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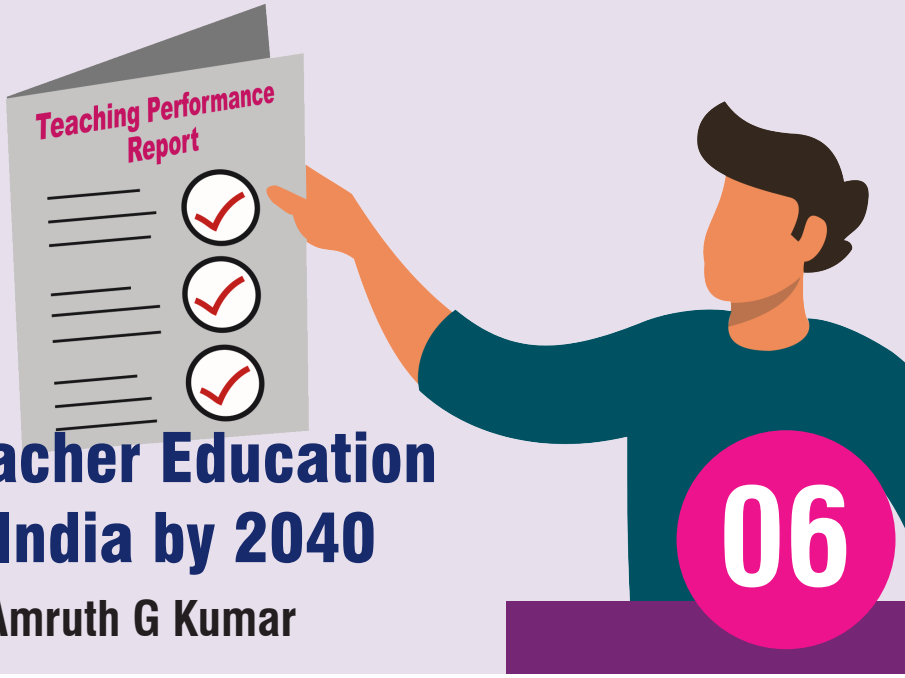
TEACHER EDUCATION 2040

Contents



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Editorial

National governments enact educational policies. The sponsored schemes, implementation structures, curricular materials and conduct of examinations and certification follows the policy publication. Whether Every Child Succeed Act of USA or Education Master Plan of Singapore, or India's NEP 2020, education policies ultimately shape the classrooms. Teachers implement policies. The USA may enact the policy that "every student should succeed". But who would make students succeed? NEP2020 emphasises foundational literacy and numeracy. NCERT would further elaborate in its NCF or instructional material. But foundational literacy and numeracy (We add digitacy) will be developed by the village school teachers in our unimpressive village primary schools. The teacher is almost the only resource in a large number of schools.

Old mindsets and techniques are inadequate for implementing new policies on education in letter and spirits. Every country needs a new generation of teachers with a new set of skills and mindsets. There is a need to imagine teacher education for the future. This reimagination is also necessary because every learner, aspiring teachers included, has access to vast learning resources – more than 6 million web pages from 1.7 billion websites. The internet is becoming smarter by day for efficiently accessing and navigating through the deep, dense forest of learning resources on the World Wide Web. Access devices are diversifying with increasing power, miniaturisation for convenience, and cost reduction. With easy access to rich learning resources, and the experimental success of Zimmerman's Self-regulated learning, the future of learning is taking shape where learners are likely to and can choose subjects and themes of their choice without the limited PCM kind of concepts. Learning at one's own pace with self-constructed pedagogy (the way one wants to learn) and assessment at one's terms is the attributes of the future of learning. The 2019-2020-21pandemic has produced enough evidence favouring the resilience of students and teachers in adapting to education at a distance with emergency technology response mode, often called online education.

Teacher education needs to be reconstructed to empower the teachers with the set of skills for helping 21st-century learners positively disposed and skilled in technology-enabled, self-exploring, collaborating personalised learning. In this issue, ETMA brings in a symposium on the future of teacher education – Teacher Education 2040 through a series of reflective essays. We bring you a good mix of senior experienced teacher educators, a few budding teacher educators, and a few doctoral students engaged in research in education in this symposium.

We hope you'll enjoy reading and share your views that we can share with the authors and with the larger reader community by publishing in the next issue.

- Prof Marmar Mukhopadhyay

God's First Children

Prof Marmar Mukhopadhyay

I was invited to address the teachers of a highly reputed schools in Delhi. It was a rainy day. I reached the school on time. The principal escorted me to the hall. Teachers were seated in the Assembly Hall. The number of teachers must have been more than one hundred.

The hall was very spacious. There was enough space at the front and back and at the left and right where teachers were seated in a rectangular area. The first thing that drew my attention was the large number of wet, colourful, open umbrellas dotting everywhere in the empty spaces for drying up.

After my usual introduction, the principal invited me to address the teachers. I went up to the dais and took the public address system. After courtesy-thanking the principal and the school for inviting me, I asked, "Who are God's first children among you?" Teachers looked at each other. I kept quiet. The principal also kept quiet. There was buzzing. The hall started humming. Teachers were trying to fathom the meaning of my question. Unable to resolve, one teacher stood up and asked, "Sir, what do you mean by first children?"

I said, "I believe God's first children are the creative people – the painters, designers, musicians, sportswomen and men, scientists, litterateurs, and such others. They are the creators." People like us who teach Physics or Geography or English or management are God's second creation.

One teacher from the rear row stood up, "Sir, your God's first children are the second class citizens of such schools."

"Research on creativity indicates that only about five per cent of the people created by God are endowed with imagination and creativity. Hence, I consider God's first children are creative people" [1]. There was complete silence in the hall, possibly trying to negotiate with my proposition. Teachers did not seem to be much impressed with my dramatics. I thought it would be a good idea to demonstrate and thereby organize the room.

I called upon the fine arts teachers to come out of their seats. Four or five teachers came out and stood in the open space. Some looked senior, and some young. I asked them, "There is a large empty space on the left side of the hall. There are almost a hundred beautiful, wet, colourful umbrellas all over the place. Would you please use these umbrellas to create a collage". I also told them that several other colourful dry umbrellas are available with a few of their colleagues. Teachers volunteered to give their umbrellas.

The art and painting teachers quietly discussed something – maybe their plan of creating the collage. They took maybe, 7 minutes in organizing the umbrellas to create the collage. From the slightly raised dais, it appeared to me as a marvellous creation. The principal equally admired the creation. I asked the teachers to stand up and or come out to take a look at the creation from a distance. I asked, "Could we have done that beautiful piece!" The unanimous answer was, "No. Only they can do such magic."

The riot of colourful umbrellas was now a piece of art. Everybody admired the beautiful work of art of their colleagues.

"I hope now you know why I call them God's first children. What we cannot do, they can. Thank you, artists. Let us get on to the theme of our today's presentation."

