on CSR in the Indian retail industry were presented in the International Conference for Corporate Social Responsibility. She has the experience of organising two international conferences. Dr. Vinita focuses on adopting the latest changes in marketing sphere in her courses and papers, and motivates students and researchers to develop a novel perspective.

Recommendation by

Prof. Goutam Dutta, Ph.D.
Indian Institute of Management,
Ahmedabad

WOMEN MOVERS IN EDUCATION

Dr. Vidya Shankar Shetty

Director and Controller of Examination
REVA University, Bengaluru

Dr. Vidya Shankar Shetty, an eminent educationist, a prolific writer and education blogger has been involved in various domains of education. Apart from teaching, she has been involved in administration and strategy planning for K-12 and higher education, teacher training, pedagogy innovation, and research and development. Her guidance has led schools to the top league of K-12 education within a short span of time.

She is currently the Director and Controller of Examination at REVA University, Bengaluru. Blessed with a unique leadership style that creates a positive environment, Dr. Vidya Shankar, has always believed in bringing out the best in the team in her various positions starting from Principal to Director to CAO in reputed schools, colleges and universities in the country and abroad. Having started her career as a Lecturer at St Agnes College, Mangalore, she moved on to join the Presidency Group and set up Schools, Colleges and a University periodically. She was also the Director for Manipal K-12 Education, setting up schools countrywide and abroad.

In the position of the Director-Education at PEARSON K-12, India, the largest education company in the world, she set up 40 Institutions in India and Nepal over a span of less than five years. She was the Editor-in-Chief and Director at Edumedia India Pvt. Ltd. for over eight years. Her international foray has also been stellar. During her tenure as Chief Academic Officer for Dr. B R Shetty group in Abu Dhabi and Dubai, she set up schools for the group. She also made a huge impact in Qatar and Saudi Arabia, where she was on the Advisory Board for Schools and responsible for compliance and performance standards.

Dr. Shetty has been bestowed with many awards as recognition of her work. She received the World Didac Award for MENTOR- the only magazine for Principals across the country, the Best Team Player Award from Edumedia India Ltd. and the Best Contributor Award by the Bar Council of India (BCI). For her exemplary services to the group, she received the Greatest Contributor to the Business Award from John Mackinson, CEO, PEARSON.

Her research work has been largely focussed on women. Dr. Vidya completed her thesis on Indian mythology and empowerment of women leaders. Her paper on Indian Women Entrepreneurs has also been presented in conferences, workshops and seminars. She is often invited by universities and colleges to speak on various emerging trends in education.

With a stretch of experience in academic governance from K-12 to higher education, she has been a key member of various management teams, aligning and involving in development of organisations with key drivers and action owners of many management teams. Dr. Vidya has proved to be conscientious and analytical in her approach to education, emphasizing on skill centred learning. With a keen eye and perspective on the direction education must take to match the trends of the time, demands of industry and the NewGen expectation, Dr Vidya Shankar has made an impressionable difference in all establishments she has been associated with. EP

Recommendation by

Prof. Muddu Vinay
Vice Chancellor
ICFAI University, Dehradun

WOMEN MOVERS IN EDUCATION

Prof. Sriparna Basu

Professor
FORE School of Management, New Delhi

She's a dynamic teacher and researcher who believes in not just moving with the changing times, but also creating new trends through her impactful writing. Meet Prof. Sriparna Basu, Professor of Communication at the FORE School of Management, New Delhi, and a visiting Professor at IIM Sambalpur. During her two decades of work in the sphere of academia she has taught at IMI- Delhi, IIFT- Delhi, IIT-Kharagpur, National University of Juridical Sciences, Kolkata and University of Illinois at Urbana-Champaign, USA.

Prof. Sriparna has equally excelled at academic teaching and corporate training. She has been involved in training and consulting for several public and private sector organisations, where she guided executives at various levels to develop better communication skills. Some of the companies she has partnered with are ONGC, HHPC, IFFCO, Indian Oil, Power Grid, Aviation Academy of India, Punjab National Bank, Tata Motors, Bayer, Indian Institute of Public Administration, British Council, Relaxo and Indian Military Academy, Dehradun.

Prof. Sriparna Basu is always exploring the advances in technology that influence the field of media and communication. Her current research interest includes exploring the intersections between culture and technology, digital communication inclusions at the grassroot level and competing globalization in the era of technology. She is working on paradigm-shifting projects like 'Teaching through Twitter: using social media aids as design-thinking pedagogy', 'Behaviour and Sustainability of Social Ventures and Small Firms in a diverse and developing country like India' and 'Websites Cultures of Emerging Asian Economies'. She is also exploring the relationship between individual's perception on the overall value of intelligent AI supported devices, and their behavioral intention to use such devices.

Research papers by Prof. Sriparna have been published in national and international journals of repute. Having completed her M.A. and Ph.D. in Cultural Studies from the University of Illinois, at Urbana-Champaign, she has presented papers in 16 distinguished conferences. The international quarterly magazine, Global Asia, published by East Asia Foundation, awarded her $1000 for her article titled "India's Future Shaped by the Past: The Politics of Foreign Investment".

She is also a case writer, and the cases written by her have been acknowledged globally at Ivey-ISB case study competition in 2019, as well as WDI case competition in 2017. Many of her case studies and research papers are used as part of curriculum by leading management institutions. Taking keen interest in issues of social upliftment, Prof. Sriparna has done an in-depth study on the handloom industry and published a case study titled "Chanderiyaan: Weaving Digital Empowerment into the Indian Handloom Industry".

Prof. Basu's stupendous teaching, expert training and counselling skills and meticulous research work has etched her to be a valuable asset for the organizations she works with. EP

Recommendation by

Dr. Jitendra K Das
Director
FORE School of Management, New Delhi

WOMEN MOVERS IN EDUCATION

SHILPEE ARORA

Teacher & Guide
Works at EAB, Washington DC

A computer professional who has explored many avenues and reached a pinnacle position, Ms. Shilpee Arora is a teacher and guide, dedicated to development of world-class software solutions for students. She is working with EAB, Washington D.C., with an aim to make the education products accessible to students and widen their effectiveness.

Her journey in the software field started almost 15 years ago when she joined the CDRST lab in the physics department of Delhi University, under the supervision of Dr. R. K. Shivpuri. Working as a System Analyst at the lab, she had an opportunity to work on a variety of international projects and got exposed to the latest computing technologies. An opportunity to visit CERN, Switzerland came her way, offering an incredible learning experience at one of most advanced research labs. She utilised it to learn and understand grid computing in depth. Shilpee got another unique chance for intensive training on computing in research labs when she attended a week-long computing school in Helsinki, Finland.

Her professional life in USA started with Fermilab, Chicago, one of the most well-equipped research labs in the world. While working as a computer professional at Fermilab, she pursued her second master's degree in Web and Information Technology. After completing her master's course, she ventured out of the research related software field and moved on to consulting projects for different fields like healthcare, banking and education.

Over the years, she ventured in myriad projects at different locations, and related to various services. She chose the education related software field as her destination and joined EAB, developing specialised solutions for education domain. She takes part in research and development of the products offered by the company, and supports schools and colleges in streamlining their admission and examination systems, as well as in carrying out multi-channel marketing.

Throughout her journey, the role of mentors has been invaluable, and has led her to places where she made meaningful contribution. Shilpee continues to add value to the field of education and inspires youngsters to reach for their dreams. EP

Recommendation by

Prof. R.K. Shivpuri
Founder Director
Centre for Detector & Related Software Technology, University of Delhi

Director, International Collaboration, FWA

Dr. Pradeep Ghosh

EMPOWERING WOMEN IN SCIENCE

through Mobility Programmes

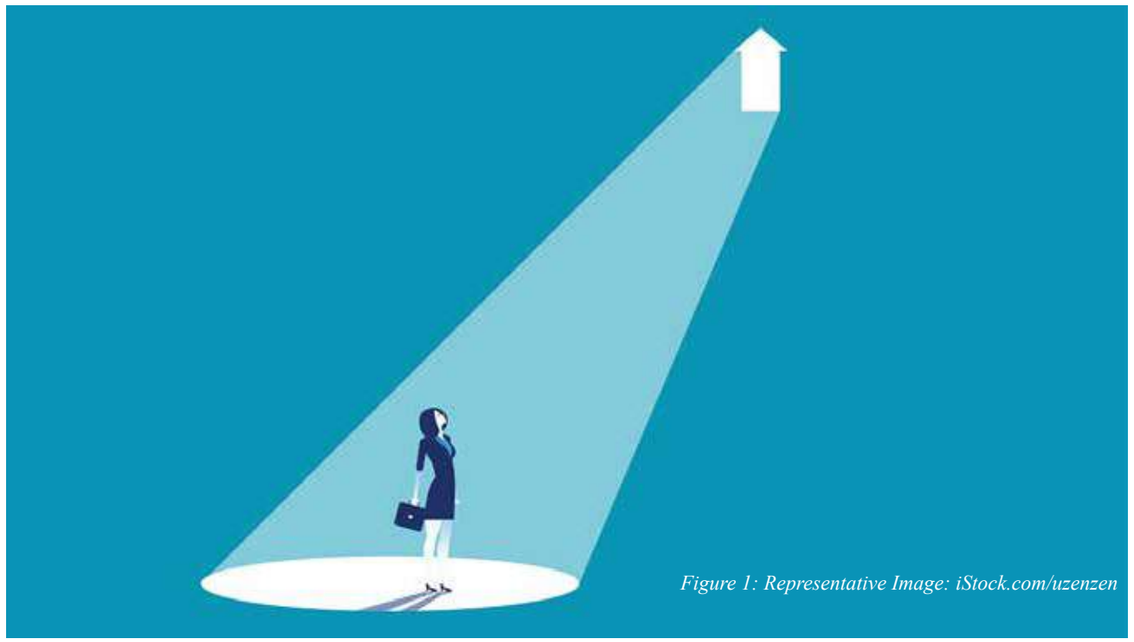


Figure 1: Representative Image: iStock.com/uzenzen

Discussion and Background

On 22 December 2015, the United Nations General Assembly decided to establish an annual International Day to recognize the critical role women and girls play in science and technology, through **Resolution A/RES/70/212**. The United Nations (UN) agreed to

celebrate the first Women and Girls in Science Day on 11th Feb 2020.

Additionally, the United Nations tackle the greatest challenges (for women) on their Agenda for Sustainable Development. Those challenges rang from improving health to combatting climate change. The committee group selected by the UN promised to include all talent which means to get more women working in these fields. Gender diversity in research expands the pool of talented researchers, and brings in fresh perspectives, talent, and creativity. Women and Girls in Science Day is a reminder that women and girls play a critical role in science and technology communities, and that their participation should be strengthened.

> "IF WE ARE TO BE ABLE TO ADDRESS THE ENORMOUS CHALLENGES OF THE TWENTY -FIRST CENTURY – FROM CLIMATE CHANGE TO TECHNOLOGICAL DISRUPTION - WE WILL NEED TO RELY ON SCIENCE AND THE MOBILIZATION OF ALL OUR RESOURCES. IT IS FOR THIS REASON THAT THE WORLD MUST NOT BE DEPRIVED OF THE POTENTIAL, THE INTELLIGENCE, OR THE CREATIVITY OF THE THOUSANDS OF WOMEN WHO ARE VICTIMS OF DEEP-SEATED INEQUALITY AND PREJUDICE.
>
> ON THE INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE 2020, UNESCO IS CALLING ON THE INTERNATIONAL COMMUNITY, STATES AND INDIVIDUALS TO WORK TOGETHER SO THAT EQUALITY IN THE SCIENCES AND OTHER FIELDS CAN FINALLY BECOME A REALITY. HUMANITY HAS EVERYTHING TO GAIN– AND SO DOES SCIENCE".
>
> — **AUDREY AZOULAY,** DIRECTOR GENERAL, MESSAGE ON THE OCCASION OF THE INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE 2020

Historically, the representation of women in the fields of science, technology, engineering, and mathematics (STEM) remains mostly peripheral. These under-representation of women in the field of education has not changed over the years. Also, no information about the current status of women in STEM is available in the public domain; notwithstanding the infrastructural and financial support availed from the government and non-governmental bodies.

