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In This Issue

Dr. Sarvepalli Radhakrishnan: Pioneer of Educational Thinking and Practice in Modern India

Arnab Chowdhury* and Jayanta Kumar Mete**

"The true teachers are those who help us think for ourselves"

– Dr. Sarvepalli Radhakrishnan.

We, teachers, think of ourselves as great educators of modern society, but we really forget the pioneers in this field. Dr. Sarvepalli Radhakrishnan is one of the pioneers of modern education. Indian government introduced National Educational Policy in 2020, and all the educational boards are trying to implement all the ideas offered. We are now trying to implement "experiential learning" to make the learners understand the given topics in a much better way. According to Dr. Radhakrishnan just acquiring academic and professional knowledge is not education. Acclimatization of values and ideas, and building an initiative-taking character to face the hurdles of life is education[1]. He believed, "The importance of education is not only in knowledge and skill, but it is to help us to live with others."

Being an Idealist, he insisted on including Yoga, religion, morality, ethics, and Philo the sophy in the curriculum for the students. Even though there are different methods of teaching he insisted that lecture and demonstration methods cannot be used for teaching and only question answer method and discussion are methods through which education can be imparted. The best way students can learn is when they discuss a topic among peers and teachers[2].

In 1948 Dr. Radhakrishnan was appointed as the Chairman of The University Education Commission by the then Education Minister of India, Maulana Abul Kalam Azad. At that time, he was the Spalding Professor of Eastern Religions and Ethics at the University of Oxford. In his report, he mentioned a lot of things that were philosophically dominating in nature. Himself being philosophically religious in nature he quoted from the *Upanishads* that we humans are materialistic and try to take on bookish knowledge and we do not have any knowledge about ourselves. According to Plato we may know a lot of things and we may even discuss them, and refine them with our own perspectives but until and unless we know about ourselves, we are nothing but bewildered, we do not know what to do with the knowledge we have, whether to use it for good or bad. It is so because we have not been awakened yet in our inner self.

* *Research Scholar, Amity Institute of Education, Amity University, Sector-125, Noida - 201303 (Uttar Pradesh).*

** *Professor, Department of Education, Faculty of Education, University of Kalyani, Nadia-741235 (West Bengal) E-mail: jayanta_135@yahoo.co.in*

He thought that universities are the lifeline of a country. When students graduate from different schools, they tend to get decent jobs. The job could be in any sector. But the question arises why would a student is given a job? Is it because the student has passed out of a university, and it is his/her right to get a job? Wouldn't that student require some sort of skills to work with? He thought about professional education and how it would help the nation to get highly skilled professionals. The term professional might feel robotic and a skilled person is only going to do as asked. Keeping this in mind he provided a foundation of professional education that a person upon completion of a professional course will not only be technically skilled but also, he/she should be socially aware of their position and how they are going to affect society. They should be able to comprehend social values and look at everything without prejudice.

A country needs technical and research-based abilities in all sectors, and we are going to start with the discussion of these sectors beginning with agriculture. Pre-independent India had a proper agricultural structure which was utilized properly by the British. Since the 1940s the agriculture department had developed and there were 21 higher educational institutions in agriculture (Table-1).

Without commerce, a country cannot survive. Export and imports are the lifelines of a nation. Commerce colleges were also in the mind of Dr. Radhakrishnan. He suggested that B. Com should be