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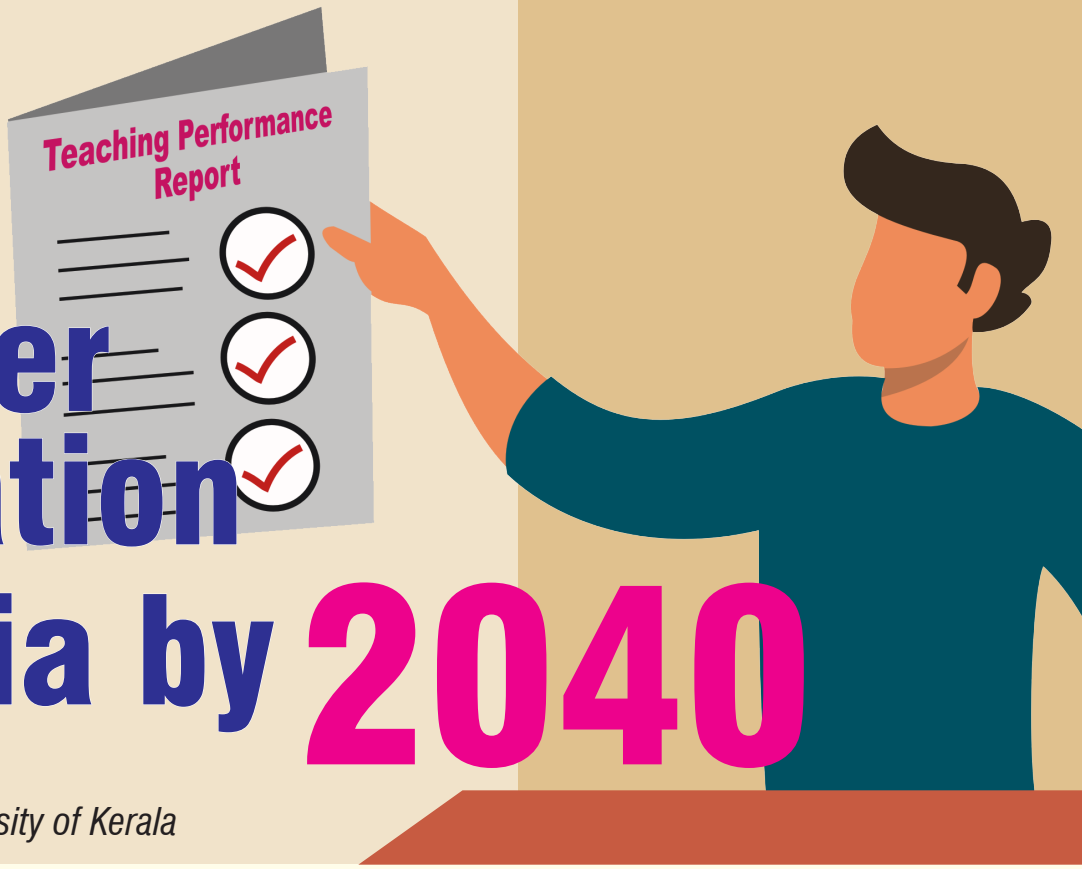
[1] *This concept of creativity has changed. It is possible to create and develop creativity through properly designed creative exercises.*



Teacher Education in India by 2040

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How will be our teacher education by 2040? This question by renowned scholar Prof Marmar Mukhopadhyay opens the door to the 'romantic' thoughts about the future of teacher education in India. The word romantic is used to indicate the element of uncertainty associated with our lives, whatsoever precision we have attained in our prediction. But in every romantic thought, the reality is present in varying degrees. This leads us to the realisation that there is no such thing as purely romantic nor real. Hence any thoughts about the future of teacher education in India, whatsoever romantic it be, will have indicative nature of a future, especially when the attempt is based on the voices heard from the field and phenomenological revelations of a teacher educator like m. A humble attempt in this regard is undertaken here.

Teacher education in India today mainly consists of primary and upper primary level teachers training, secondary level teachers training and Master of education. These teacher education programs were training courses on various techniques and strategies that prepare teachers for schools and colleges. The major changes in teacher education since independence has been the changes in the duration of these training programmes. The B.Ed. and M.Ed. Programmes are changed from one year to two years by 2015. Apart from these changes and some minor changes in the syllabus, it can be seen that there have been no structural or even significant changes in teacher education since independence. The National Education Policy 2020 proposes to reconstruct the change in the learning period of teacher education by making it a four year integrated programme. Covid 19 brings to the fore another important change that needs to be read and the suggestions that the National Education Policy makes. The answer to what teacher education will look like in 2040 depends mainly on two factors: national education policy 2020 and post-Covid changes.

One important thing to understand is that Covid will not make any big changes in teacher education alone. There will be changes in teacher education as in all areas of higher education. In addition to these general changes, this short note attempts to

comment upon the potential changes in teacher education at the micro-level.

Liberal Teacher Education

All areas of the teacher education process are now showing signs of radical liberalisation. Admissions, the curriculum, the internship in schools, the assessment, and face to face teaching and learning in colleges will all be rooted in liberalism in the near future. With the legitimisation of remote/online education, certificates will be reduced to proof of minimum qualification. Final decisions on selecting a teacher will not be based on the certificate and actual teaching performance. Still, they will be made based on the candidate's cultural capital and its compatibility with the cultural capital of the organisation. Therefore, all essential activities in the traditional educational process will be reduced to minimum basic requirements. There is no doubt that these kinds of changes to teacher education will be counterproductive. As a result, the very concept of teacher education institutions will be redefined. Teacher education institutions will be reduced from being regular open institutions to student enrolment data hubs and resource distribution centres. The digital social system of classmates will hold teacher education in all other skill-oriented and professional fields. The teacher education process will be limited to the WhatsApp ecosystem and the telegram ecosystem instead of the social ecosystem. Therefore, the skills that a teacher-student acquires from the social system will be endangered in the near future.

This will be reflected in the teaching skills as well. Alluring students to digital devices while live classes are aired, digital proctoring, presentation of content for video recording, the 'right' vocabulary, psycho-motor skills required to handle the learning management system, the 'Inbox sensitivity' needed to accurately monitor the activities of students which come to the assignment inbox shall be some of the basic skills for prospective teachers.

Competitiveness

The 'era of quality teacher education' in India is marked by the liberalisation movements around the 1990s and the consequent formation of NCTE and NAAC. But until about 2020, there was only one agency, NAAC, to assess quality. That is, quality has always been a unitary concept as defined by NAAC. But what we will see in the next two decades is a period of 'ramified quality' or multiple quality with the establishment of multiple agencies permitted for quality assessment. Therefore, each educational institution will be empowered to go through a quality assessment process according to their potential and grab the grades they want. Institutions also acquire the characteristics of monopolies while competing for each other's survival, an oxymoron, though. Thus, the teacher education institutions may transform into a monopolistic competition model around 2040.

When institutions compete to raise the quality represented through grade, teachers will compete to increase their teaching performance index. The teacher will trade in all the activities that have the potential to raise his quality index. In this way, the very concept of teaching is being redefined. From qualitative discussions and interactions between teacher and student, teaching will be reduced to coordinate a set of activities that can be quantified in numbers.