Several efforts have been made from world organizations including UNESCO and EU Programme to identify and measure several aspects resulting in this gender gap. In this article, we address this lack of information by collecting data from eminent institutions throughout India. The under-representation of women in the science and technology community is characterized by primarily highlighting the male-dominated technology-driven Indian institutions. The probable causes for such inequality need to be analyzed and addressed for remedial purposes. One of those remedies is to provide women the opportunity of having a needful internship/training Programme during their mobility Programme with skillful development.

Figure 2: Women as share of researchers (data 2017 or later as available) source: The UNESCO Institute for Statistics (UIS)

World's perspective

57%
WITHIN THE ASIA COUNTRIES SUCH AS MYANMAR, AZERBAIJAN, AND MONGOLIA LEADS WITH MORE THAN 57% OF WOMEN IN RESEARCH. IN INDIA IT IS 13% (DATA: UNESCO)

Based on the Fact Sheet No. 55 June 2019 (FS/2019/SCI/55) published by the UNESCO, the Institute of Statisticsrecommends a clear gender gap in science. Regardless of the growing demand for cross-national-comparable statistics on women in science, national data and their use in policymaking often remain limited. This fact sheet presents theglobal and regional profiles, pinpointing where women thrive in this sector, and where the women are under-represented.The global map (see Figure 2) portrays the share of women in the total number of researchers by country.

A careful reading from this fact sheet (see Figure 3 - provides a completely different narrative for a developing nation such as India, and the efforts made in India to bridge the gender gap. The categorization of India as one of those countries which are referred as third-world countries or other terms such as developing (emerging) or under-developed nations do not impress us. Looking at the report, one can easily identify that there are a lot needs to be done in this sector, more than just a dialogue and more than writing vision statements. It starts with an updated data on the actual situation which then helps policy makers to build a policy which intend to resolve the issue, and help empower the underpowered, and bring down the gender gap.

With the support from the Swedish Government, and coordinated with UNESCO the SAGA project (shortcut for STEM and Gender Advancement)was launched in 2015 to strengthen UNESCO's work in support of gender equality in Science, Technology, and Innovation (STI). SAGA's main objective is to offer governments and policymakers a variety of tools to help reducing the current global gender gap in STI fields existing at all levels of education and research. By reaching this objective, the SAGA project will contribute to increase the visibility, participation, and recognition of women's contributions in STEM. The SAGA initiative will help to:

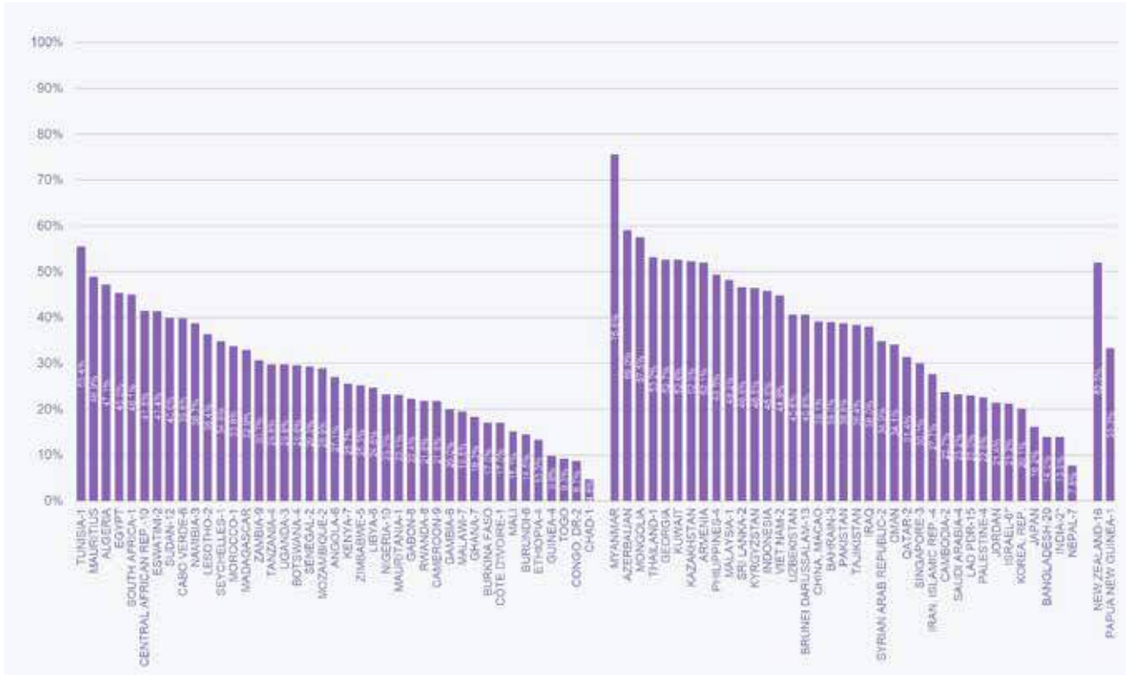


Figure 3: *Female researchers as a percentage of total researchers (HC), 2017 or latest year available. Notes: -1 = 2016, -2 = 2015, -3 = 2014, -4 = 2015, -5 = 2016, -6 = 2011, -7 = 2010, -8 = 2009, -9 = 2008, -12 = 2005, -13 = 2014, -14= 2003, -15= 2002, -16 = 2001, -20 = 1997. * based on FTE data. Source: UNESCO Institute for Statistics, June 2019.*

- Build capacity for the collection of data on gender in STEM;
- Improve the measurement and evaluation of women's and girls' situation in science;
- Identify gaps in the policy mix and improve national STI policies related to gender, based on evidence;
- Reduce the gender gap in STEM at all levels of education and in research; and

The project used a methodology and published 4 working papers which includes a SAGA tool kit. In their tool kit several indicators have been mentioned which has delayed the women empowerment and reduced attempts to balance the gender gap. The policy initiatives, suggested from this SAGA project, highlights their 15-point policy instruments, such as technical assistance, scholarships and fellowships, and work-related or scientific training. These policies and measures have both direct and indirect impact towards empowering the women and their career.

Indian Perspective

India is the fifth largest economy in the world, with a GDP of $2.87 trillion in 2019, more than 4% higher than in 2018. Because of its large population, India has the lowest per capita GDP on the list of top 25 economies of the world. Indian education system focuses more on theory rather than practice. It does not look for creativity. Whereas in foreign countries; they focus indeed on practical based learning. This is one key difference which makes the gap even wider in the early career of all genders, including women. Examining the causes of this grave inequality towards women's career in science, one is confronted with the age old concept of "women being the intellectually weaker section", caused by diverse socio-economic factors in the Indian society, to speak of psychological stereotypes such as gender stereo types of subjects, social stereotypes, the role of women in the society, and lack of role model(s). A vision document as a roadmap for Women in Science and Technology was published by the Inter-academy panel comprising the leading persons from Indian Academy of Sciences (IASc) in Bangalore, the National Academy of Sciences (NASI) in Allahabad, and Indian National Science Academy

INDIAN EDUCATION FOCUSES MORE ON THEORY RATHER THAN PRACTICAL. INDIAN EDUCATION SYSTEM DOESN'T ALLOW CREATIVITY. WHEREAS IN FOREIGN COUNTRIES; THEY FOCUS MORE ON PRACTICAL BASED LEARNING.

(INSA) in Delhi. The document stresses among other recommendations the immense importance on the training of young female students and researchers, allowing them to pursue and secure a professional job and be skillful for the market requirements. There are several key reasons why Mobility Programmes are empowering women in science. A few can be summarized as following points:

- Professional experience and practical training in the field of choice
- Confidence – to be self-reliant and self-belief
- Traveling away from the comfort zone
- Cultural awareness and learning from others
- Independence
- Better adaptability in difficult situations
- To be a trial run for the Career field
- Improving their language and interaction skills and also to speak out
- Creating their network – internationally
- Exposure to opportunities which may not be accessible otherwise

How catching early and encouragement is the key!

The under-representation of women in STEM translated into the loss of a critical mass of talent, thoughts and ideas, hinder countries from reaching their maximum development potential.In the early years of the education,which is during their professional or traditional education, women have rarely enough exposure to opportunities and access to skill development. This is also argued in the 120 pages of Final report on Status of Women in Science among Select Institutions in India: Policy Implications published in September 2017. The report acknowledges

two segments of female population who are seen to be facing huge drawbacks in pursuing their dreams. First segment consists of those who get deprived of primary education; the other segment consists of the highly qualified women professionals. This report targets the second segment of women, particularly women in science and technology.

The table below (excerpt from the report - Figure 4 Figure 3) shows annual percentage enrolments - female and total (male and female combined). To bring the data into perspective, the sampling of these data performed at the premier institutes funded or aided directly by the government and then submitted to NITI AAYOG. The sample was Working (Scientific and Administrative Staff) 20.0 %, Post-Doctoral Fellows 28.7 %, Ph.D. 33.5%, Students (UG and PG) 24.0%. The report concludes the following:

- Female enrolment percentages for "Engineering and Technology" and "IT and Computer Science" are lower than male enrolment percentages for the same disciplines at the UnderGraduate level, which is the point of entry into higher education for all years during 2011-16.
- For "Science" and "Medical Science" the female enrolment percentages are slightly higher than male enrolment percentages.
- For "Arts" the difference between female and male enrolment percentages is marked reflecting the higher entry of women than men.

Table 2.B: Percentage of Female Enrollment in Select Disciplines as compared to Total Enrollment

		2011-12		2012-13		2013-14		2014-15		2015-16	
UG		Female	Total	Female	Total	Female	Total	Female	Total	Female	Total
	Science	13.2	11.9	13.2	12.6	14.1	15.8	15.4	15.4	16.2	16.0
	Engineering & Technology	12.0	18.9	10.8	17.3	10.7	17.4	9.6	15.9	9.3	15.6
	Medical Science	3.7	2.8	3.9	3.0	4.0	3.0	4.0	3.1	4.3	3.3
	IT & Computer	4.7	5.1	2.7	3.0	2.6	2.7	2.4	2.6	2.3	2.5
	Agriculture	0.3	0.4	0.3	0.6	0.3	0.6	0.3	0.6	0.4	0.7
	Arts	38.0	33.8	46.2	40.8	46.1	40.4	45.9	40.2	41.1	36.2
	Commerce	14.3	14.5	13.9	14.4	13.5	13.9	13.7	14.0	14.0	14.1
PG		Female	Total	Female	Total	Female	Total	Female	Total	Female	Total
	Science	9.62	8.9	14.26	12.78	13.84	12.45	14.09	12.51	14.49	12.3
	Engineering & Technology	4.74	6.18	4.69	6.24	5.43	7.12	5.75	7.6	4.88	6.69
	Medical Science	4.86	4.39	2.77	2.92	2.86	2.97	3.02	3.06	3.22	3.33
	IT & Computer	9.13	10.3	8.76	9.93	7.61	8.32	6.99	7.48	5.74	6.22
	Agriculture	0.32	0.42	0.31	0.48	0.38	0.56	0.34	0.58	0.34	0.57
	Arts	…	…	18.13	17.11	18.08	16.83	18.41	17.35	…	…
	Commerce	8.11	7.27	8.8	7.75	10.3	9.22	10.68	9.61	11.79	10.75
M.Phil		Female	Total	Female	Total	Female	Total	Female	Total	Female	Total
	Science	17.58	17.5	28.39	27.01	27.22	25.66	27.9	26.69	27.62	25.37
	Engineering & Technology	0.28	0.27	0.38	0.37	0.29	0.24	0.43	0.3	0.19	0.15
	Medical Science	5.56	4.3	0.51	0.35	0.6	0.49	0.44	0.46	0.46	0.41
	IT & Computer	6.32	5.15	6.68	5.1	7.25	5.54	7.28	5.6	5.6	4.74
	Agriculture	0.05	0.04	0.08	0.14	0.02	0.05	0.02	0.17	0.05	0.15
	Arts	…	…	15.31	18.17	17.06	19.73	16.63	18.92	…	…
	Commerce	9.86	8.31	11.15	10.11	10.89	9.47	10.18	9.05	8.88	7.58
Ph.D		Female	Total	Female	Total	Female	Total	Female	Total	Female	Total
	Science	22.97	22.15	28.36	27.88	27.82	26.27	27.78	25.88	27.52	26.82
	Engineering & Technology	15.16	20.55	11.92	17.67	14.73	21.21	16.42	23.42	17.38	24.19
	Medical Science	6.22	5.59	3.38	3.77	4.47	4.66	3.83	3.99	4.18	4.14
	IT & Computer	1.81	1.35	2.02	1.71	1.68	1.54	1.87	1.69	2.53	2.19
	Agriculture	2.35	2.84	2.86	3.56	3.73	3.89	3.14	3.84	3.53	3.83
	Arts	…	…	15.32	14.6	14.65	13.27	13.49	12.13	…	…
	Commerce	3.89	3.65	3.46	3.12	2.93	2.85	3.75	3.09	3.17	2.74