Table 1: Agricultural Colleges in India by 1948

Place	Name of College
Agra	Balwant Rajput College (Agricultural section opened, 1941)
Allahabad	Allahabad Agricultural Institute (Besides B.Sc. (Ag. also B.Sc. in Agricultural Engineering, and Indian Dairy Diploma).
Amritsar	Government Agricultural College (Located at Khalsa College, Amritsar, (est. 1947).
Anand	Bansilal Amritlal College of Agriculture (est. 1947).
Banaras	College of Agriculture, Banaras Hindu University (est. 1945 ; Besides first degree, also M.Sc. in Agricultural Botany for a number of years).
Bangalore	Agricultural College and Research Institute, Hebbal (est. 1946)
Bangalore	Indian Dairy Research Institute (Post-graduate work; est. 1944).
Baptala (Madras Presidency)	Agricultural College (est. 1945).
Coimbatore	Agricultural College and Research Institute (Affiliated to the Madras University for B.Sc. in 1932)
Delhi	Central College of Agriculture (est. 1947).
Delhi	Indian Agricultural Research Institute, New Pusa, New Delhi
Dharwar	College of Agriculture (est. 1947)
Hyderabad (Deccan)	Osmania College of Agriculture (est. 1946).
Indore	Institute of Plant Industry (Post-graduate work, est. 1924).
Kanpur	Government Agricultural College (First degree and Postgraduate work, est. 1906)
Khamgaon	G. S. College of Science and Agriculture (Agricultural section opened 1948)
Lakhaoti	Amar Singh K.E.M.U. Jat College (Agricultural section opened 1941).
Mukteswar (Also at Izatnagar)	Indian Veterinary Research Institute (est. Poona 1890; transferred to Mukteswar 1893; Izatnagar Branch 1913; Postgraduate work).
Nagpur	College of Agriculture (Affiliated to Nagpur University in 1945)
Poona	College of Agriculture (est. 1947)
Sabour (Bhagalpur)	Bihar Agricultural College (est. 1945).

the minimum requirement for applying for the post of an accountant and the graduates should acquire practical knowledge by joining different commercial establishments as apprentices. Along with this he also suggested that commerce students must be given opportunities for practical work in at least three to four firms. Some of them should be advised to follow some type of profession such as Chartered Accountant. Those moving towards M. Com they should keep their studies more practical-based and less theoretical-based.

He provided his insight into the field of Education as well. He observed that the field of Education when going to higher studies and research in does not retain its own perspective, it tends to move from its focal point toward other topics such as Sociology, History, Political Science, etc. In that way, the students of such an institution might feel that they are being dragged by specialists of different fields into their own fields and the subject does not provide any kind of the focal point. To avoid such a situation the educators in this field must be thorough with what they want to achieve in this vast field. He also found that both theory and practical must go hand in hand together to provide a better understanding of the subject as well as a better assessment of the student as well. He found that insufficient time was being given to the practice of teaching. This little time is not sufficient to judge a student of their teaching ability.

The time after independence was not so sweet for school teachers and pursuing it as a profession was not seen as a well-decided future perspective. The reason for that was the salary in this field. According to his observation, there wasn't much research going on in the field of education hence it required more attention. After all such observations, he made some recommendations such as the courses must be remodeled to current educational practices. The schools selected for practical training must be well equipped enough. The teachers who will be training the students must be from the teaching profession.

For Engineering and Technology, there are a lot of professions divided into the following by the British.

1. Senior Administrators and Executives.

2. Engineer-Scientists, Design and Development Engineers.

3. Engineers required for production, operations, maintenance, and sale.

4. Technical Assistants and Designer Draftsmen.

5. Draftsmen, Foremen, and Craftsmen.

According to current educational standards, the above-mentioned categories are just some umbrella terms. We have more categories of engineers. During the 1940s there were a handful of engineering colleges and most of them were built by the British and their target was to create more civil engineers. Whereas engineering and technology have become such a field where a mere civil degree is not enough. The 21st century is synonymous with technology and without the contribution of Dr Radhakrishnan in the ideology of technology we would still be in the dark ages. An engineering college has the capacity to build skilled engineers along with proper citizens who actually would care for the nation. Technological universities not only gives us technicians but technical entrepreneur too. Some of the recommendations were that colleges should be provided for all the trades of engineering. All the trades are going to start with common fields from the 1st year and end with specialization in some fields. There should be institutions that would regulate the affiliation of these engineering and technological institutes

One of the pillars of our society is the Justice system and for the system to work properly, we need learned lawyers. Law was also not out of thought. India had just received independence from British rule and new laws focusing on the constitution of India were to be made for international as well as domestic relations. During British rule, there were no prominent law colleges in India and it was mostly to be learned either by going out of the country to the west or there was only a little part of the law that was there in the current curriculum. Dr. Radhakrishnan suggested that the Law colleges of India must be thoroughly reorganized. Faculties should be recruited in the same way as for other fields. To summarize his ideas on Law we can say that he considered it in the same way as any other subject or field.