The same situation will be evident in the case of students as well. Students will compete to choose the most valuable courses in the flood of online courses offered through MOOC. In addition, there will be competitions on the part of the students for how many courses a student can choose. The student-teachers may choose the courses they want to be based on their scope in the labour market. Thus the freedom to choose a course would be reduced to the preparation for self-marketing.

In short, teacher education can be transplanted into entirely new frameworks in a period of teaching that redefines itself from a set of subjective and organic activities to objective numbers. Teacher education will need to be prepared to create closeness to those at a distance and redefine the educational process in the medium of inorganic techniques. Teacher education will be secured in the hands of unsecured teacher educators and student teachers in the future.

Teacher Education 2040

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Prologue

Isaac Asimov's (1951) short story The Fun They Had is set in 2157. Every child studies at their own pace. Each child has their teacher, who is a robot. And when the child isn't doing well academically, a technician comes home and fiddles with the robot teacher to make it compatible with the child's level. A robot is a teacher. Is a teacher a robot?

This pandemic has taught us many lessons. One, that technology is here to stay. We have buried our heads in the sand for too long. We need to harness technology to improve student learning and enhance teacher instruction strategies in physical and online classes. The technology divide in our society is deep (but beyond the purview of teacher education). We have learnt, mainly through trial and error, how to explore the web and use the treasures it holds. In the process, we have become aware of cyber etiquettes. Thanks to the Net, we have also learnt how to update our knowledge. (So the issue of spending three weeks each summer holiday attending mundane, unrefreshing refresher courses can be re-looked).

Two, technology is a teaching aid (to use a cliché) like any other. It cannot replace the teacher or the classroom dynamics. Judicious rather than indiscriminate use will better ensure optimum student learning.

And three, classrooms, schools, educational institutions are dynamic settings where learners evolve, and learning happens, both planned and incidental. It is a microcosm society. Here, characters are built, and personalities are shaped. These places are the sounding board of our values and traditions. Teachers are leaders in this setup who are responsible for nurturing future leaders. Experience has shown that nothing can be a substitute for this.

Teacher Education 2040

Every learner has many channels to gain knowledge, to learn. A teacher is one of them, albeit the primary one and, in many cases, the only one. About 65 years ago, the Kothari Commission (1966) had emphasised that a teacher's contribution in nation-building is "undoubtedly the most important." And had accordingly recommended developing

a teacher's "personal qualities and character, his educational qualifications and professional competence…"

Teachers have been the facilitators of student learning since the beginning of recorded history. Their roles have changed from the sage-on-the-stage to the guide-by-the-side, but their centrality hasn't. Even today, there are many schools in India where the teacher is the only resource available.

Thus, for 2040 to have a robust education system, this central figure of the edifice needs to be strengthened and empowered.

Selection: the quality of education depends inter-alia on the quality of the aspirants who qualify for a teacher education programme. Much before 2040, it needs to be ensured that teacher education should not be a loser's choice. Rigorous admission criteria need to be in place. High marks in the qualifying degree, a harsh entrance exam followed by interviews will ensure that quality is not compromised.

The Teacher Education Programme: teacher educators need to introspect and pull up their socks. Effective and integral utilisation of technology is part of our lives outside the school. So far, technological changes happen in society, engineering, science, and later permeate education. This process needs to be realigned. Teacher Education should be the area wherein technological experiments and stories are shared – both success stories and lessons learnt.

Professionalism needs to be improved by nurturing a symbiotic relationship with partnering institutions for School Experience Programme (SEP). Mentors may be appointed in schools apart from those in the Departments to inculcate professional ethics. It would be helpful if pointers to an ethical code of conduct become part of various papers taught in Teacher education institutions. Professionalism also includes academic development. Students need to re-learn reading skills. Developing reading habits will prove to make successful, lifelong learners. Lots of reading and even being evaluated on essential tasks for each paper may be beneficial.

The CEPC may be used to develop in the beginning teacher the traits of an activist, an agent of social change. By reflecting on their lives and directing that reflection outward to the schools, they may intern in and eventually be absorbed. Student-teachers need to be taught to publish and disseminate their experiences right from their teacher preparation programme days.

The 21st-century skills of collaboration, communication, networking, problem-solving, academic and professional competence need to be developed. Teaching should happen through project-based learning, studying cases in the class, researching and consolidating theory through their field experiences, and developing critical thing skills. Blended mode, flipped learning, and their various avatars should inform curriculum transactions. Even today, many of these strategies are used, but such episodes are scattered, few and far between and most often, knee-jerk reactions. Teachers educators themselves need to document, publish and disseminate researches, this being a reliable strategy to network and collaborate. Teacher Education needs to develop a culture of reflective practices and research.

CPD: teacher education and professional growth of a teacher does not end with the passing out parade of a batch. It continues till the day they retire from active service. Teachers need to learn to be autonomous and accountable. They need to learn managerial skills. They need strong support and rigorous supervision. They need to be academically updated. They also need to learn to be self-regulated learners. They need to harness the potential of technology and knowledge on their own and with peers. They need to utilise association with professional bodies.

Epilogue

Even in 2040, we need to remember that education is essentially a human activity with all things human, like personal social interactions and intelligent use of technology and gadgets. Returning to Asimov's story to refute it, a teacher cannot be a robot. The converse is also true. A robot cannot be a teacher. The best of democracies need a leader, and the teacher is the leader. She needs to be made aware of her potential.

Teacher Education 2040

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The world is changing very fast. Be it physically, socially or culturally. So, there is a need to keep adapting to the new situation. The future of the students is becoming very unpredictable too. So, the question of what education is of most worth will be hard to answer.

Looking at the present, it can be seen that the pandemic has changed the teaching-learning method overnight. It has opened up distance and at-home learning and accelerated the adoption of teaching technology and various software. This shift was not unexpected as technology has been expanding the frontiers of education for quite some years. Covid-19 has hastened these movements and opened our eyes to the benefits of wide-scale online instruction.

Even with the growth of technology and artificial intelligence, we cannot do away with teachers in the coming decades. It is also important to rethink the kind of education that is to be given to the teachers. But before doing that, we have to realise certain facts that may occur and thus impact 2040. These facts are based on the present situation.

Online learning will continue – With the arrival of Covid 19 and the lockdown in various countries, including India, the education sector has also been affected very much. Schools and colleges have been kept shut down, but teaching had to continue. So remote teaching, that is, online teaching, gained impetus. Initially, there had been some inhibitions and hurdles. But slowly, as one is getting used to it, one has started looking into the positive aspects of online classes. New normal has made most people realise the advantages like flexibility and economy of time, resources and space.

Moreover, there has been a global explosion of internet usage and devices like smartphones and tablets. So it is becoming easier to learn from anywhere in the world. In the next 20 years, children will learn from any place and take part in courses from the world's leading institutions.

So online teaching-learning will continue for sure. It may take the form of blended learning, but it will not revert to chalk and talk anymore.

This has to be kept in mind while planning for teacher education in 2040. Experimentation with the blending will have to be done. Teachers will have to try out face-to-face, online classes in different ratios and with different subjects and learning, and see what is most appropriate for the particular age group and the particular group. Teachers will have to relearn the theories of teaching through experimentation. As the students of 2040 will be more techno-savvy, the teacher's role will be more of a facilitator and coworker. Teacher education will have to make future teachers realise this and equip them with that mindset and technology.