Source: Compiled from MHRD Reports

Figure 4 : *Annual percentage enrolments - female and total (male and female combined) - for 7 different disciplines out of aggregate enrolments across all disciplines, for the period 2011-12 to 2015-16, at Ph. D., M.Phil., Master's and Bachelor's degree.*
Source: *Final report on Status of Women in Science among Select Institutions in India: Policy Implications (Page 29)*

The conclusion from the report is the push for significant and measurable improvements in infrastructure and support services for females at both academic and non-academic institutions. It recommends strongly on careful approach while enabling best practises on management policies to be initiated to supporting females. Moreover, the report stresses the possibility of a better work environment and stresses more professional interaction during the education phase. This is surely possible by having a mobility programme for students to explore the field of science from an application-focused approach. The report also identifies the significance of more fellowships/scholarships/ research funding. As a summary, the report highlights a requirement of a better talent management programme which needs to be structured and approached with an aim of substantially increasing the representation of females at all levels of science and technology.

MORE THAN ONE-THIRD PARTICIPANTS IN GETINVOLVED PROGRAMME ARE FEMALES

33% PLUS

GET_INvolved: Talent Management Programme

GSI Helmholtz center has been a talent factory since its inception 50 years ago. GSI has inculcated a tradition for mentoring and training. Several of the alumina are now leaders in their field and have achieved a successful career. The GET_INvolved Programme initiated a framework ensuring opportunities for young students and early-stage researchers from all genders to get skillful training while performing their education.

The GET_INvolved Programme at GSI Helmholtz Center Germany provides international students, early-stage researchers, and employees of industrial partners with opportunities to perform internships, traineeships, and early-stage research experience at GSI'slaboratoriesin Darmstadt, Germany, to get involved in the international FAIR accelerator project while receiving scientific and technical training. Professional training and mentorship are available for a broad range of topics such as biophysics, material research (including nanotechnologies), high-performance computing, radiation therapy and

Figure 5: *Collage of a few selected students/researchers from GET_Involved Programme. More than 33 percent of the participants in the Programme are female.* ***Photo:*** *G. Otto / J Steitz / M Bernards for GSI GmbH*

protection, accelerator technology, superconducting magnets, atomic physics, plasma physics, laser physics, nuclear physics, and chemistry. The programme is supported by partner institutes such as universities and research institutes or by companies.Each partner supports a defined number of talented students or young scientists per year.

The talent management programme GET_INvolved has received more than 400 applications from 35+

Figure 6: *First three students in GET_INvolved Programme. Image: Photo: G. Otto/GSI Helmholtzzentrum für Schwerionenforschung GmbH*

countries from all over the world - in the last three years. The mobility programme provided mentored training to 130+ students/researcher in taking part in state-of-the-art research internships and trainings. The mobility programme holds proud to have accepted more

Figure 7: *GET_INvolved participant Anushka during her Internship at GSI Darmstadt. Photo: G. Otto/GSI Helmholtzzentrum für Schwerionenforschung GmbH*

than one –third participants as females.

Mostly the programme's publishedsuccess stories with empowering and encouraging female students and researchers provide animpressionthat to the experience in the mobility programme has giventhese young scientists and engineers an opportunity to pursue their dream skillfully. One of the programme partners is the famous Mody University in Laxmangarh, Rajasthan,India. Two of the very first three students of the programme were from Indian University (MUST). Ms Anushka T. and Ms Jayati V participated in the programme. These three students had laid steppingstone for others. In 2018, GSI agreed to accept MUST Rajasthan as a partner in GET_INvolved Programme and established an internship and training programme for meritorious young female future engineers in science and technology. Both Anushka and Jayati have

Figure 8: *GET_INvolved participant Jayati during her Internship at GSI Darmstadt. Photo: G. Otto/GSI Helmholtzzentrum für Schwerionenforschung GmbH*

been the two best students from their Computer Science Engineering course at the University.

Anushka worked on a research project focusing on data analysis for a state-of-the-art experiment at GSI. Later she was selected to pursue her Master in Engineering in the University of North Carolina, USA. The Internship with the GET_INvolved Programme gave her confidence and required exposure to pursue her dreams and make them a reality. She is passionate to work with big data and would like to be an analyst in the finance sector.

On the other hand, Jayati worked on her bachelor's thesis focusing on a programme which allows a graphical interface for using and testing the Superconducting Magnets. Jayati went to qualify for

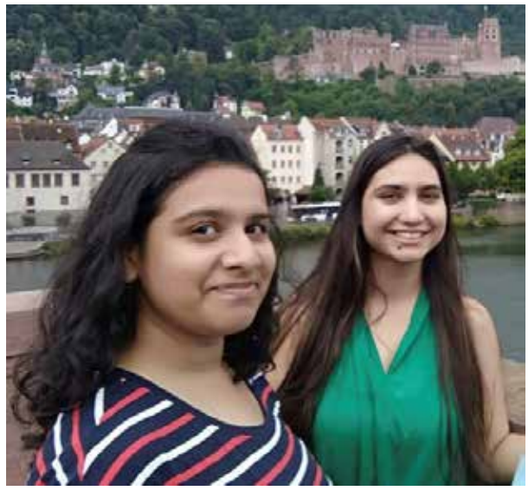


Figure 9: *GET_INvolved Participants Mahima (r) and Priya (l) from Amity University India - enjoying the historic city of Heidelberg (65 km South of GSI Darmstadt)* ***Source:*** *Image posted by Mahima C on Facebook.*

the Master in Indian Institute of Space Science and Technology. She is passionate to do further research and having her exposure at the international mobility programme boosted her CV.With her good grades she is able to pursue her research ahead. Presently, she is working for her PhD in Indian Institute of Space Science and Technology, Trivandrum. She is working on the 3D map of India which is not there.

In 2018,two female Master students, from Amity Institute of Nanotechnology,Priya and Mahima qualified for the GET_INvolved mobility internship. The mobility programme gave them a great opportunity to work in a project environment and in an international team of students and experts.

Currently, Priya is performing her PhD research at the Phillips University in Marburg, Germany and Mahima is pursuing her PhD research at ESPCI in Paris, France.

Concluding remarks

There are several such success stories where mobility programmes such as the GET_Involved Programme, encouraged and supported young female students and researchers. It is valuable for science and research that those female talents are integrated and remain. They have to get opportunities to climb up the career ladder, not only by gaining the educational or professional degree, but also providing the requiredprofessional mentorship to nurture them into future leaders. The Indian academic and non-academic institutions require to rethink and innovate policies in the right direction. Mobility programme is one such tool which helps to break out from stereotypical role models of the society and push them to explore and rediscover themselves. Networking and intercultural interactions enriches not only their science knowledge but also about social understanding and their own-made and self-understood role in society. It still requires more work to also encourage women from poor or rural cities for studies and education. One must not lose those who are in the field of science merely because of lack of opportunities which is available for the other gender. Partnerships have to be created to give opportunities to young talents. Special funding instruments and appropriate cooperation tools have to be made accessible to encourage and inspire women and girls in science to feel free, encouraged and empowered to pursue their path courageously.

"Don't let anyone rob you of your imagination, your creativity, or your curiosity."

- Mae Jemison, first African American woman astronaut in space

About the author

The author is a Nuclear Reactor Engineer and Science Manager. He made his Doctoral degree in Physics at theGoethe University in Frankfurt, Germany. He is proud Alumni of the University of Delhi and Banaras Hindi University. Currently, Dr. Ghosh is managing International relations and R&D partnerships at GSI Helmholtz Center for Heavy Ion Research (Germany) and managesthe International Programme for students and researchers for the Helmholtz Center Darmstadt Germany. He is passionate about Nuclear Energy andScienceManagement.While establishing and managing the International Programme GET_ INvolved he was confronted several times with the unequal distribution of gender in research projects. In his role, he speaks out for an equal chance for all genders and encourages women for a career in science.

Dr. Nayan P Gandhi

SMART TECHNO HYBRID CLASSROOMS MODEL

A STEP FORWARD

PRIORITY ISSUES AND CHALLENGES FOR MODERN INDIA DURING PANDEMIC COVID -19

The global pandemic has had a huge impact on almost all sectors of the economy. While it has been easier for multinational companies and professionals to embrace working from home as the new normal, and continue working as usual, times have been tough for the education providers around the world. However, necessity is the mother of invention.

With disruptions everywhere, various concerned academics, citizens, politicians and bureaucrats argued for the need to innovate and reinvent the Indian education system. That's how the Smart Techno hybrid classroom model came into being. The adoption of the model by schools is transforming the traditional education system. The best part is that the change is not just limited to private schools, but even several public schools have started teaching using the Smart Hybrid classroom model.

Although the crisis is devastating, it is making our schools, and even universities technologically advanced. Undoubtedly, students and teachers have had to make radical changes,as learning has always been in the classroom. Furthermore, many of them are not well-equipped with the technologically advanced tools to take advantage of distance learning. Nevertheless, the use of technology in teaching is helping to improve the quality of education in India. It is also changing the way education is offered in India.

During the COVID-19 pandemic, the possibilities to improve the infrastructure in the K-12 and higher education sectors have increased. Private schools are already using the e-learning system, smart classrooms and some have even mandated tabs, starting as early as preschool. Given the lockdown situation, one can imagine that many EdTech companies will see and seize the opportunity to fill the gap that may exist, in order to bring more schools on the digital platform. As unlikely as it may sound, the next five years could make virtual education the new normin India.

An essential aspect of dealing with the challenge posed by Covid-19 is ensuring that virtual learning becomes a continuous process. Connecting students and teachers through digital platforms,with the help of the required software used on laptops or phones, is the latest transition in education. It seeks to eliminate the physical need for teachers or classrooms. This is a suitable time to take advantage of the Smart Hybrid technology and its latest offerings to make education more efficient and productive through online learning and assessments.

An essential aspect of dealing with the challenge posed by Covid-19 is ensuring that virtual learning becomes a continuous process. Connecting students and teachers through digital platforms,with the help of the required software used on laptops or phones, is the latest transition in education.

Way forward:Changing scenario of Education System

In response to the challenge of university and school closures, the central government, state governments and private players have devised various initiatives to support and benefit students. Since the closure began, the government has taken numerous steps to ensure that the impact of the crisis on education is minimal. To help students continue their learning during the pandemic, various e-learning portals and applications have been launched by the government and educational agencies, such as DIKSHA portal, e-Pathshala, Swayam, STEM-based games, etc. Due to the accelerated adoption of digital technology brought on by the lockdown, educational institutions, business houses, data management methods, and online training solutions have been forced to work together.

Numerous educational institutions see it as an ideal time to experiment and implement new technologies to make the delivery of education possible and meaningful. Many use it as an opportunity to be more productive and efficient by developing innovative and enhanced professional skills through online learning and assessment. Online evaluation platforms or Information and Technology (IT) companies continually strive to improve their products, in an effort not to let the crisis get in the way of the curriculum.