The field of medicine was mostly in the hands of the British and hospitals and medical colleges were either controlled by the states or missionaries. There was an argumentative process for recruiting teachers in medical colleges and the then Medical Council

of India had suggested some basic qualifications to be a part of it. Along with the MBBS degree, there were other educational fields such as nursing and public health engineering. India being a deep-rooted civilization most of its earlier practices were Ayurvedic and Unani that were to be included in the mainstream medical practice. It was a difficult task because the healers practiced very old medicine that was sometimes unhygienic. They did not have any idea about sanitation or septic conditions. Upon going through a lot of research in this field Dr. Radhakrishnan suggested that a college can have a maximum of one hundred admissions, and public health engineering and nursing are to be given the same level of importance. The history of medicine from the Indian context must be taught to all first-year students.

It was a challenging time for India and even at that time new professions were coming up and something was to be done about it. Dr. Radhakrishnan understood the demand for professional discipline. The economy of the nation depended on these disciplines like Business Administration. Indian markets were mostly guided by the primitive community at that time where the shopkeepers had to keep an eye on the necessity of the people around them. But no one was there to look into the needs of all the people of India. India as a market was to sell and buy products and for that, it required proper business administration for the long run. From the time of Dr. Radhakrishnan if we take a look during the 1900s business was something that people did only for profit oneself but in the modern era almost after 40 years from that time, business was considered something that could propel a country toward greatness. The business was at that time being considered a way for job creation and that would eventually result in a better economy. "It draws upon all departments of knowledge, sponsors research on a prodigious scale, makes use of -staff experts in a variety of fields, and is itself an intellectual activity that now calls for talents of the highest order. The administrator must lend his voice to questions of public interest and public policy, and at such times he is in need of broad comprehension and qualities of statesmanship. Business education should be so organized as to prepare youth for the management of economic institutions whether those institutions be business firms, labour unions, government economic agencies or other types of operating organizations.[3]"

This type of education is to be called business education.

Public Administration was also one of such courses where a student would be studying how to manage the resources that are there and how are they going to be distributed but the problem was that India had been under British rule and they had a different set of methods for administration. If anyone had to study for public administration they had to go abroad and study. They would be appointed as district magistrates also known as collectors at that time upon their return.

Industrial Relations too fell in this category. This field mainly dealt with recruiting people into companies similar to human resource management.

Dr. Radhakrishnan suggested that these courses are to be given higher priority. The following are some of the courses that emerged:

1. Collective Bargaining, Mediation, and Arbitration.

2. Human Relations in Industry.

3. Industrial Education.

4. Industrial and Labour Legislation and Social Security.

5. Labour Market Economics and Analysis.

6. Labour Union History, Organization, and Operation.

7. Personnel Management.

8. Economic and Social Statistics (available as a minor):

9. Industrial and Labour Problems

Dr. Radhakrishnan being a Philosopher of Hinduism followed a path of spiritual discipline and experience. His philosophy was on the path of Neo-Vedanta. He reinterpreted the traditional Advaita Vedanta[4]. Western cultures were always ready to criticize Hinduism in any form possible mostly humiliating. For example, in Hinduism people fold their hands to greet each other. This form was criticized by a lot of western people. Modern society did not have an understanding of its own culture. He influenced a lot of people in understanding what Hinduism is and what it can give to them. He acted as a bridge between the Indian culture and the west.

The interpretation of *Advaita Vedanta* was to be done according to the current needs of society. In the 8th century CE Śaṅkara[5] interpreted *Maya* as strictly an illusion, whereas according to Dr. Radhakrishnan *Maya*[6] is something that is misinterpreted[7]. He described intuition as his own way with other forms of experience such as cognitive, psychic, aesthetic, ethical, and religious. He said that intuition was an integral understanding of oneself on how it coordinates all our senses and experiences. With experience, we learn so intuition provides us with learning experience as well. Whatever action we do in our regular life it is based on intuition and what we learn from the action is our experience on that matter. He also said that intuition is a unique form of experience and the following are its properties:

1. Self-certifying Character (*svatassiddha*)

2. Self-established (*svatasiddha*)

3. Self-evidencing (*svāsaṃvedya*)

4. Self-luminous (*svayam-prakās∃a*)

The following are the varieties of experiences according to Dr. Radhakrishnan:

Cognitive Experience

a. *Sense Experience* : Sense experience "helps us to know the outer characters of the external world. By means of it we acquire an acquaintance with the sensible qualities of the objects" (IVL 134)[8]

b. *Discursive Reasoning* : "Logical knowledge is obtained by the processes of analysis and synthesis. Unlike sense perception which Radhakrishnan claims to be closer to direct knowledge, logical knowledge "is indirect and symbolic in its character. It helps us to handle and control the object and its workings" (IVL 134)

c. *Intuitive Apprehension* : "The art of discovery is confused with the logic of proof and an artificial simplification of the deeper movements of thought results. We forget that we invent by intuition though we prove by logic" (IVL 177)

Psychic Experience

"The mind of man," Radhakrishnan explains, "has the three aspects of subconscious, the conscious, and the superconscious, and the 'abnormal' psychic phenomena, called by the different names of ecstasy, genius, inspiration, madness, are the workings of the superconscious mind" (IP1 28)[9]

Aesthetic Experience

"All art," Radhakrishnan declares, "is the expression of experience in some medium" (IVL 182). "The success of art is measured by the extent to which it is able to render experiences of one dimension into terms of another. (IVL 187). "creative contemplation which is a process of the travail of the spirit is an authentic "crystallization of a life process" (IVL 185). "poetical character is derived from the creative intuition (that is, integral intuition) which holds sound, suggestion, and sense in organic solution" (IVL 191).

a. *Art and Science* : "experience or the vision is the artist's counterpart to the scientific discovery of a principle or law" (IVL 184). "What the scientist does when he discovers a new law is to give a new order to observed facts. The artist is engaged in a similar task. He gives new meaning to our experience and organizes it in a different way due to his perception of subtler qualities in reality" (IVL 194). "Poetic truth is different from scientific truth since it reveals the real in its qualitative uniqueness and not in its quantitative universality" (IVL 193).

Ethical Experience

"If the new harmony glimpsed in the moments of insight is to be achieved, the old order of habits must be renounced" (IVL 114). Moral intuitions result in "a redemption of our loyalties and a remaking of our personalities" (IVL 115).

Religious Experience

"If experience is the soul of religion, expression is the body through which it fulfills its destiny. We have the spiritual facts and their interpretations by which they are communicated to others" (IVL 90). "It is the distinction between immediacy and thought. Intuitions abide, while interpretations change" (IVL 90).

Dr. Radhakrishnan followed the philosophy of hierarchical structure for Hinduism. He said that those who worship the absolute are of the highest ranks, those who worship the incarnations of Lord Vishnu, Rama, Krishna are the second, and then there are those who worship their ancestors and other deities. He believed in Religious pluralism.

According to Radhakrishnan, "[i]f philosophy of religion is to become scientific, it must become empirical and found itself on religious experience" (IVL 184). "The Hindu philosophy of religion starts from and returns to an experimental basis" (HVL 19)[10]. "Just as there can be no geometry without the perception of space, even so, there cannot be the philosophy of religion without the facts of religion" (IVL 84). "It is for philosophy of religion to find out whether the convictions of the religious seers fit in with the tested laws and principles of the universe" (IVL 85). "When the prophets reveal in symbols the truths they have discovered, we try to rediscover them for ourselves slowly and patiently" (IVL 202). Radhakrishnan spoke of the difference between religion and religion. According to him, religion is personal, one's own view of life, their own insight into the unknown. It is their own experience. In his book, Idealistic view of Life, he calls it spiritual life, the culmination of intellectual, moral, and aesthetic activity or a combination of them. (IVL p. 88-89). Different religions have explained the same thing in their own way by creating rituals, rites, ceremonies, and different other ways to maintain the boundary of their religion. When individuals go through these ideals they tend to form their own views and from their rises prejudices in our society. 'Religion is universal to the human race. Wherever justice and charity have the force of law and ordinance there is God's kingdom', and there is Religion. The truly religious never worry about other people's beliefs. Look at the great sayings of Jesus; 'other sheep I have which are not of this fold' (HVL p.37). While describing the ethical nature of Hinduism, Radhakrishnan explains the purushartas[11]. According to him, ancient rishis were not only spiritual masters but also psychologists, who analyzed that humans cannot get out of the four cravings and they will always try to satisfy the cravings.

1. *Kama* – Sexual Instincts
2. *Artha* – Wealth and Prosperity
3. *Dharma* – Social Harmony
4. *Moksa* – Union with the Unknown.