Diversified and interdisciplinary learning will gain importance - With globalisation in the economy and education, there will be cross-cultural intermingling. So the students will be from diverse socio-cultural backgrounds with various need. The fast-changing socio-economic conditions will give rise to the

need to adapt to varied novel situations very fast. That will lead to a demand for diversified learning. In teacher education, too, this will have to be kept in mind. So teacher education will try to develop not only subject knowledge but also knowledge on various other areas. How to do co-teaching and group teaching effectively has to be a part of the teacher education curriculum. Moreover, no predetermined assumptions may be of use. So the curriculum too will have to be flexible.

Lifelong learning – The phase of lockdown during Covid-19 has taught us many life lessons. One of the most significant amongst those has been the unpredictability of the future. One has to learn and relearn and keep making changes in thoughts and actions as needed. So "learning to learn" should be the keyword for 2040 education. To develop this ability to learn and relearn, creative thinking and diversified thoughts have to be accepted and encouraged. A rigid and fixed curriculum will have to be done away with. The curriculum aims to make individuals responsive and reflect better on the fast-paced world one will live in.

Teacher education will have to be framed according to the need of school education. So, a rigid curriculum is to be done away with in teacher education too. Facing different types of challenges and learning to combat them should be a part of the teachers training programme. Training and improving the Adversity Quotient would be a better way to build up the future teachers. Flexible curriculum, ability to learn and relearn, openness to new knowledge and experimenting in various forms with technology should be the main aim of teacher education in 2040.

In 2040 the very idea of what learning is or the meaning of learning will change. So today's education and that after two decades will be a world apart. Teachers will have to learn how to cater to individual learners present needs and teach them how to respond to future uncertainties. Teacher education will be a continuous one. Interaction amongst in-service teachers at regular intervals, sharing of knowledge and skill will have to continue for the benefit of teachers and the community at large.

Teacher Education 2040: Thoughts and Reflections

Dr Khaleda Gani Dutt

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The pandemic has forced us to think of innovative ways of designing the teaching and learning process. On that note, I feel that teacher education in the future will not be restricted to conventional spaces, become interdisciplinary, and technology will be a critical component of the curriculum framework. The traditional role of teachers will be dismantled to educators as learners to meet the evolving needs of learners of all ages. Teacher education will be more fluid and dynamic, focusing on lifelong learning and a learner-centred approach, a norm rather than an exception. Remote learning will form an integral part of the learning methods to increase accessibility and opportunity. Hence, the challenge

is to maintain teaching visibility in digital learning whilst simultaneously fostering the effective integration of innovative modes of instruction. Therefore, teachers will be given the tools to have a greater outreach and offer personalised teaching with Blended Learning Designs used more frequently for effective learning. The streamlined curricula tease out what matters the most and stress the metacognitive issues for students in terms of looking for solutions in the face of uncertainty and complexity. The prerequisite for educational coherence is the constructive alignment for learning to be meaningful and sustainable. Learning for the future will explode the edumyth, i.e. how teaching and learning are perceived in the present traditional methods of processing knowledge to expand and accommodate the fuzzy concepts like thinking that is often overlooked. Innovations in the learning environment form an invaluable part of the curricula making education adaptable, holistic and pedagogically creative in responding to the needs of society.

Conversations with colleagues across the globe reflect similar strands of thoughts, focusing on the need to revitalise the professional development of teachers. Inclusive education in conjunction with the sustainable development goals modelled on social justice should form an intrinsic part of the teacher education curricula. An interesting point of discussion was the reference to Genius Hour Passion Projects that encourage creativity in the classrooms initiated by Google. Teachers promote autonomy within the classrooms and stimulate creativity by providing students with a set amount of time to work on their passion projects. This unique take on enhancing the learning environment can be applied to both the corporate and education sectors. The inclination to transform academia into inclusive spaces factors in decolonising teaching strategies.

In retrospect, envisioned aims and objectives to improvise teacher education in the future rests on the present. Neoliberal policies have a stunting impact on the ideals of education, and teacher education is perhaps the most severely affected. Mechanisms need to be put in place to establish inspiring teacher educational institutions, attract

those with passion, recruit the best, support creativity and exercise teacher agency. Teachers of the future have to constantly reinvent their roles to become collaborators, facilitators, co-learners and incorporate a holistic learning approach by integrating soft skills with different educational strategies.

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"What makes a child gifted and talented may not always be good grades in school, but a different way of looking at the world and learning."

- Chuck Grassley

Teacher Education in India: 2040

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Introduction

Teacher education is ever-evolving and dynamic. The Covid-19 Pandemic has challenged existing institutions and practices. It has proved the power of alternative through the 'Emergency Technology Response' mechanism of keeping education open in the face of the closure of all educational institutions. Post-pandemic education is likely to witness a paradigm shift in educational practices. Teacher education being central to educational practices in an educational institution deserves our attention for visioning the future. NEP 2020 of India has set the timeline of the policy to 2040. In this short paper, I'll attempt to draw a future scenario of teacher education in India in 2040.

Contemporary Trends

We are in the era of information and communication technology. In this period, information and knowledge are open to all. Self- learning is the key to the teaching process. Learning to learn has become a crucial aspect of the teaching-learning process. Cooperative and Collaborative learning is being emphasised. Research is going on group learning. The impact of artificial intelligence in the field of education is flourishing. Team teaching, gamification, blended learning, flipped classroom-based learning, Massive open and online learning, virtual learning etc., are challenging the

traditional system of the teaching-learning process. ICT based interactive tools and software such as Mentimeter, Google classroom, Kahoot, Edublog, Moodle, Testmoz, Google meet, Zoom meeting, etc., are being used in education. Critical thinking based learning; individualised learning strategies have emerged. So, technology integration, application and adaptation are seen everywhere. The curriculum, strategy, methods and techniques of teacher education programme have been changing continuously following technological advances and emerging needs. The teaching, learning paradigm has been shifted from knowing to doing and creating. Higher-order learning objectives are getting priority. Teachers' roles are changing every day. Nowadays, teachers are not taskmasters; instead, he/she will be the creator of the conducive learning environment. Teachers' role is to make the learner more active than him to facilitate self-learning. Teachers will be able to create challenging situations for learners relevant to curricular activities.

Teacher Education in India-2040

Based on the contemporary trends in teacher education, I propose the following few developments by 2040.