Much has been planned and implemented, and further improvements are being made. The substantial use of technology in teaching in the midst of a crisis will lead to a new era in education, where the best teachers will be available to students from all over the world. The quality of the IT infrastructure, the skill level of the teaching staff and their familiarity with digital learning technologies are important parameters to be evaluated in the future. The adoption of technologies to provide education will help strengthen the country's digital learning infrastructure in the long term.

The impact of COVID-19 is that many more students,both in schools as well as colleges, are able to attend classes from home, with the help ofSmart Techno Hybrid classroom model and various other methods of innovative application. Although this trend was already on the rise, it will receive a big boost due to COVID-19 restrictions on physical schooling. The good news is that urban as well as rural India is well prepared to provide remote learning to students.

Our country has one of the largest 4G networks on the planet. Virtually all parts of the country have 4G connectivity. Even more impressive is the fact that the data transfer is very convenient. On such strong networks, classes can be streamed with ease. Students who learn in virtual classrooms will find their learning experience to be as good as, or perhaps even better than, that of students sitting in the classroom. The tremendous transformative power of Smart Digi Hybrid Classroom is its ability to bring endless courses within the reach of students. A student living in the interior regions of the country can master an artificial intelligence or big data course without paying a hefty fee.

The number of students receiving online education will increase dramatically over the next few years. The application of technology in education has led to an unprecedented transformation from education being teacher-centred to becoming student-centred. Virtual classrooms and various online tools are helping to continue teacher-student engagement and make it as close to the classroom experience as possible. Moving forward, smart classrooms will do everything possible, from parent-teacher meetings to staff and administration meetings, providing the necessary interactivity. Technology-based education makes the education system more transparent and fairer.

The impact of COVID-19 is that many more students,both in schools as well as colleges, are able to attend classes from home, with the help ofSmart Techno Hybrid classroom model and various other methods of innovative application. Although this trend was already on the rise, it will receive a big boost due to COVID-19 restrictions on physical schooling.

Digital education needs seamless coordination between course content creators, faculty, technology providersand course participants. It can only be successfully implemented with the availability of basic services such as internet connectivity,adequate software systems andhardware like personal computers, laptops, etc. We cannot deny the fact that in such extreme situations, COVID-19 has proved as a catalyst for the adoption process of technology, to make quality education accessible for all. This is an opportune time to take advantage of the Smart Hybrid technology and its latest offerings to make education more competent and productive through online learning and assessments. EP

RANK*	SCHOOL NAME	CITY	STATE
1	St. Xaviers Senior Secondary School, Raj Niwas Marg	New Delhi	Delhi
2	Delhi Public School, R K Puram	New Delhi	Delhi
2	The Valley School	Bengaluru	Karnataka
3	Vidyashilp Academy	Bengaluru	Karnataka
3	Cathedral And John Connon School	Mumbai	Maharashtra
3	Modern School, Barakhamba	New Delhi	Delhi
3	Heritage Xperiential Learning School	Gurugram	Haryana
3	Neev Academy	Bengaluru	Karnataka
4	Smt. Sulochanadevi Singhania School	Thane	Maharashtra
4	DPS, Chandigarh	Chandigarh	Punjab
5	The School KFI, Adyar	Chennai	Tamil Nadu
5	Poorna Prajna Public School, Vasant Kunj	New Delhi	Delhi
5	The Shri Ram Universal School, Nanakramguda	Hyderabad	Telangana
6	Army Public School, Dhaula Kuan	New Delhi	Delhi
7	Inventure Academy	Bengaluru	Karnataka
8	Mallya Aditi International School	Bengaluru	Karnataka
9	St. Xaviers Senior Secondary School	Jaipur	Rajasthan
10	R.N Podar School	Mumbai	Maharashtra
11	Glendale Academy	Hyderabad	Telangana
12	The Mothers International School, Aurobindo Marg	Delhi	Delhi
13	Eklavya School	Ahmedabad	Gujarat
14	Smt. Sulochanadevi Singhania School	Mumbai	Maharashtra

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
15	Vidyaranya High School	Hyderabad	Telangana
16	Springdales School, Dhaula Kuan	Delhi	Delhi
17	Abacus Montessori School	Chennai	Tamil Nadu
18	The Heritage School	Kolkata	West Bengal
18	The Mann School, Holambi Khurd	Delhi	Delhi
19	Sishya School, Adyar	Chennai	Tamil Nadu
19	Scottish High International School	Gurugram	Haryana
20	Jamnabai Narsee School	Mumbai	Maharashtra
21	Ahlcon International School	Delhi	Delhi
21	Springdales School, Pusa Road	Delhi	Delhi
22	Jamnabai Narsee School	Mumbai	Maharashtra
22	DPS, Rohini	Delhi	Delhi
23	Campion School Mumbai	Mumbai	Maharashtra
24	Sanskriti School, Chanakyapuri	Delhi	Delhi
25	Dhirubhai Ambani International School	Mumbai	Maharashtra
26	The J.B Petit High School for Girls	Mumbai	Maharashtra
27	Step by Step, Noida	Noida	Uttar Pradesh
28	Vasant Valley School	Delhi	Delhi
29	The Shri Ram School, Vasant Vihar/Moulsari	Delhi	Delhi
29	Bal Bharti Public School, Rohini	Delhi	Delhi
30	The Shri Ram School, Aravali	Gurugram	Haryana
30	DPS Vasant Kunj	New Delhi	Delhi
30	Oberai International School	Mumbai	Maharashtra
31	Vishwa Bharati Public School	Noida	Uttar Pradesh
31	Sardar Patel Vidyalaya	Delhi	Delhi

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
32	Nirmal Bhartia	Delhi	Delhi
33	Chirec International School	Hyderabad	Telangana
34	Singapore International School	Mumbai	Maharashtra
34	Strawberry Fields High School	Chandigarh	Punjab
35	St. Mary's School	Mumbai	Maharashtra
35	DPS, Khajaguda	Hyderabad	Telangana
36	Lotus Valley International School	Gurugram	Haryana
37	Bluebells School International	Delhi	Delhi
38	The Heritage School, Rohini	Delhi	Delhi
39	Shishuvan School, Matunga	Mumbai	Maharashtra
39	Ramjas School School, Sec-4, R K Puram	New Delhi	Delhi
40	RN Podar School	Mumbai	Maharashtra
41	Arya Vidya Mandir, Bandra (West)	Mumbai	Maharashtra
41	DPS, Bengaluru East	Bengaluru	Karnataka
42	Padma Seshadri Bala Bhavan Senior Secondary School, Nungambakkam	Chennai	Tamil Nadu
43	Shikshantar School	Gurugram	Haryana
44	Udayachal High School, Vikhroli	Mumbai	Maharashtra
45	Vega School	Gurugram	Haryana
46	Lotus Valley International School	Noida	Uttar Pradesh
46	St. Mark's Sr. Secondary Public School, Meera Bagh	Delhi	Delhi
47	Sri Sri Academy	Kolkata	West Bengal
48	The Kalyani School	Pune	Maharashtra
49	Vidya Niketan School	Bengaluru	Karnataka

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
50	The Future Kids School	Hyderabad	Telangana
51	Gitanjali School	Hyderabad	Telangana
52	Modern Vidya Niketan, Sector 17, Faridabad	Faridabad	Haryana
53	Shiv Nadar School	Noida	Uttar Pradesh
54	The New Town School	Kolkata	West Bengal
55	The Shishukunj International School	Indore	Madhya Pradesh
56	DPS, Faridabad	Faridabad	Haryana
57	Podar International School	Mumbai	Maharashtra
57	Suncity School	Gurugram	Haryana
59	Shiv Nadar School	Gurugram	Haryana
60	Vidya Mandir Sr Sec School, Mylapore	Chennai	Tamil Nadu
61	Silver Oaks International School	Hyderabad	Telangana
62	Elpro International School, Chinchwad	Pune	Maharashtra
63	DPS, Nerul	Navi Mumbai	Maharashtra
64	DPS, Pune	Pune	Maharashtra
65	Bhavan Vidyalaya	Chandigarh	Punjab
65	Hans Raj Model School, Punjabi Bagh	Delhi	Delhi
66	Gyanshree School	Noida	Uttar Pradesh
67	DPS, Ruby Park	Kolkata	West Bengal
68	Suchitra Academy	Hyderabad	Telangana
68	Aditya Birla World Academy	Mumbai	Maharashtra
69	Modern DPS	Faridabad	Haryana
70	City Montessori School, Gomti Nagar	Lucknow	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
71	Johnson Grammar School	Hyderabad	Telangana
72	Villa Theresa High School	Mumbai	Maharashtra
72	Modern School, Vasant Vihar	Delhi	Delhi
72	Chinmaya Vidyalaya, Anna Nagar	Chennai	Tamil Nadu
73	DPS Megacity	Kolkata	West Bengal
74	Sri Venkateshwar International School, Sector 18, Dwarka	Delhi	Delhi
75	DPS, Indirapuram	Ghaziabad	Uttar Pradesh
76	DPS, Meerut Road	Ghaziabad	Uttar Pradesh
76	National Public School, HSR Layout	Bengaluru	Karnataka
77	The Bishops School, Kalyani Nagar	Pune	Maharashtra
78	Amity International School	Noida	Uttar Pradesh
78	St. Marys School, Safdarjung Enclave	Delhi	Delhi
79	DPS, Bengaluru North	Bengaluru	Karnataka
79	Sri Sri Ravishankar Vidya Mandir, Kachamaranahalli	Bengaluru	Karnataka
80	Montfort Senior Secondary School	Delhi	Delhi
81	Blue Bells Model School, Sector 4	Gurugram	Haryana
82	DPS, Newtown	Kolkata	West Bengal
82	Manav Rachna International School	Faridabad	Haryana
83	DPS, Bengaluru South	Bengaluru	Karnataka
84	Vibgyor High, Marathahalli	Bengaluru	Karnataka
85	The Samhita Academy	Bengaluru	Karnataka
85	DPS, Bopal	Ahmedabad	Gujarat
86	Ryan International School	Noida	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
86	BK Birla Public School, Kalyan	Kalyan	Maharashtra
87	Hiranandani Foundation School	Thane	Maharashtra
88	Bal Bharati Public School, Ganga Ram Hospital Rd,	Delhi	Delhi
88	Bal Bharati Public School	Navi Mumbai	Maharashtra
89	Chinmaya Vidyalaya, Virugambakkam	Chennai	Tamil Nadu
90	Bombay Scottish School, Mahim	Mumbai	Maharashtra
91	Bal Bharati Public School, Pitampura	Delhi	Delhi
92	Sat Paul Mittal School	Ludhiana	Punjab
93	Somerville School	Noida	Uttar Pradesh
94	Chettinad Vidyashram	Chennai	Tamil Nadu
95	Bal Bharati Public School	Noida	Uttar Pradesh
96	Bharatiya Vidya Bhavans Atmakuri Rama Rao School	Hyderabad	Telangana
97	St. Stephens School	Chandigarh	Punujab
98	CNM School, Vile Parle (W)	Mumbai	Maharashtra
99	Akshar School	Kolkata	West Bengal
100	Vasudev C. Wadhwa Arya Vidya Mandir, Bandra (East)	Mumbai	Maharashtra

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
1	The Valley School	Bengaluru	Karnataka
2	Vasant Valley School	Delhi	Delhi
3	The School KFI, Adyar	Chennai	Tamil Nadu
4	Sanskriti School, Chanakyapuri	Delhi	Delhi
5	Heritage Xperiential Learning School	Gurugram	Haryana
5	Modern School, Barakhamba	New Delhi	Delhi
6	Inventure Academy	Bengaluru	Karnataka
7	The Mothers International School	Delhi	Delhi
8	Eklavya School	Ahmedabad	Gujarat
9	Step by Step, Noida	Noida	Uttar Pradesh
10	Oberoi International School	Mumbai	Maharashtra
11	Singapore International School	Mumbai	Maharashtra
11	Scottish High International School	Gurugram	Haryana
12	Cathedral and John Connon School	Mumbai	Maharashtra
13	Abacus Montessori School	Chennai	Tamil Nadu
14	R.N Podar School	Mumbai	Maharashtra
14	Delhi Public School, R K Puram	New Delhi	Delhi
15	Campion School Mumbai	Mumbai	Maharashtra
16	St. Xaviers Senior Secondary School	Jaipur	Rajasthan
16	Dhirubhai Ambani International School	Mumbai	Maharashtra
17	Jamnabai Narsee School	Mumbai	Maharashtra
18	St. Xaviers Senior Secondary School, Raj Niwas Marg	New Delhi	Delhi