These desires are not distinct and independent, but always try to win the upper hand and win over the other. The greatness of the person consists in making cooperation of the four and bringing an overarching unity in life. For each one is a whole in oneself' (HVL p. 56).

Radhakrishnan also spoke about freedom and he said that freedom has different nature according to the way an individual thinks. He said that psychological freedom is when one thinks that they are free of any boundary and they can do whatever they want. This leads to a highly erroneous way of life because the person thinks they are free to do whatever they want to do and they do not follow the creed to maintain their own integrity. Then we have moral freedom where a person has to select between the alternatives that are available to them. The whole world has become morally free. They choose between nuclear or chemical warfare. Scientific experiments on animals raise the moral question of whether we are to experiment on living creatures. The moral choice here explores that it is better for them (animals) than us (humans). Human life is always considered the highest of all so moral freedom has only given moral conformity to others. Scientists throughout the world are trying to end hunger and poverty, but as we can see today in the 21st century we still are having such issues everywhere and the reason behind it is that they lack the morality to cooperate and capitalise everything for their own good. Hence, they are choosing themselves. The third type of freedom Dr. Radhakrishnan talks about is Spiritual freedom, freedom from anything this mortal world has to offer. To be a complete human being one needs inner peace. To attain it one requires to attain spiritual awakening. There have been so many spiritual leaders in our country with hundreds and millions of followers. If we go thorough the history of India in the last five hundred to six hundred years. Sri Chaitanya Mahaprabhu had started to preach Hare Krishna Mahamantra. He said this was the only way to gain actual spiritual attainment. Modern-day spiritual master A.C. Bhaktivedanta Swami Srila Prabhupad built the International Society of Krishna Consciousness, spreading the love towards the ultimate to gain spiritual attainment.

Women's education in India was taboo at some point and women in Indian society were only meant for household work. A lot of great reformers such as Raja Ram Mohan Roy, Ishwar Chandra Vidyasagar, and many more fought for true justice for women. Dr. Radhakrishnan wasn't far behind in changing the rules of society by creating structures for women's education. "If Government by the initial exclusion of the masses accentuated the segregation of the masses from the privileged few, by the initial restriction of

their (educational) efforts to the male population, they brought a line of division where it had never existed before, within the household12." According to the statistics issued by the Indian Ministry of Education for 1945-46, there were six and a half times as many boys and men in secondary schools and colleges as there were girls. It has been sometimes said that the accomplishments of women should be limited to painting, drawing and other household chores as their life skills and the rest of the so-called important staff were to be completed by the man of the house. Such an obsolete view has been removed and women have the same educational rights as those men. But the problem with the then country was that it had very little space for women in all forms of education. Indian universities at that time were mostly a man's world. Women always have the better able to maintain the aesthetics of life and they have also proven to be equally powerful in the field of education as well. The obsolete philosophy said that if women were educated then they would be neglecting their duties to their families, whereas the truth is that women with a proper education have a much better chance of maintaining the decorum of society. The courses suitable to women to be taught at the university level during that time were Home Economics Nursing Teaching Fine Arts etc.:

Home Economics

Through this course, a woman would learn the ways of maintaining a home by providing all the necessities. Well-educated woman in home economics can help to build a proper home where effective feeding and clothing of family members with proper hygiene can help a family grow. A well-ordered home with an educated mother can bring up a bright man in the world, where the child would learn how to behave in society and respect women rather than abuse them. This particular field brought many occupations along with this such as home management, food, and nutrition, Institution management, etc. The School of Home Economics of Michigan State College has a Core curriculum of courses required of all students in Home Economics, as follows: (1) On Encouragement of Continuous Intellectual Aspects of Family Life ; (4) Economic Aspects of Family life; (5) Family Health; Intellectual Growth in Members of the Family ; (2) Aesthetics in the Home (3) Social and Psychological Aspects of Family Life; (4) Economic Aspects of Family Life; (5) Family Health; and (6) Household Technology.

Nursing

In western countries, nursing is a very well-known and respected profession. Women in this field are more respected as even the wealthiest countries in the world do not have trained nurses. Sometimes they need to get their job done by practical nurses who have a much shorter training period so that they could be quickly deployed in the field. Our country has one of the best nursing courses in the world. Dr. Radhakrishnan suggested that there should proper expansion of such nursing courses so that nurses could be deployed to every part of the country every year. The need for good nurses never ends.