- De-institutionalisation: Institution based teacher education programme may be abolished. Teacher educators may frame online instructional design and materials for the education of pupil-teachers. There would be a massive number of online courses and programmes for the professional development of teachers. Artificial Intelligence (AI) may be the key instrument. Technology adaptation may be mandatory for all. The objectives will be to combat changing needs and overpopulation in classrooms.
- Learning outcome-based: Teachers are likely to be paid according to the learning outcomes of students. Hence, the teacher education programme will be designed to equip the teachers to practice learning outcome-based teaching.
- Creativity and innovation: Teacher education programme will give importance to creativity and innovation. Creative and innovative teacher educators and teachers will be prioritised for entering into the teaching profession and for up-gradation or promotion.
- Mastery in educational technology: Mastery in educational technology and ICT will be necessary for teaching. Teachers will demonstrate sufficient knowledge and skills in educational and instructional technology, instructional pedagogy, and specific subject knowledge.
- Sustainable development: Sustainable development is a global issue. The teacher education programme would be reoriented to support the sustainable development agenda.
- Privatisation but standardisation: Government may not take the responsibility of funding for teacher education programme. Hence, teacher education will witness massive privatisation. However, the Government will determine the benchmark in terms of instructional norms, curriculum, methods, medium of instruction and mode of teaching-learning and course fees etc.

Conclusion

We may witness a privatised non-formal system of teacher education programme evolving by 2040. Technology would act as the main driver of the change. Artificial intelligence is likely to play an important role in reconstructing teacher education for 2040. The teacher education programme will equip teachers with skills of enhancing the learning outcome of students. More and more creative and innovative teacher educators and teachers will enter the teaching profession.

Future Teacher Education Programme

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Recent developments in the world scenario with the Covid-19 pandemic has shown that ICT usage can transform classroom teaching. Future education will be home-schooling, where students will be studying and learning what they want when they want, and for how long they want. The school environment has been felt as favourable at home without Peer pressure, competition, boredom, and bullies of the teacher. Personalised learning has become part of student life. They will cover the required course curricula with study tools adapted to their capabilities. Those who experience difficulties with a subject get the chance to practice more until they reach the required level.

Learning incorporates virtual reality and multiple perspectives. Online platforms allow students to learn how to negotiate issues and exchange ideas online. The development has future projections that there will probably be no campuses as we know them today. Learning will not be limited to a physical school. Travelling classrooms and the real-world environment will be a new campus. However, city libraries and city laboratories will remain to help students complete their projects. Students will no longer be dependent upon a certain place and can study wherever they are. Technologies will facilitate the teaching and learning process. Then, learning will come to be more creative and practical. Students will be assessed on critical thinking and problem-solving skills. Taking tests will be replaced by students' performance through creative projects. Project-based learning will combine creativity and collaboration to solve complex questions and tasks.

To thrive in the future workplace, skills such as creativity, collaboration, communication and problem-solving will become must-have competencies for future specialists. The market will see a massive increase in jobs requiring a mentioned set of skills. Students will be taught social and emotional skills through discussions, cooperative group work, problem-solving, and group reflection in the classroom. Various apps will become standard for teachers to deliver information to students efficiently.

The future teachers, according to David Price (Champion of Young Changemakers), will focus "on the nurturing of key skills and competencies such as the ability to seek, to curate and to synthesise information; to create and innovate; to work in diverse cross-cultural teams; as well as to appreciate global issues within the local context." For preparing such teachers the teacher education programme will go through a metamorphosis. The colleges of education will become "highly selective" in accepting teacher candidates into their programs. Those accepted into teacher programs will meet rigorous benchmarks in their quest for a degree in teacher education. Only those candidates will be admitted in the teacher education course who are well-versed in using ICT tools. Acquiring knowledge by itself will no longer be sufficient. Future teachers will be demonstrating competency in applying what they have learned. This application will take place in classrooms and alternative learning situations.

In the Colleges of Education, the teachers will learn how to customise educational experiences for their students. In creating bespoke coursework, teachers will rely on a network of colleagues for assistance. This network will transcend the walls of schools as teachers reach out to experts around the world.

Educator preparation programs will encourage early collaboration among future teachers. Global connections will position future teachers to share their skills with others.

There will be a seamless integration of educational technology. All teacher preparation programs will adopt different technologies in the classroom. These include using technology as a tool, making technology sustainable, providing a tech-rich user experience before teaching service, and adopting universal standards for use.

Rigorous entry and exit standards, collaboration, and technology integration will all be part of the future of teacher education. They will be the key to transforming the education landscape.

"Dr Kalam used to say - 'The purpose of education is to make good human beings with skill and expertise. Enlightened human beings can be created by teachers.' Changes in the education policy is a major way to provide the nation better students, professionals & better human being."

Teacher Education by 2040

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Teacher education is the foundation of the educational system of any country. New Education Policy 2020 highlighted that "Teacher education is vital in creating a pool of school teachers that will shape the next generation. Teacher preparation is an activity that requires multidisciplinary perspectives and knowledge, formation of dispositions and values, and development of practice under the best mentors." Our teacher education is in a transition phase, and we are still struggling with many things. This is high time that we take charge of improving our teacher education programme and highlighting the issues. As NEP 2020 emphasises that all higher education institutions, including teacher education, will gradually be moved into multidisciplinary colleges and universities by 2040, an ideal teacher education 2040 model would be barrier-free and best take care of the diverse needs of the society as well as diversity in classrooms. A significant challenge that we all have faced in pandemic Covid-19 in the initial stages of 2020 was to manage the education system, especially professional courses like teacher education which includes practical components of internship, teaching practice, project work, etc. We cannot compromise on the quality of teacher education even if there is a situation like pandemics or epidemics, or any other natural calamities. In 2040, teacher education would be having a parallel curriculum approach for normal situations (face-to-face) and problematic situations (online). Also, the evaluation system would be qualitative, i.e., continuous and comprehensive evaluation involving a variety of tools like teachers' observation, daily assessments, etc. Teachers would serve as trained professional having expertise in online assessment. We should not always talk about the negative aspects.

Still, we must focus on the positive side of Covid-19 as well, as it has been observed that teachers who were not techno-savvy before Covid-19 appears in the picture are now able to handle technology, and this must be practised in the future also that the base of the whole system of teacher education to follow blended approach and web-based content, lessons and demonstrations to be made an essential part of the teacher education programme. In 2040, a teacher education programme will not be limited to teacher education institutions, but it will touch every aspect of human life. It will be community-based, societal need-based and individual need-based. It would also be based on a constructivist-flipped classroom learning model and will take care of the holistic development of the personality of individuals. It would be linked with all the disciplines as NEP 2020 also emphasised Integrated Programmes at the Undergraduate level, i.e. Integrated B.Sc.-B.Ed., Integrated B.Com.-B.Ed., etc. It would follow a holistic and multidisciplinary approach which means nothing will be left untouched by teacher education, every course to be integrated with it and will serve as the panacea of all the ill practices of the past, opening new avenues for the overall development of individuals and generation of world-class skilled human resource for inculcating skills of teaching and hence building effective learning centres.