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
19	St. Mary's School Mumbai	Mumbai	Maharashtra
20	Springdales School, Dhaula Kuan	Delhi	Delhi
21	Smt. Sulochanadevi Singhania School	Mumbai	Maharashtra
22	The Shri Ram School, Vasant Vihar/ Moulsari	Delhi	Delhi
23	Smt. Sulochanadevi Singhania School	Thane	Maharashtra
24	Mallya Aditi International School	Bengaluru	Karnataka
25	Vidyashilp Academy	Bengaluru	Karnataka
26	The J.B Petit High School for Girls	Mumbai	Maharashtra
27	The Shri Ram School, Aravali	Gurugram	Haryana
28	Sishya School, Adyar	Chennai	Tamil Nadu
29	Ahlcon International School	Delhi	Delhi
30	Vidyaranya High School	Hyderabad	Telangana
31	Lotus Valley International School	Gurugram	Haryana
32	Springdales School, Pusa Road	Delhi	Delhi
33	RN Podar School	Mumbai	Maharashtra
34	Jamnabai Narsee School	Mumbai	Maharashtra
34	Poorna Prajna Public School, Vasant Kunj	New Delhi	Delhi
35	The Mann School, Holambi Khurd	Delhi	Delhi
35	The Heritage School	Kolkata	West Bengal
36	ARMY Public School, Dhaula Kuan	New Delhi	Delhi
36	Podar International School Mumbai	Mumbai	Maharashtra

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
37	Glendale Academy	Hyderabad	Telangana
38	Sardar Patel Vidyalaya	Delhi	Delhi
39	Strawberry Fields High School	Chandigarh	Punjab
40	DPS, Khajaguda	Hyderabad	Telangana
40	The Mothers International School, Aurobindo Marg	Delhi	Delhi
41	Nirmal Bhartia	Delhi	Delhi
42	CHIREC International School	Hyderabad	Telangana
43	DPS, Rohini	Delhi	Delhi
43	Bal Bharti Public School, Rohini	Delhi	Delhi
44	Arya Vidya Mandir, Bandra (West)	Mumbai	Maharashtra
45	Bluebells School International	Delhi	Delhi
46	The Heritage School, Rohini	Delhi	Delhi
47	Shishuvan School, Matunga	Mumbai	Maharashtra
48	Suncity School	Gurugram	Haryana
49	Vidya Mandir Sr Sec School, Mylapore	Chennai	Tamil Nadu
50	Vega School	Gurugram	Haryana
51	DPS, Bengaluru East	Bengaluru	Karnataka
52	Shiv Nadar School	Gurugram	Haryana
53	Padma Seshadri Bala Bhavan Senior Secondary School, Nungambakkam	Chennai	Tamil Nadu
53	Ramjas School School, Sec-4, R K Puram	New Delhi	Delhi
54	Shikshantar School	Gurugram	Haryana
55	DPS, Nerul, Navi Mumbai	Navi Mumbai	Maharashtra

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
56	Silver Oaks International School	Hyderabad	Telangana
57	Bhavan Vidyalaya	Chandigarh	Punjab
58	Gitanjali School	Hyderabad	Telangana
59	Vidya Niketan School	Bengaluru	Karnataka
59	DPS Vasant Kunj	New Delhi	Delhi
60	The Future Kids School	Hyderabad	Telangana
61	Lakshmipat Singhania Academy	Kolkata	West Bengal
62	Sri Sri Academy	Kolkata	West Bengal
63	Lotus Valley International School	Noida	Uttar Pradesh
64	The Kalyani School	Pune	Maharashtra
65	DPS, Pune	Pune	Maharashtra
66	The New Town School	Kolkata	West Bengal
67	The Shriram Millennium School	Faridabad	Haryana
68	The Shishukunj International School	Indore	Madhya Pradesh
68	St. Mark's Sr. Secondary Public School, Meera Bagh	Delhi	Delhi
69	Elpro International School, Chinchwad	Pune	Maharashtra
70	The Future Foundation School	Kolkata	West Bengal
71	Vivek High School	Chandigarh	Punjab
72	DPS, Ruby Park	Kolkata	West Bengal
73	DPS, Faridabad	Faridabad	Haryana
74	Gyanshree School	Noida	Uttar Pradesh
75	Modern Vidya Niketan, Sector 17	Faridabad	Haryana

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
76	AMS P. Obul Reddy Public School	Hyderabad	Telangana
77	Shiv Nadar School, Noida	Noida	Uttar Pradesh
78	Modern DPS, Faridabad	Faridabad	Haryana
78	Aditya Birla World Academy	Mumbai	Maharashtra
79	NEEV Academy, Bengaluru	Bengaluru	Karnataka
79	Hans Raj Model School, Punjabi Bagh	Delhi	Delhi
80	City Montessori School, Gomti Nagar	Lucknow	Uttar Pradesh
81	DPS, Greater Noida	Noida	Uttar Pradesh
81	Villa Theresa High School	Mumbai	Maharashtra
82	Maharaja Sawai Man Singh Vidyalaya	Jaipur	Rajasthan
83	Modern School, Vasant Vihar	Delhi	Delhi
84	Sri Kumaran Childrens Home School	Bengaluru	Karnataka
85	Johnson Grammar School	Hyderabad	Telangana
86	Birla Open Minds International School, Kollur	Hyderabad	Telangana
87	St. Kabir Public School	Chandigarh	Punjab
88	South City International School	Kolkata	West Bengal
89	Udayachal High School, Vikhroli	Mumbai	Maharashtra
89	Sri Venkateshwar International School, Sector 18, Dwarka	Delhi	Delhi
89	Amity International School	Noida	Uttar Pradesh
90	Suchitra Academy	Hyderabad	Telangana
90	Seth Anandram Jaipuria School	Ghaziabad	Uttar Pradesh
91	DPS, Indirapuram	Ghaziabad	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
92	Bharatiya Vidya Bhavans Public School, Jubilee Hills	Hyderabad	Telangana
92	The Somaiya School	Mumbai	Maharashtra
92	Ecole Mondiale World School	Mumbai	Maharashtra
93	Sloka School	Hyderabad	Telangana
94	DPS Megacity	Kolkata	West Bengal
95	Nehru World School	Ghaziabad	Uttar Pradesh
96	DPS, Chandigarh	Chandigarh	Punjab
97	The Shri Ram Universal School, Nanakramguda	Hyderabad	Telangana
98	Jodhamal Public School	Jammu	Jammu and Kashmir
99	National Public School, Koramangala	Bengaluru	Karnataka
100	DPS, Meerut Road	Ghaziabad	Uttar Pradesh
101	The Bishops School, Kalyani Nagar	Pune	Maharashtra
102	Childrens Academy, Kandivali (Ashok Nagar)	Mumbai	Maharashtra
102	Ascend International School	Mumbai	Maharashtra
103	Hiranandani Foundation School, Powai	Mumbai	Maharashtra
103	Presidency School, RT Nagar	Bengaluru	Karnataka
104	National Public School, Indiranagar	Bengaluru	Karnataka
105	Headstart Learning Centre	Chennai	Tamil Nadu
105	Jamnabai Narsee International School	Mumbai	Maharashtra
106	DPS, Bengaluru North	Bengaluru	Karnataka
107	Prerana Waldorf School	Hyderabad	Telangana

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
108	Amity International School, Sector 46	Gurugram	Haryana
109	Blue Bells Model School, Sector 4	Gurugram	Haryana
110	Redwood Montessori	Chennai	Tamil Nadu
111	DPS, Bengaluru South	Bengaluru	Karnataka
112	DPS, Newtown	Kolkata	West Bengal
113	DPS, SAIL Township	Ranchi	Jharkhand
114	Gitanjali Devshala	Secunderabad	Telangana
115	DPS, Sector 45	Gurugram	Haryana
115	Utpal Shanghvi Global School	Mumbai	Maharashtra
116	Montfort Senior Secondary School	Delhi	Delhi
117	Shalom Hills International School	Gurugram	Haryana
118	Salwan Public School	Gurugram	Haryana
119	BK Birla Public School	Kalyan	Maharashtra
120	The Samhita Academy	Bengaluru	Karnataka
121	Head Start Educational Academy	Bengaluru	Karnataka
122	Vibgyor High, Marathahalli	Bengaluru	Karnataka
123	Hiranandani Foundation School	Thane	Maharashtra
124	GEAR Innovative International School	Bengaluru	Karnataka
125	The HDFC School	Bengaluru	Karnataka
126	Amity International School, Saket	Delhi	Delhi
127	Billabong High International School	Noida	Uttar Pradesh
128	DPS, Greater Faridabad	Faridabad	Haryana

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
129	Apeejay School, Pitampura	Delhi	Delhi
130	The Shriram Millennium School	Noida	Uttar Pradesh
131	NL Dalmia School	Thane	Maharashtra
132	The PSBB Millennium School	Chennai	Tamil Nadu
133	Somerville School	Noida	Uttar Pradesh
134	DAV Public School, Shereshth Vihar	Delhi	Delhi
135	DPS, Indore	Indore	Madhya Pradesh
136	Vasudev C. Wadhwa Arya Vidya Mandir, Bandra (East)	Mumbai	Maharashtra
137	Sat Paul Mittal School	Ludhiana	Punjab
138	Bal Bharati Public School, Pitampura	Delhi	Delhi
139	Jayshree Periwal High School, Chitrakoot Scheme, Ajmer Road, Jaipur	Ajmer	Rajasthan
140	Chettinad Hari Shree Vidyalayam	Chennai	Tamil Nadu
141	Bal Bharati Public School, Ganga Ram Hospital Rd	Delhi	Delhi
142	DPS, Gautam Budh Nagar	Noida	Uttar Pradesh
143	Birla Vidya Niketan, Pushp Vihar	Delhi	Delhi
144	Bombay Scottish School, Mahim	Mumbai	Maharashtra
145	Chettinad Vidyashram	Chennai	Tamil Nadu
145	Vishwa Bharati Public School	Noida	Uttar Pradesh
146	Gurukul The School	Ghaziabad	Uttar Pradesh
147	Sri Sathya Sai Vidya Vihar	Indore	Madhya Pradesh
148	Venkateshwar International School, Sector 10, Dwarka	Delhi	Delhi
149	Amity International School, Pushp Vihar	Delhi	Delhi

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
150	Tagore International School, Vasant Vihar	Delhi	Delhi
151	The Khaitan School	Noida	Uttar Pradesh
152	Bal Bharati Public School	Noida	Uttar Pradesh
153	Bharatiya Vidya Bhavans Atmakuri Rama Rao School	Hyderabad	Telangana
154	DLF Public School	Ghaziabad	Uttar Pradesh
155	Smt Ramdevi Sobhraj Bajaj Arya Vidya Mandir School, Juhu	Mumbai	Maharashtra
156	CNM School, Vile Parle (W)	Mumbai	Maharashtra
157	Akshar School	Kolkata	West Bengal
158	Childrens Academy, Malad	Mumbai	Maharashtra
159	Chitkara International School	Chandigarh	Punjab
160	Garden High School	Kolkata	West Bengal
161	Mount Litera Zee School	Amritsar	Punjab
162	DPS, Kolar Road	Bhopal	Madhya Pradesh
163	Bombay Cambridge International School, Andheri (W)	Mumbai	Maharashtra
164	St. Stephens School	Chandigarh	Punujab
165	Sagar Public School, Saket Nagar	Bhopal	Madhya Pradesh
166	DPSG, Vasundhara	Ghaziabad	Uttar Pradesh
167	The Reliance Foundation School	Navi Mumbai	Maharashtra
168	Tridha, Mumbai	Mumbai	Maharashtra
169	Apeejay School, Nerul, Navi Mumbai	Mumbai	Maharashtra
170	Spring Dale Senior School	Amritsar	Punjab
171	Jubilee Hills Public School	Hyderabad	Telangana