Teaching

There were a very handful of women teachers in our country but they were considered as natural teachers. With the independence of India and news laws being established today, we have a lot of women in this occupation.

Fine Arts

Women are naturally born singers and artists. They are able to easily understand music and other forms of art. They have much more aesthetic ability than their counterparts.

This can be said that there are some fields where only women are to be found and none of them are to be found, for example, if we take mining as a profession we rarely see any women in that profession. Similarly, we don't see many in courses like nursery school management. This division of jobs and genders will remain in some fields and there will also be some fields where both men and women are going to work hand in hand. Regarding the future of women's education, Dr. Radhakrishnan suggested that the employment of women is to be considered in all fields with equal pay. The field of medical education is costly and with the taboo that every woman has to face this field of the profession must be open to all women. India's prominent educators state, "The modern trend is for equality of opportunity for women in all spheres, and it cannot be arrested. There should be no distinctions of any kind of women from men, after the matriculation stage". One experienced woman educator wrote to the Commission "The modern educated Indian

woman is neither happy nor contented nor socially useful. She is a misfit in life. She is highly suppressed and needs opportunities for self-expression, the new education must provide this opportunity."

The recommendations that were given along with the previous ones are that there should not be any curtailing of opportunities and they should be guided by both qualified women and men. All the prevailing prejudices towards women should be absolutely removed and anyone still following the absurd ideas should be penalized.

Conclusion

All in all, we can see that the contribution of Dr. Radhakrishnan to Indian society is unapparelled to anyone. He is the best teacher that one can have regarding knowledge, philosophy, and modern intake of old techniques. In all his books he portrayed that India has the ability to grow to such a height that no other country in the world can reach. The ideas and recommendations provided by him in the first-ever educational policy of independent India. There have been many more educational policies after that but most of them were based on the ideals of Dr. Radhakrishnan. His philosophical point of view of life has altered the life of students in many ways. His thoughts about how one can atone for spiritual freedom have opened up a lot of young minds that were disturbed by the spirit of modern-day complexity. He was an actual Hindu who believed in the equality of all men and women in society. His words on women's education provided ample light on how people can move forward by educating women in society.

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UNIVERSITY NEWS

WISHES

ITS READERS

A HAPPY

TEACHERS' DAY

Teacher as a Learning Facilitator

N N Prahallada*

Entering into the 21st century does not mean a simple shift of calendar year. Currently, we are in Knowledge era heavily supported by non-stop Science and Technology influence. Teacher Education is an integral part of the entire education system is considered to be the hub of the entire education system. Teachers, who are given the privilege of stimulating the thought and moulding the character of children entrusted to their care are expected to dedicate themselves to their task with a sense of mission and vision.

The role of teachers is significant because the teacher moulds young minds and guides them. Teachers have been considered the cream of society, the reason is that they help children to become good citizens. Known to be the architects of the nation, they provide the mould in which the nation's character is cast.

Teachers are expected to be competent in their subjects and pace-setters of standards by developing meaningful human relationships. They are expected to have an aptitude for teaching and must be capable of understanding several faces of a child. Teachers can never truly teach unless they are continuously learning. According to Rabindranath Tagore, "A lamp can never light another lamp unless it continues to burn its own flame." A teacher, therefore, has a moral obligation towards his students.

It is difficult to be an ideal teacher, for the ideal can be approached and not reached. But what matters is the way he handles and shapes human innocents, a difficult but not insurmountable task. Our teachers are the custodians of our future as well as social engineers. Today, a great responsibility rests with teachers with regard to building the character and acumen of the children and youth of India.

Ethical and moral values, awareness of the significance of our heritage of thought and culture, our spirit of pluralism and oneness, the inculcation of scientific temper, patriotism and a sense of mission in the task of taking our great country forward – all these need to be nurtured in young minds by our teachers.

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Former Associate Professor in Education, Regional Institute of Education, NCERT, Mysore-570006

Routine teaching in a routine way is what is being done these days. It may be due to the conditions under which a teacher is made to work. Education should play its functional role. Improvement in education, whether quantitative or qualitative, can only be secured through the efforts of teachers who are the direct agents in the process of education. We want dynamic teachers, dynamic officers and a dynamic system to stimulate the static and obsolete system.