Teacher Education by 2040

Prof Renu Nanda

Dean, Faculty of Education
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Teacher Education wouldn't be any very different from what it is now.... History gives evidence that though there have been numerous initiatives to bring changes in education, there was not much impact on teacher education. The implementers of the various commissions and committees probably never thought of Teacher Education as professional education, so it continued the same for a long time till 2015, which increased the duration of its courses and then last year 2020 saw a drastic change that automatically stepped in the domain of teacher education by literally forcing all teachers to go digital even if some of them didn't even know the basics of digital education. From this, one gets to understand that there is undoubtedly a need to look at teacher education from a revised perspective.... It appears that by 2040 Teacher Education would be very specific, wherein the focus will be on super specialisations. The different domains like theoretical perspectives, technological interventions, pedagogical aspects, health & well-being, and a lot of stress on the practical application of almost everything concerning teacher education would be practically reflective in letter and spirit. The trainees will be given some exposure initially through the line mode blended with self-learning and after that will be asked to take internships in their preferred educational institutions. The teacher educators will design and develop the curriculum in all papers with the enrolled pupil teachers after field surveys to make it more contextual and practical. The teacher educators will decide the methodology and pedagogy of teaching the curriculum too in discussion with the pupil teachers, and so will be the evaluation pattern. The course objectives with their complete layout will be changed frequently to make them more relevant to the current times. The students will prefer an open book examination with case studies on different areas of interest. Teacher education will not have a rigid curriculum; instead, a realistic model of design and curriculum will be adhered to. At least one year of fieldwork with a clear focus on internship, practical work in educational institutions with the freedom to choose a set of courses in different semesters to complete the required credits at the end of teacher education programmes will be adopted. Teacher Education would certainly focus on the training right from pre-school to university teaching to establish a connection right throughout the pupil teachers' academic career. Teacher Education will be very demanding in terms of quality and placement concerns. The architects of teacher education will leave nothing undecided at any stage of the training programmes yet giving spaces to the pupil teachers to choose their interest areas. Choices will be plenty, not in the paper, but practice. Therefore, besides being digital and reflective, teacher education will be considered the most preferred of all professions worldwide.

Teacher Education 2040

Young Scholars Speak[2]

Dyutima

With the advancement of technology in education, there is a constant fear that a teacher's role will become rusty and obsolete soon. Despite this pressing issue, there is unprecedented importance of teachers that cannot be ignored. It has its implications for future teacher education programme. Envisioning teacher education for 2040 means teacher's workspace will not be confined to four walls. The teacher will have to be flexibility impregnated with novel ideas to transact curriculum. Added to it are the bearings of Covid-19 and pandemics like that point towards revamping the whole teacher education system. Many major changes are expected, like educating pupil-teachers in the global world, teaching life skills, unlocking different technologies, and learning online. That is why it is being emphasised that teacher education needs to be individualised, including with AI interface.

Anjali

The current scenario in the light of covid-19 has influenced the process of planning immensely. Teacher education has not remained untouched by the pandemic. It is being felt that teacher education will also go into metamorphosis. Teachers will be expected to inculcate the scientific, useful and practical temper in the learners. The learners will be expected to effectively handle the different social, emotional, spiritual, and physical problems in the same tune. The sermons of Bhagavad Gita that Karma is to be carried out effectively in a true sense free from any ill will make a person self-reliant, social and cooperative. The teachers will have to be well trained for this purpose. Teacher training must be well checked and monitored. The experts must screen the candidates for teachers to assess whether the upcoming teachers can execute their duties in a true sense. In Indian Panorama, a teacher has to undertake so many responsibilities with not many available resources. So the teacher education in 2040 should be skill-based, creative, innovative and experiential. The upcoming

[2] *This is a symposium where six doctoral students of education of Jammu University expressed their views on future of teacher education*

teachers should apply the practical knowledge in the classrooms in an effective way.

In 2040 teachers should be able to teach through an interdisciplinary approach. They cannot stay with one approach only. Future teachers will foster core teaching across groups and disciplines. Teacher education in 2040 will explore technological advances and ponder over seriously how to use them for educational purposes. Future teachers have to be well versed with artificial intelligence to use it in the classroom better.

If we want to improve educational outcomes and prepare students for the future, we need to change our teachers' future teaching and learning.

Mulkraj

In recent years policymakers, bureaucrats, and politicians worldwide have become increasingly interested in teacher education. Nowadays, students prefer to take online classes because these are helpful for the convenience of time, money and skill achievement. Even I prefer to do online study rather than classroom study. So I think in the future, teacher education will be technology-driven. There is a growing number of sources from where we can learn many things. I think by 2040, almost everything will become online, from learning to teaching and assessment.

The global forces and unforeseen technologies bring paradigm shifts in students' learning and teacher's way to instruct. I predict that future teacher education will require educators to be more entrepreneurial, collaborative, creative and innovative. It is important to think about what we can do to prepare for the future, and a platform like this will help all of us.

Romy

A teacher is the role model for students; the reason being that she is an apostle of qualities like honesty, sympathy, knowledge, patience etc., which impact the personality of the students. Teacher education develops all such qualities in a teacher. It exposes the persons to different ways and styles of teachings. Though Indians, not techno-savvy, the covid pandemic has shown the route to shift from offline learning to online learning. This shift in teaching has changes the school system in India. By 2040, technology will be user-friendly, that even a small child will use technology tools to learn.

That is how teacher education by 2040 will be:

1. There will be a techno-savvy environment
2. Teacher and students will prefer more online teaching
3. Students will show less interest in face to face interaction
4. Book learning will shift to e-book learning
5. Teacher education will be more progressive and innovative.
6. There will be a more practical outlook for students and teachers
6. Every Teacher and students will use user-friendly technology
7. There will be zero gaps between the knowledge of teacher and students
8. Constructivism will be part of curriculum and teaching-learning.

Isha

The COVID19 has threatened the education system as well as other aspects of life. The use of technology is the only alternative left for imparting education at different levels. Technology-driven teachers of 2040 will be the mere distributor of the textual content and make students think outside the box. Teacher education will become more technology-based, flexible. Soon many Website Apps, tools and many more resources will be created by 2040 to make teacher education more scientific and technology-based. Teachers will not only be confined to the four- walls of the school. Teacher education will become more skill-oriented. Becoming a teacher will shift from bookish knowledge and theory to the practical aspects of the teaching process, where technology will play a vital role. Innovative teacher education programmes will be part of the professional course. COVID19 has indicated that the conventional system will not work in 2040. To improve the quality of teacher education and match up to the other countries across the globe for raising the standards of the education system, innovations will have to be introduced. Teacher education in future will be an environment where the course will be bridging the inner and the outer worlds, science and spirituality synchronised. Future teachers will be prepared in such a way that they will go beyond the boundaries of their specialisation and will teach interdisciplinary subjects.

Sheetu

By 2040, the role of teachers will change a lot. Dependency on teachers will be relatively less. Students will turn to the online mode of learning. Added to it is the situation created due to the covid-19 pandemic that has forced the teachers to go away from classroom teaching. That is how there is a need to rethinking about the teacher education being provided today. Teacher education in the upcoming years will be more flexible and will witness a shift from textbooks to e-learning sources. More importance will be given to providing practical training with the help of technology. Training in constructivist, collaborative, and creative learning methods will have to be provided to future teachers as tomorrow's students may get boredom if taught in traditional ways. There will be a less emotional and physical connection with the students creating socio-emotional severe issues. Teacher education of 2040 will prepare teachers who can use technology and deal with different socio-emotional and psychological problems. Interdisciplinary education will be part of the curriculum. The teachers teaching mathematics will be integrating arts and social science with music and culture. In short, teacher education in 2040 will be based on website apps and tools, so let us train our teachers to face such challenges and prepare students for tomorrow.