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
172	Maneckji Cooper Education Trust School	Mumbai	Maharashtra
173	Meridian School, Banjara Hills	Hyderabad	Telangana
174	Meridian School, Madhapur	Hyderabad	Telangana
175	Billabong High International School	Bhopal	Madhya Pradesh
176	DPS, Bopal	Ahmedabad	Gujarat
177	Manav Rachna International School	Faridabad	Haryana
178	Gundecha Education Academy, Kandivali	Mumbai	Maharashtra
179	Apeejay School, Faridabad	Faridabad	Haryana
180	Udgam School for Children, Thaltej	Ahmedabad	Gujarat
181	Sri Sri Ravishankar Vidya Mandir, Kachamaranahalli	Bengaluru	Karnataka
182	Rajagiri Christu Jayanthi Public School	Kochi	Kerala
183	Kaligi Ranganathan Montford Matric Hr Sec School, Perambur	Chennai	Tamil Nadu
184	National Public School, HSR Layout	Bengaluru	Karnataka
185	Padma Seshadri Bala Bhavan Senior Secondary School, KK Nagar	Chennai	Tamil Nadu
186	Kothari International School	Noida	Uttar Pradesh
187	Sanskriti The Gurukul	Guwahati	Assam
188	Gitanjali Devashray, Secunderabad	Secunderabad	Telangana
189	Mata Jai Kaur Public School	Delhi	Delhi
190	ITL Public School, Dwarka	Delhi	Delhi
191	Seth MR Jaipuria School, Gomti Nagar	Lucknow	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
192	Avalon Heights International School	Navi Mumbai	Maharashtra
193	Bal Bharati Public School	Navi Mumbai	Maharashtra
194	GD Goenka Public School	Lucknow	Uttar Pradesh
195	Heritage School	Jammu	Jammu and Kashmir
196	Pallavi Model School, Alwal	Secunderabad	Telangana
197	National Public School, Rajajinagar	Bengaluru	Karnataka
198	St. Marys School, Safdarjung Enclave	Delhi	Delhi
199	Chinmaya Vidyalaya, Anna Nagar	Chennai	Tamil Nadu
200	DAV Public School, Velachery	Chennai	Tamil Nadu
201	Cambridge Court High School, Mansarovar	Jaipur	Rajasthan
202	Modern Public School, Shalimar Bagh	Delhi	Delhi
203	Hindustan International School, GST Road	Chennai	Tamil Nadu
204	KC International School	Jammu	Jammu and Kashmir
205	Smt. Kamalabai Educational Institution	Bengaluru	Karnataka
206	Zydus School for Excellence, Vejalpur	Ahmedabad	Gujarat
207	SBOA School and Junior College, Annanagar	Chennai	Tamil Nadu
208	St. Annes Convent School	Chandigarh	Punjab
209	St. Francis de Sales Sr Sec School, Janakpuri	Delhi	Delhi
210	GD Somani Memorial School	Mumbai	Maharashtra
211	Ryan International School	Noida	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
212	Viswajyothi CMI Public School, Angamally	Kochi	Kerala
213	The Brigade School, JP Nagar	Bengaluru	Karnataka
214	Chinmaya Vidyalaya, Virugambakkam	Chennai	Tamil Nadu
215	JBCN International School, Borivali	Mumbai	Maharashtra
216	National Public School, Gopalapuram	Chennai	Tamil Nadu
217	Ryan International School, Vasant Kunj	New Delhi	Delhi
218	DPS, Patna	Patna	Bihar
219	DAV Public School, Sector 14	Gurugram	Haryana
220	Lady Andal VSR Matriculation School	Chennai	Tamil Nadu
221	The Ashram	Chennai	Tamil Nadu
222	Greenlawns High School	Mumbai	Maharashtra
223	Bala Vidya Mandir Sr Sec School, Adyar	Chennai	Tamil Nadu
224	Rajagiri Public School, Kalamassery	Kochi	Kerala
225	The Grove School	Chennai	Tamil Nadu
226	DPS, Howrah	Howrah	Kolkata
227	Salwan Public School, Rajendra Nagar	Delhi	Delhi
228	EuroSchool, Airoli	Navi Mumbai	Maharashtra
228	Chennai Public School, Anna Nagar	Chennai	Tamil Nadu
228	Ryan International School, Mayur Vihar	Delhi	Delhi
229	Sir Padampat Singhania Education Centre	Kanpur	Uttar Pradesh
229	AhIcon Public School	Delhi	Delhi

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
230	Seth Anandram Jaipuria School	Kanpur	Uttar Pradesh
230	CP Goenka International School	Thane	Maharashtra
231	Sunbeam School, Lahartara	Varanasi	Uttar Pradesh
231	Mount St. Marys School, Delhi Cantt	Delhi	Delhi
232	Lodha World School	Thane	Maharashtra
233	Devagiri CMI Public School	Kozhikode	Kerala
234	Maharana Mewar Public School	Udaipur	Rajasthan
235	Modern Vidya Niketan, Aravali	Faridabad	Haryana
236	Hutchings High School & Jr College	Pune	Maharashtra
237	Pawar Public School, Bhandup	Mumbai	Maharashtra
238	Navy Children School, Nausenabagh	Visakhapatnam	Andhra Pradesh
239	Bhavans Sri Ramakrishna Vidyalaya	Secunderabad	Telangana
240	Maharaja Sawai Bhawani Singh School	Jaipur	Rajasthan
241	St. Gregorios High School, Chembur	Mumbai	Maharashtra
242	Bharatiya Vidya Bhavans Vidyashram	Jaipur	Rajasthan
243	BCM Arya Model School, Shastri Nagar	Ludhiana	Punjab
244	DPS, Bokaro Steel City	Bokaro	Jharkhand
245	DPS, Kalyanpur	Kanpur	Uttar Pradesh
246	Yuvabharathi Public School	Coimbatore	Tamil Nadu
247	Pawar Public School	Pune	Maharashtra
248	GD Goenka Public School	Gurugram	Haryana
249	Bhavans Rajaji Vidyashram, Kilpauk Garden Road	Chennai	Tamil Nadu

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
250	Mount Carmel School, Anand Niketan	Delhi	Delhi
251	Harvest International School, Kodathi	Bengaluru	Karnataka
252	Bhavan Vidyalaya	Panchkula	Haryana
253	Manav Rachna International School	Gurugram	Haryana
254	DPS, Joka	Kolkata	West Bengal
254	Chinmaya Vidyalaya, Taylors Road	Chennai	Tamil Nadu
255	GD Goenka Public School, Vasant Kunj	Delhi	Delhi
256	Navy Children School, Colaba	Mumbai	Maharashtra
257	Bharathi Vidyalaya Sr School, Perumbakkam	Chennai	Tamil Nadu
258	The Chintels School	Kanpur	Uttar Pradesh
259	Don Bosco School, Panbazar	Guwahati	Assam
260	Mount Carmel School, Dwarka	Delhi	Delhi
261	St. Antonys Public School, Kanjirapally	Kottayam	Kerala
262	The Indian School	Delhi	Delhi
263	St. Josephs Academy	Dehradun	Uttarakhand
264	The New Tulip International School	Ahmedabad	Gujarat
265	DAV Public School	Pune	Maharashtra
266	Venkateshwar Global School, Rohini	Delhi	Delhi
267	Fatima Central School, Piravom	Kochi	Kerala
268	Bombay Scottish School, Powai	Mumbai	Maharashtra
269	DPS, Numaligarh	Numaligarh	Assam
270	Rachana School	Ahmedabad	Gujarat

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
271	Sarala Birla Gyan Jyoti	Guwahati	Assam
272	Billabong High International School	Thane	Maharashtra
273	Mayoor School	Noida	Uttar Pradesh
274	DPS, Indira Nagar	Lucknow	Uttar Pradesh
275	Saraswathi Vidyaniketan Public School, Elamakkara	Kochi	Kerala
276	Lodha World School, Palava	Kalyan	Maharashtra
277	DPS, Dehradun	Dehradun	Uttarakhand
278	Fr. Agnel School	Noida	Uttar Pradesh
289	National Public School, Yelahanka	Bengaluru	Karnataka
290	Lourdes Public School & Junior College	Kottayam	Kerala
291	Tatva Global School	Hyderabad	Telangana
292	DAV Public School, Unit VIII	Bhubaneswar	Odisha
293	Christ Nagar Higher Sec School	Thiruvananthapuram	Kerala
294	Silver Hills Public School	Kozhikode	Kerala
295	Billabong High International School, Malad	Mumbai	Maharashtra
296	Vidyodaya School,Thevakka	Kochi	Kerala
297	Little Angels School	Sonipat	Haryana
298	Slate School	Hyderabad	Telangana
299	Lilavatibai Podar High School, Santacruz	Mumbai	Maharashtra
300	National Public School, Yeshwanthpur	Bengaluru	Karnataka
301	The Millennium School, Sector 41	Noida	Uttar Pradesh

*Page 6

RANK*	SCHOOL NAME	CITY	STATE
302	Presidency School, Nandini Layout	Bengaluru	Karnataka
303	Placid Vidya Vihar Sr Sec School, Changanassery	Kottayam	Kerala
304	Delhi Public School, Electronic City	Bengaluru	Karnataka
305	DPS, Raipur	Raipur	Chhattisgarh
306	Amity International School, Mayur Vihar	Delhi	Delhi
307	The Gaudium School	Hyderabad	Telangana
308	Salwan Public School, Mayur Vihar	Delhi	Delhi
309	Chavara CMI International School	Kottayam	Kerala
310	Indraprastha Global School	Noida	Uttar Pradesh
311	Gyan Bharati School, Saket	Delhi	Delhi
312	Manthan International School	Hyderabad	Telangana

Dr. B B Das

TRANSITION

Early morning on 13 July 1969, a train entered the main platform of Ernakulam junction and slowly came to halt. Coolies started running up and down to grab passengers' luggage. I got down from my compartment in a jubilant mood, feeling the morning air of Kerala. The aspiration to join the Indian Navy as an electrical officer was evoking enthusiasm.

That was Sunday. Next day, I had to report to INS Venduruthy, a training base of the Indian Navy for B&D (Basic and Divisional) training. In my compartment, another aspirant, Mansoor Ali Bohra was also traveling, but I had missed the opportunity to interact with him in the train. After deboarding,

we made acquaintance and got along amicably. After a brief discussion, both of us decided to stay in a hotel and report next day morning, to avoid ragging by seniors.

A taxi driver took us to a nearby hotel, Woodlands, but no room was available there. We were not sure where to look for another hotel. Sensing our helplessness, the receptionist offered us a room in the annexure, very close to the main building. Though there was no provision for meals in that building, they were kind enough to provide us packed meals. It suited us well, and we moved to our room on the first floor.

On getting ready for the day, a bearer came to serve us South Indian breakfast, which we savoured. By the time we finished eating, it started raining. The intensity of rain gradually increased, ruining our plan to explore the city. Sitting next to the window, it was wonderful to watch the incessant rain of Kerala, and enjoy the melody of raindrops pelting on tree leaves. We were highly engrossed and forgot to keep track of time.

After sometime, our lunch-box arrived. After relishing the meal, we decided to catch up on sleep. In the evening, it was still raining, so we could not take the risk to go out. We slept soon after dinner, intending to wake up early and start our journey towards the naval base.

There was no rain in the morning and the sky was clear with bright sunshine. Travelling a short distance from the hotel, we reached the main gate of Venduruthy. The wide iron gate was kept open for new trainees. On the other side of the gate, seniors were waiting to welcome us for ragging. I quickly planned to save myself from the clutches of seniors and walked a little fast, leaving rest of my batch mates behind.

Because of my NCC training from my school time till engineering college, I was aware of the dress code of the navy. Therefore, I sported a short haircut and had also shaved-off my moustache. Two seniors stopped me and asked my name. Promptly, I replied, "Sub-lieutenant Das." They thought, I was not a new trainee, and allowed me to go in. Hurriedly, I reached the reception counter, registered my name and straightway went to the barrack allocated for us.

There, I relaxed till lunch time. When my friends came, after being ragged thoroughly by seniors, they were surprised to see that I had escaped ragging. We all went for lunch together. In the dining hall, seniors were waiting to check our table manners, so as to continue ragging in the evening. Two seniors sitting on both sides of me were critically watching me. One on the right side, asked me to report to him in his room after lunch. I knew that we were not permitted to go to anybody's room. So, I acknowledged him saying 'yes', but instead of going to his room, I went to our barrack.

Every night, my friends were getting ragged by seniors. However, I could manage to avoid the harassment. In engineering college, I was an anti-ragger and protected students from such unsocial practices. In my opinion, the concept of ragging is not the correct way to interact with juniors. The same motive can be achieved differently.

From next morning, our rigorous training commenced. The whole night it was raining, but just before our Physical Training (PT) class, it stopped. We had no option but to run to the PT ground. As under-trainees, we were supposed to move from one place to another by running and not allowed to walk at any time. Just after PT the rain started again. Quickly, we had to finish our morning routine and run for breakfast. Soon thereafter, the rain stopped and again we had to run to the parade ground for rifle drill. This flip-flop attitude of rain became a regular feature, as if it was following the training time-table of the base. Therefore, we had no chance to escape any activity on the pretext of rain.

For any mistake during rifle drill, the punishment was one round of the vast parade ground, holding rifle in both hands, with hands stretched on top of the head. Two of our batch mates were not fluent in Hindi and therefore, they found difficulty in pronouncing parade commands. They were being punished for this every day. Ragging, punishment and running became a way of life for us. We had no time to relax, or think beyond our next routine activity. In the process, we were gradually getting oriented to the naval life.

After seven days of training, our sea experience was scheduled on-board a steam ship, INS Ganga. We were highly excited to sail on a warship. However, none of us were aware of sea sickness. The ship sailed off, and moved slowly in the Cochin channel for a considerable distance. At the end of the channel, the ship entered the sea, riding large waves. We all preferred to stand on the front part of the ship, called forecastle (fo'c'sle), next to national flag, to enjoy the view of the blue sea. Every naval ship carries two flags, the national flag on the front and the naval ensign on the aft of the ship, a part called quarterdeck. This deck is a special structural part of a ship, and also the place for important announcements, as well as pronouncement of major punishments.

While enjoying the cold air and tossing waves of the sea, we felt giddiness, followed by headache and vomiting. We were asked to move to the aft side of the ship. Within no time, most of us were flat on the quarterdeck. The rain water, mixed with a flash of salty sea water, and the bright burning sunrays made us sick. Only five of our batch mates could tolerate sea sickness. It is said that "those who do not get sea sickness feel hungry". Those five officers consumed all 50 lunch packs.

Before sunset the ship returned to harbour. Frequent vomiting had made us very weak and by night many of us felt feverish. Next day, most of our batch skipped PT. The course officer came to our class and commanded, "Stand up those who did not attend PT". A sizable strength stood up and explained the reason. He heard us silently and then invited us for a game at 4 pm, in the backyard of our classroom. We were very relieved that at least he could understand our misery.

When we reached the backyard of the classroom, the course officer, with one PT instructor, was waiting for us. He ordered the PT instructor to give us 'class one PT' till further order. He then left the place. We immediately realized that he had planned to punish us. The special PT continued till he came back after one and a half hours. On arriving, he scolded the instructor for not instructing us to do proper PT. Thereafter, we were lined-up and made to front roll, covering the length and breadth of the ground. We continued front roll for a prolonged period without any break.

The onlookers were shocked and worried. The punishment made us totally exhausted and worn-out. When he asked us to stop, we had no strength to get up. He ordered us to fall-in and run back to the barrack. On the way, we were cursing him, and some of us even decided to leave the navy. One of our batch mates directly wrote a letter to CNS (Chief of the Naval Staff) stating that he would not like to continue in the Navy. He described the way we were being punished and harassed.

As a result, instructions came from NHQ (Naval Headquarters) to stop ragging and harassment. To avoid ragging, our evening self-study classes were conducted in the presence of the Officer – of - the - Day (OOD). While the torture stopped, the rigorous training continued without lag for a period of two and a half months. This training made us physically strong and mentally resilient to deal with challenges. Also, we became highly disciplined.

The next phase of training, aimed at sea acquaintance, was to be conducted for three weeks on-board warships. Two of my batch mates and I were assigned to join INS Vikrant, the aircraft carrier. We were glad because sea sickness was more or less not felt on-board Vikrant. From the jetty, we were highly impressed to see such a large warship. It became difficult for us to find our way inside, from one deck to another. So, we always moved together. In the evening we went to the wardroom. There, we were the only sub-lieutenants amongst so many senior officers with glittering golden stripes. At this moment, all three of us felt proud to join the Navy.

A training programme had been promulgated for us. Over the next three weeks, the ship sailed to Lakshadweep islands, Goa and then to Bombay. Prior to reaching the islands, Mrs. Indira Gandhi, the then PM of India, along with FOC-in-C (West), boarded the warship to witness Naval Exercise. The ship's routine became highly action-packed due to various war exercises conducted day and night.

We got attached to different departments for training, as per the programme. Every evening, we had to write a journal on 'record of learning', which was checked the next day by the concerned department. We can never forget our four hours of keeping a night watch on the Bridge of the ship. It was very difficult to gaze continuously at dark sea to locate any visual objects, and water dripped from our eyes due to the strain.

Our attachment to Air Department was highly exciting. It was a thrilling experience to see the operation of fighter aircrafts on the flight deck; take-off by catapult system and hooking on arrester wire while landing. The control of aircrafts by the Carrier Control Approach Radar was one of the prominent activities in the operation room. During this exposure, we forgot the anguish of our B&D days and realised the need of tough training to be fighting fit.

On arrival at Bombay harbour, we three proceeded to INS Valsura, Jamnagar for professional training with our batch mates. Valsura was the training base for Electrical Officers and Sailors. Here also, PT and Parade were part of our daily routine, in addition to classes on western technology and systems. The entire training was implemented in three phases- Basic, Technology and Equipment. In the evening, games and sports were compulsory for all trainees, as physical fitness was the mandatory requirement for naval officers, in addition to mental agility. Once again, life got engaged in rigorous activities, giving us no time to spare.

Every day, I received a number of letters from my friends as I was very popular in school and college. Although it was not possible for me to reply so many letters, but friends kept on writing to encourage me. On the other hand, my batch mates grew very jealous of me for getting so many letters every day. At times, I had to stand drinks for the whole class to get back letters from them.

One day, I received a letter which ruined my enthusiasm, crumbled me emotionally and demolished my dreams. This was the letter from the girl with whom my marriage was mutually decided by both families.

During my second year in engineering, I had gone home on leave. The daughter of one of our distant relatives had come to our neighbour's home on holidays. I met her occasionally during the leave period. My best friend had initiated the marriage proposal without my knowledge, after which the girl avoided meeting me. My leave period finished and we both returned to our previous destination. Not very long after returning, I received a letter from my friend stating, "The proposal has been finalised." Acknowledging the fact that she will be my life partner, I followed a very self-controlled life to keep myself away from worldly attractions. It was an exceptional love, without communication, but with unfathomable feelings for each other. I had written a poem in my college magazine hinting our unseen love. My father read my poem and being a poet could sense my emotional state of mind.

After I joined Navy, her uncle did not accept the marriage proposal with a defence officer. Instead, he finalised her marriage with an IPS officer. She could not protest and got bedridden for 15 days with high fever. At last, she gathered courage to write a letter to convey her depressed feeling. Requesting forgiveness, she pleaded me to remember her as a younger sister. I felt disappointed and lost interest in life. I could not concentrate in studies, and my performance in the course got affected badly. The situation worsened so much that I was uncertain about my naval career. While NHQ was considering my case, I was going through mental agony. This period was the most difficult and proved to be a turning point in my life.

The training base was on an island named Rozi. Beyond the base, the island stretched to the vast sea through thick forest. In the forest, there was a temple of Rozi Mata. We often visited the temple on Sunday evenings to relax from the routine life.

One evening, I visited the temple and meditated in front of Rozi Mata to understand the purpose of life. There I realised that the aim of my life was not merely to marry a girl, but build a vision that can take me to the destination for which I had joined Navy. In a divine experience, I felt the blessing of Mata and could clearly see the path to be followed. My wisdom prevailed and I decided to overcome the situation. I returned to base as a changed person, determined to steer the journey of life on a corrected course.

Next week, the decision from NHQ came for me to continue the course. I was asked to appear for the remaining paper on Weapon System. I cleared the paper and was awarded the course completion certificate.

Embracing the future, I wiped out the past from my mind. Two days later, I boarded the train to Calcutta (now Kolkata) to join INS Amba for the competency test. The Competency Certificate was mandatory for becoming a full-fledged electrical officer in the Navy.

After spending a few days in Calcutta, the ship sailed to Vizag. During my entire stay on-board, I was delegated to different departments to work alongside the officers and sailors. It was a great opportunity for observing different equipment and systems fitted on-board. I learned about their operation and maintenance aspects. Whole-heartedly putting in my best efforts in all activities, I demonstrated my professional skills. All departments were extremely pleased with my learning aptitude and sincere contributions.

The four-month long training eventually came to an end. On the last day, I met the Captain in his cabin for the award of the Competency Certificate. That was the time when everyone came to know that I was an under-training officer. It was a great complement for me. Next day, I joined Petya School for my specialisation in Russian technology.

Life is full of uncertainties and moves through many ups and downs. Instead of getting drifted away with situations and sentiments, one should challenge them to overcome the hurdles on the path, so as to steer the journey of life ahead. When things are subject to change and future is unknown, then why to get emotionally attached to the present events? Evaluation of circumstances and corrective action based on befitting decisions can pave way to a promising future. EP

Varun Bhatia
General Manager- Standards, ESSCI

TECHNOLOGICAL REVOLUTION IN ELECTRONICS INDUSTRY WITH 5G DEVICES

Thanks to the revolution brought about by modern technologies in our lives. Nowadays, we can't even imagine our lives without a Smartphone and a stable internet connection. Today not only computers and smartphones can be connected to the internet, but also other devices we couldn't even imagine before. In this article, let's learn about how 5G technology is going to impact our lives. The fifth generation of cellular network technology, 5G will revolutionize the electronics industry and provide new opportunities in consumer electronics. It will prove to be a game-changer for many industries soon as it promises to be.

This dramatic change driven by 5G network deployments will require a skilled labor force trained to design, install and maintain the infrastructure and equipment behind 5G. The wireless industry, which already faces a shortage of qualified technicians for current networks and deployments, must develop even more qualified and skilled technicians through effective on-the-job training, as well as classroom and online education to create a skilled labor workforce to build future generations of heterogeneous networks.

What is 5G?

5G simply stands for fifth-generation mobile network. It is designed specifically to connect virtually everything, including machines, objects, and devices. The 5G wireless technology promises to deliver faster speeds, lower latency, more reliable communication, huge network capacity, increased availability, and a more uniform user experience. Lower latency means that 5G will allow people to experience much faster load times. A full HD movie can be downloaded in just a few seconds. 5G is simply a more advanced structure for a wireless operation that can accommodate more network devices and more frequencies, making it faster and better.

How does 5G Work?

5G is also OFDM-based (Orthogonal frequency-division multiplexing) like 4G LTE and will function based on the same concepts of mobile networking. However, the new 5G NR (New Radio) air interface will enhance OFDM to provide a much higher degree of flexibility and scalability.

In contrast to 4G LTE, 5G will not only deliver faster, improved mobile broadband services, but will also extend into new service areas, such as mission-critical communications and connecting the large IoT. Many new 5G NR air interface design techniques, such as a new self-contained TDD sub frame design, allow this.