ETMA's Saturday Conclave

The Saturday Conclave is an informal one-hour academic adda where young scholars and senior academicians share, in chat mode, their readings, learning, research projects, etc. The Conclave also facilitates the presentation of research proposals and seeking feedback from senior scholars with rich experience in guiding research scholars.

In one such Conclave, participants shared a book review and a few newspaper articles. Special attention was drawn to an article that dealt with the role of universities and university students during disaster and pandemic times.

The Saturday Conclave of 15th May was organised as a consultative meeting seeking feedback on the School-based Educational Policy Implementation Model. This Conclave was structure. A brief report is presented here.

School-based Educational Policy Implementation Model (SbEPIM)

Educational policy analysis and implementation research indicate a wide gap between the policy intentions and policy impact. This gap is universally true in all countries in the world. Evaluation of Educational Technology Scheme, CLASS, DIET, SSA and RMSA review shows this gap. There have been several policy analysis research to find the cause of such gaps.

Prof Mukhopadhyay made a content analysis of the School Education Policy in NEP2020. The content analysis was categorised under a few heads like policy goals, curriculum planning and management, instructional Systems design and pedagogical processes, learning material, learning assessment, school organisation, an intangible curriculum, e.g. development of moral and constitutional values. Based on the content analysis, it becomes evident that more than 80% of all policy recommendation have to be implemented by the teachers in the classrooms and collectively by the school. Hence, policy implementation has to be school-based.

The government department, national Institutions and state boards, and state institutions can restructure the school education, create a curriculum framework, detailed structure of the curriculum and textbooks, also recommend the pedagogical practices. But all these are implemented by teachers under the guidance of the academic leader in the school. To reduce the gap between policy intent and impact, Prof Mukhopadhyay developed

a School-Based Education Policy Implementation Model (SbEMIP).

The basic features of the model were:

- instead of the mass orientation programmes like SOPT and PMOST, awareness and understanding of the policy recommendations can be better developed within the school by carrying out a content analysis of the policy document through group-based self-regulated learning approach by the teachers guided by the principal;
- for developing the conviction and concurrence of teachers and staff, schools should adopt the three-stage process of confrontation to bring the silent resistance to the surface, reconciliation, and idea generation to implement education policy.
- The practice of annual planning prevalent in the leading schools should be practised by all schools. This yearly planning should include the policy imperatives. Schools should develop an annual plan of action involving the teachers. School should adopt group-based processes, guided and mentored by the principal. This would take care of the curriculum planning and management.
- The experiment and research evidence has proved that teachers can adopt a professional learning approach for greater effectiveness than professional development programmes conducted by outside experts. The teachers can develop learning materials for the peers and conduct peer training and orientation.
- The schools should implement the annual plan of meticulous care monitored and mentored by the principal.
- The school-based education policy implementation needs to be periodically evaluated and monitored. Instead of external evaluation, based on the research evidence of effectiveness, Prof Mukhopadhyay suggested teachers' self-assessment of classroom practices, learning material development, student assessment, etc., as the alternative.
- Finally, based on the evaluation and teacher's self-assessment results, the annual strategic plan may have to be modified and reformed.

The model also pointed out the role of academic leader in the school-based education policy implementation. The academic leader may have to act sometimes as an expert, sometimes as a servant, a coach and mentor, a politician, a director and a participant.

ETMA organised a consultative meeting involving senior educational administrators and principals of leading schools to get feedback and vet the model. Thirty senior educational administrators, principals of highly reputed schools, and educational researchers from Jammu, Singapore, Ahmedabad, Bangalore, Nanded, Hyderabad, Pune, Kolkata, Delhi, Birbhum, and Gurugram participated in the consultative meeting.

Prof Mukhopadhyay shared a brief concept in advance with all the participants. The consultative meeting started with a short presentation followed by consultation. As many as eighteen participants shared their views. Some had also expressed their views in writing by email.

The lively discussion among the principals and senior administrators endorsed the concept of school-based education policy implementation.

ETMA Reaching Out

Along with several other academic activities like research, material development, orientation and capacity building, seminars/Webinars, conferences, etc. ETMA has three flagship Reaching out Programmes - Educating the 3rd Child, School Improvement Programme (SIP), and the eMagazine.

Educating the 3rd Child

ETMA identifies, through its friends and associates, brilliant students, based mainly upon the results of the 10th board examination, belonging to poor and marginal families. We have also identified bright students by tracing the newspaper stories of valiant efforts by some students in the most challenging conditions. For example, a newspaper story flagged the brilliant performance in the 12th Bard examination of a boy. He lost his father; his mother had to migrate to another state to earn cooking meals for several families; the younger brother had to leave his studies to provide security to the mother in the distant land and earn as day-labour doing odd jobs on the roadside tea stalls. The scholar is in college now, and the younger brother is also back to school, courtesy of his school headmaster and teachers.

As the boys and girls reach 16/17 in this rural area, they get associated with the earning activities with their parents. ETMA identifies such candidates and offers a monthly scholarship for as long as they want to study. There are several heart-warming success stories. Some of them completed the graduation or polytechnic education and immediately got jobs. That helped them pulling out their parents and siblings from the dark pit of poverty. A Few others completed post-graduation from IIT Kanpur, IIT Bombay; one is continuing at IIT Kharagpur. Another scholar is pursuing PhD in the Centre for Biomedical Research. The IIT Kanpur scholar is pursuing his doctoral studies in theoretical mathematics at the prestigious Indian Statistical Institute.

These scholars also brought their families out of poverty, sharing their scholarship money with parents. Many other scholars have completed engineering and polytechnic education post-graduation from various universities; many continue their studies in schools and colleges.

As the senior ones pass out and get jobs or scholarships, new scholars are enrolled. So far, ETMA has served more than 40 bright young scholars.

School Improvement Programme (SIP)

This experimental program involves 35 government rural primary schools in the Howrah district of West Bengal; about 3500 students and 125 teachers. The experimental program started in 1994 as development research for arresting school dropout and improving school quality. This, probably, is the first village cluster in India to register zero dropouts. Ministry of Human Resource Development Government of India commissioned the Tata Institute of Social

Sciences, Mumbai, to evaluate the project.

The Government of India published this successful experiment of arresting dropout in the EFA report in 2005 and placed it at the HLG Meeting in Brazil. The San Jose News of California covered the story. The Stockholm University, Sweden, published a detailed report on the project, more recently by Prof Marmar Mukhopadhyay in his book, Total Quality Management and Education (2020).

As the experimental program continues today, it is one of the most extended soft intervention programmes in education for quality improvement. Many of these school cluster teachers have extended their services to society and made significant innovations in their primary schools. This SIP programme is implemented in collaboration with the Howrah Rural Teachers' Forum, Udang.

There are visible impact of the programme among the teachers and the schools. Besides organizing annual blood donation camps for the thalassemia patients, during the pandemic, some of the teachers opened a 24-hour helpline for the villagers; some rushed to the nearby hospital for donating blood to save the life of an unknown patient; raised funds and erected the burnt down-homes of the poor villagers; some creatively utilised the roof of the primary school building for kitchen gardening enriching the nutritional value of the mid-day meals; set up manure producing pits and rain water harvesting plants; some adopted technology integrated education; some oriented and involved parents to enrich home support when the children were locked out of the schools due to the pandemic, and they mobilise their students for health and social awareness development in the community through posters, slogans and student rallies through the village lanes. In these villages, No Child Left Behind, (US law) and Education For All is a reality.

ETMA e-magazine

This magazine, at your hand, is another extension program to reach out to the academic community in India and the world. It brings contemporary developments and thoughts in education. It is published, though technically occasionally, almost once every month.

You are most welcome to share your educational thoughts and concerns through this e-magazine. It reaches out to several thousand institutions and individuals every month.

Weekly Academic Meet

Another budding extension is the Weekly Academic Meet. It is held every Saturday for one hour. Scholars share their readings, new learning, research proposals and tentative findings. This Weekly Academic Meet is online.

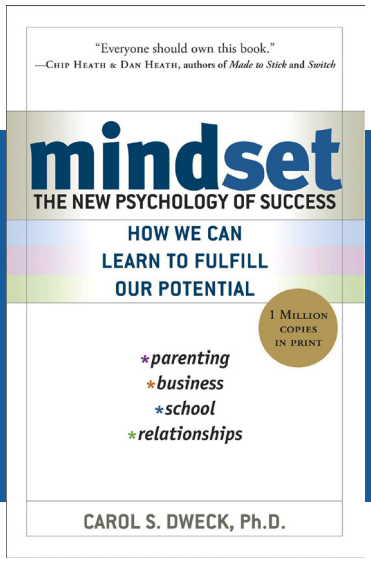
You are welcome to join this forum to share your learning, research. Young research scholars can consult senior professors on their research projects.

Funding

All these activities - scholarship, SIP, and e-magazine- are run through donations of the ETMA Council and friends, usually once a year. The scholarships are provided through bank transfer directly to the scholar's account.

You are welcome to join and strengthen ETMA's outreach programmes with donations. Donations to ETMA enjoys tax exemption under 80G of the IT Act.

Growth Mindset



A growth mindset is critical to personal and wwprofessional success. Prof Carol Dweck of Stanford University coined the terms Growth Mindset and Fixed mindset. This "New Psychology of Success" (the subtitle of Carol Dweck's book, Mindset) evolved out of the school of Positive Psychology pioneered by Prof Martin Seligman, celebrated author of Learned Optimism.

Prof Marmar Mukhopadhyay conducted a 100-minute training session on Growth Mindset on 17 May 2021. The session was participated by 181 teachers, supervisors and principals of HDFC Schools in Gurugram, Pune and Bengaluru.

The session dealt with five issues: concept and attributes of growth and fixed mindset, scientific basis - based on brain science, how to identify the mindset, how to develop the mindset - self, teachers, students and parents; and what is the importance of growth mindset in school education. He also dealt with the relationship between psychology of mindset and life scripts from Transactional Analysis.

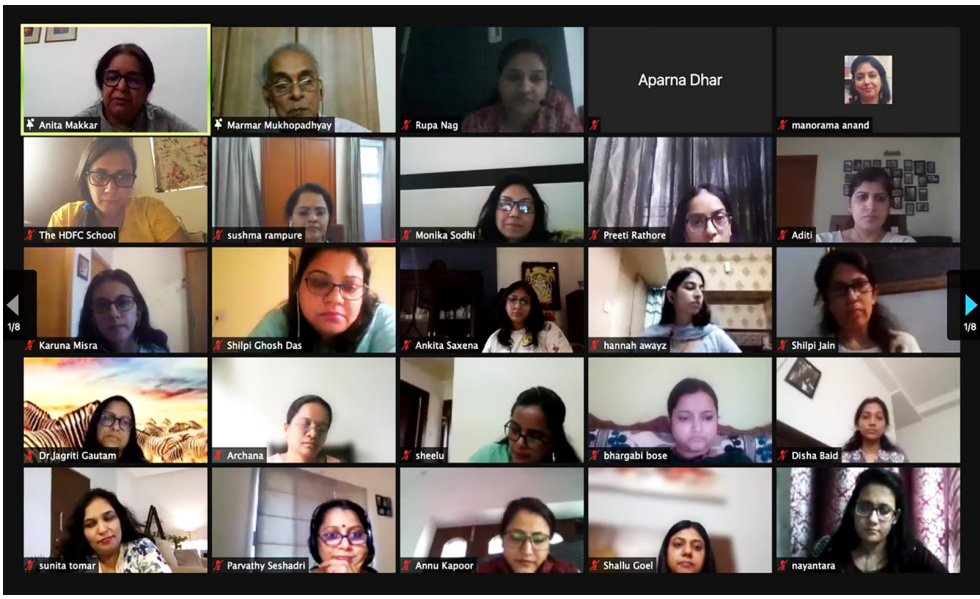
Prof Mukhopadhyay adopted a flipped learning mode. He shared his paper on Growth Mindset almost a month in advance with all the participants. His training material contained references and URL of four videos. He recommended Carol Dweck's TED Lecture on Growth Mindset, one other short introductory video, and two short videos on Human Brain and Neuroplasticity. He also recommended watching the TED lecture on Positive Psychology by Martin Seligman.

The participants had read the paper and watched the videos; they also discussed informally before the online training session. A team of five enthusiastic teachers guided by their academic leader prepared an interesting paper on inculcating a growth mindset among the students. The team also proposed a 4-Week programme for students.

Because of the flipped mode, teachers had both awareness and understanding of the theme. Hence, participants shared their views and discussed focusing on the five questions raised in the beginning. There were short presentations by Prof Mukhopadhyay in between the discussion. The teachers presented their 4-week course on growth mindset for students built-in within the learning design of the session.

Prof Mukhopadhyay also cautioned against complacency as the dominant fixed mindset keeps propping up and try to occupy the lost space to growth mindset.

The principals and teachers collectively decided to practice more group-based Self-regulated learning to enhance and enrich teachers' professional learning.



Educational Technology and Management Academy (ETMA)

ETMA is a registered trust engaged primarily in the education space with focus on quality improvement in education through constructively aligned intervention of educational technology and management. ETMA is guided and advised by an interdisciplinary group of educationalists, scientists, medical experts, technologists, management scientists, entrepreneurs and others drawn from IITs, IIMs, Universities, Medical Institutions, Schools, International agencies and corporate leaders in education.

ETMA's work space includes research and consulting, training and capacity building of educational leaders and teachers, media and publications, seminars and conferences, and extension and outreach programme.

ETMA has been consulted and/or collaborated by UNESCO, UNICEF, USAID, CEMCA, Intel, Microsoft and many other organizations.

Under the extension and outreach programmes, ETMA identifies and supports education of brilliant students at risk from poor families converting potential unskilled worker into IIT (Kanpur, Mumbai, Kharagpur) and engineering graduates, university scholars through a monthly scholarship. ETMA has also adopted 35 rural primary schools under School Improvement Programme, and successfully eliminated drop out and achieving improved performance.

Educational Technology and Management Academy

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