5G Technology Market Overview –

As per the study, the global market of 5G technology is growing year by year. The real growth is seen to be between 2020 to 2025 in which 5G technology market will be developing more than at a CAGR of 70.83%. In fact, by the end of the year 2025, the market can achieve a valuation of USD 700 Bn and is expected to generate 10 trillion USD of revenue by 2035.

Why we need 5G?

5G is required to keep up with the growing number of devices that can now be connected to each other. We won't be able to experience a high level of interaction between devices; since the current technology does not have the potential to support the growing number of devices that now need internet access. Currently, nearly 7 billion devices are connected in the world, making 5G technology an obvious and vital step for everyone. Technology is changing rapidly and 5G is proof of how technology will play a great role in our daily lives in the future.

In the coming time, the 5G technology will enable the electronic manufacturing industry to work smoothly in a continuous manner in various scenarios, which will help the industry to enhance labor conditions, minimize manual intervention in production lines and greatly improve the controllability of the production process.

Electronics Manufacturing using 5G Technology –

The 5G technology, undoubtedly, will improve the accuracy and efficiency of electronic testing and measurement. 5G technology application is more compre. hensive in the fields of mobile phones, automobiles, wearables, household appliances, industrial equipment, and engineering equipment, etc. The fifth-generation technology will also bring new vitality to the core industry chains, such as communication chips, communication modules, antennas, and radiofrequency. In the coming time, the 5G technology will enable the electronic manufacturing industry to work smoothly in a continuous manner in various scenarios, which will help the industry to enhance labor conditions, minimize manual intervention in production lines and greatly improve the controllability of the production process.

New Opportunities in Consumer Electronics with 5G

Due to technology's proliferation, including wearable devices, smart TVs, connected cars and household appliances, beacons, and other technologies, the future consumer journey will look complicated. Consumers can start and end their shopping experiences on a mobile platform, in-store, or online. It is a fluid movement that will be even harder for retailers to keep up with or predict because it will include a growing number of devices and touch-points.

Increased connectivity and technology usage in Consumer Electronics through IoT, AI, robotics, AR/VR, and others will transform the industry, and 5G network roll-out will be at the heart of it. Devices will provide essential data from sensors give new insights faster, boost efficiency, and allow companies to make more informed decisions.

Real-time applications, such as voice, video, and Ecommerce connectivity, have always been sensitive to disruptions. An unstable connection can result in jitter, latency, and packet loss that translate into obvious performance issues such as delays, echoes, slow checkouts, and lost sales. 5G will prevent these disruptions by enabling users to stay on the same cellular network throughout the journey.

5G will increase demand for electronic components

The impact of 5G on current and future applications will drive increased demand for electronic components. With less than 1 millisecond latency and a peak data rate of 20 GB per second, 5G will enable and speed up the development of self-driving cars, the Internet of Things (IoT), augmented reality, and smart cities. A key module that allows devices to connect with the mobile network is radio frequency front-end (RFFE). With 5G, RFFE module requirements will be more complicated and dynamic. Typically, an RFFE module consists of power amplifiers (PAs), low noise amplifiers (LNAs), switches, duplexers, filters, and other passive components. In addition to RFFE modules, it's expected that 5G mobile handsets will carry displays that support 4K (3840 x 2160) or even 8K (7680 x 4320) screens to accommodate virtual reality functions. Smartphone makers may also double the memory chip used in 5G smartphones, giving consumers more space to download and use apps.

5G will bring a new era

5G will bring about a novel technological change for the corporate world. Companies would have a multitude of opportunities to take advantage of if they have access to fast data anywhere. If you let your mind run for some time, then you might start running away with ideas about all the crazy things that 5G could enable.

In addition to playing a major role in the electronics manufacturing industry, 5G can also completely meet the requirements of equipment interconnection and remote interactive applications in the industrial world. Intelligent manufacturing areas such as the Internet of Things (IoT), Industrial Automation Control, Cloud Robot, and so on, would open up a new era of widespread interconnection and deep human-computer interaction with the help of 5G technology.

5G will bring about a novel technological change for the corporate world. Companies would have a multitude of opportunities to take advantage of if they have access to fast data anywhere.

The future 5G technology will become the key to foster the transformation of smart manufacturing. In multiple scenarios, it can not only connect widely dispersed and scattered individuals, machines and equipment, and build a centralized internet, but also support the entire mobile Internet application with real-time and high reliability.

Need to train manpower

Electronic sector skills council of India (ESSCI) enrolls more and more people, being amongst the largest employers in India to provide jobs to youth. But this time, while there are plenty of new jobs coming in this sector, the biggest challenge exists in getting the skilled manpower specifically in revolutionary technology like 5G. There is a need of creating a demand of talent pool transformation and make them ready for this future generation technology. To cope with the rapid transformation in the industry, youth have to learn about new technologies that have become an important skill these days. Keeping this in mind, the ESSCI is highly committed to preparing the future workforce in these technology-based skill sets. Set up under the Ministry of Skill Development and Entrepreneurship (MSDE), ESSCI is planning to design the job roles that will complement the standards of emerging tech-based skills like 5G and make them job-ready in the near future.

MATHEMATICS CHALLENGE

CMT - SERIES PROBLEMS - by GANIT MATH (गणित मठ)

CMT-2020/ 11 :

- composed by -
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For $\alpha>0,\ \beta>0,\ and,\ \gamma>0,\ if$

$$\frac{\alpha+\sqrt{\alpha^2-1}}{\alpha-\sqrt{\alpha^2-1}}+\frac{\alpha-\sqrt{\alpha^2-1}}{\alpha+\sqrt{\alpha^2-1}}=90\ ;\qquad \frac{\beta+\sqrt{\beta^2-1}}{\beta-\sqrt{\beta^2-1}}+\frac{\beta-\sqrt{\beta^2-1}}{\beta+\sqrt{\beta^2-1}}=242\ ;$$

$$\frac{\gamma+\sqrt{\gamma^2-1}}{\gamma-\sqrt{\gamma^2-1}}+\frac{\gamma-\sqrt{\gamma^2-1}}{\gamma+\sqrt{\gamma^2-1}}=334\ ;$$

$$x=\frac{1}{\alpha+\beta+\gamma}+\frac{1}{\alpha-\beta+\gamma}+\frac{1}{\alpha+\beta-\gamma}+\frac{1}{\alpha-\beta-\gamma}\ ;$$

$$y=\frac{1}{\beta+\gamma+\alpha}+\frac{1}{\beta-\gamma+\alpha}+\frac{1}{\beta+\gamma-\alpha}+\frac{1}{\beta-\gamma-\alpha}\ ;$$

$$z=\frac{1}{\gamma+\alpha+\beta}+\frac{1}{\gamma-\alpha+\beta}+\frac{1}{\gamma+\alpha-\beta}+\frac{1}{\gamma-\alpha-\beta}\ ;$$

$$\text{then},\quad 19\left[\left(\frac{x^2+y^2}{x^2-y^2}\right)-2\left(z^2+1\right)\right]+1=\ ?$$

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If $x^2+y^2=\alpha$ *and* $xy=\beta$, *then find the value of* : $x^{16}+y^{16}$, $x^{15}+y^{15}$, *and*, $x^{12}+y^{12}$ *in terms of* α *and* β *in the simplest form.*

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CMT-2020/ 12 :

For $x>0$ *and* $y>0$, α *and* β *are acute angles,*

if $17x^2+19y^2-34x-95y=521$; $7x^2+11y^2-14x-55y=259$;

$$\frac{374}{x\tan\alpha+y\tan\beta}-\frac{399}{x\tan\alpha-y\tan\beta}=120;\ \frac{561}{x\tan\alpha+y\tan\beta}+\frac{266}{x\tan\alpha-y\tan\beta}=24;\ \text{and},\left(\frac{\tan\alpha+\sec\alpha-1}{\tan\alpha-\sec\alpha+1}\right)-\left(\frac{\tan\beta-\sec\beta+1}{\tan\beta+\sec\beta-1}\right)=\frac{p}{q},$$

where p *and* q *are coprime natural numbers, then,* $p+q=\ ?$

ANSWERS : CMT-2020/9: 26500 ; **CMT-2020/10:** 5

Answers will be published in the next issue . You can ask any queries and send your solution to
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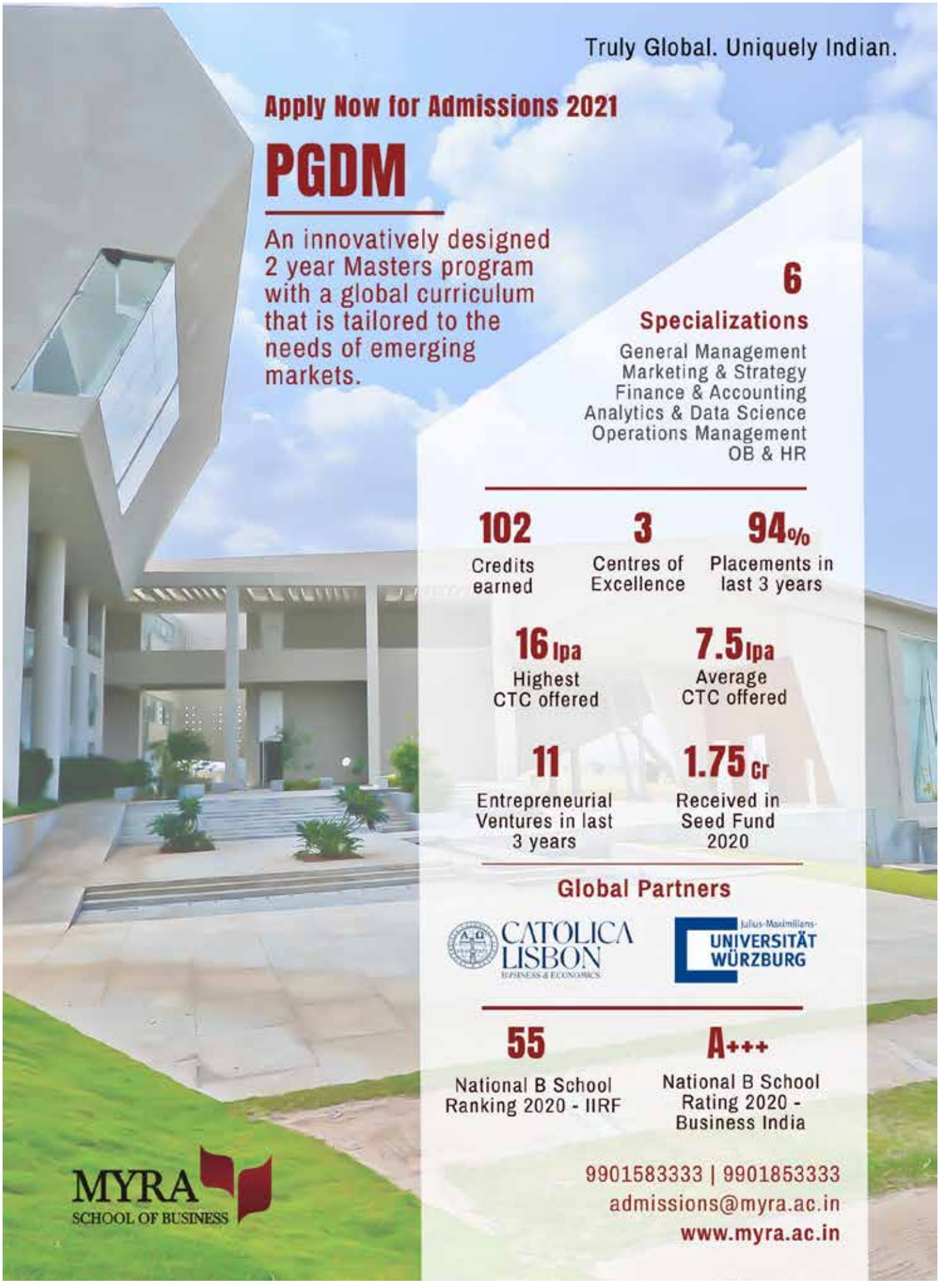

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