"Today's crises of civilization have generated furious thinking on the future of education." The need for revamping or restructuring the educational system has been felt. A lot of new thinking has been generated in the three areas: Teaching, Learning and Testing. The role of a teacher in Indian society has always transcended that of a mere facilitator of acquiring knowledge and skills by students. The teacher has traditionally played a seminal role in moulding society and its values. The country today looks to its teachers for closer involvement in the ongoing struggle against poverty, ignorance and social discord. It is through moulding the minds of the younger generation and inculcating high moral values that India can look forward to a brighter future.

The teacher is the real custodian of values which he has to transmit to the students. The responsibility of training youths depends on teachers and parents. Teachers and students should keep away from active politics. Teachers have to raise the tone of academic life. Educational institutions are temples of learning and they must be approached with reverence.

Readiness and willingness to learn are the two critical requirements for a student. Readiness refers to prerequisites that enable the student to learn whatever is being taught. Prerequisites can be physical, emotional, intellectual, or any combination of these. Willingness to learn is called motivation. Bruner identifies four conditions that foster motivation: the student sees a purpose for learning, accepts the purpose as worthwhile, believes that he can succeed, and knows that someone cares. This knowledge is important for teachers because it can build students' confidence to learn well.

In Teaching two essential requirements for Teachers are Competence and Commitment.

Competence manifests in performance, Commitment manifests in priorities, values, and attitudes. Teachers need to discover the exciting and developmental aspects of the subject matter. The relevance of the content needs to be felt by both teacher and student.

Effective teaching is no different from an Orchestration. Continuous attention to each of the instruments in an orchestra is important. Even if a single instrument goes out of tune it destroys the orchestra. So is the case with teaching. Technological gadgets like Over Head Projector(OHP), slide projector, PowerPoint Presentation (PPP), Use of Computers, Video Clipping, whiteboard with marker pens etc. need to be used to make Teaching –Learning process better.

Assessments are essential to the learning process. Students need to be assessed continuously and accurately to gauge their learning. For this teachers have to design valid and well-written tests. What are the uses and misuses of tests? Do higher test scores mean better schools? How does the intense pressure to raise test scores affect the quality of teaching and learning in the classroom? These are some of the questions often asked.

Continuous Comprehensive Evaluation (CCE) is the need of the hour. NCERT and other States in particular Tamil Nadu give a lot of importance to CCE in their schools. Teachers need to engage in Critical thinking, Critical reflection to improve their teaching. The existing behaviourist approach needs to be replaced by the Constructivist approach. Students should be given ample opportunities to think independently. Teachers should develop in students a questioning mind. Group thinking, group work, group discussion and project work should be encouraged in all schools and colleges. The grading system should replace the marking system.

All students are like Jewels and therefore every student needs to be encouraged. Remedial teaching, opportunity classes and compensatory education classes should be conducted. No Student should be labelled as dull, intelligent and useless. Each student has his or her own pace of learning. The entire world is progressing at a terrific speed in the field of education. Information, Communication Technology(ICT) has dominated the contemporary Classroom. The use of Computers in all schools is the need of the hour to make Teaching, Learning and Evaluation modern and more effective. The contemporary/new millennium teacher is a Learning Facilitator and a Diagnostician apart from being a Friend, Philosopher and Guide.

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From Theory to Practice of Teaching:
A Teacher—Learner Perspective

Abhishek Anand*

"I see and I forget, I hear, and I remember, I do, and I understand."

Confucius

Teaching is one of the instruments of education and is a special function to impart understanding and skill. Teaching is a process in which one individual teaches or instructs another individual. Teaching is considered the act of imparting instructions to the learners in the classroom situation. It is watching systematically. The main function of teaching is to make learning effective. The learning process would get completed as a result of teaching. So, teaching and learning are very closely related.

Teaching has been defined by various scholars and philosophers alike. The teacher-student interaction is bilateral in nature. The philosophy of teaching has been applauded by many educationists, social scientists, and philosophers. All over the world, since the emergence of civilizations, teaching has taken different connotations and meanings.

H C Morrison (1934), defined teaching as, "an intimate contact between a more mature personality and a less mature one which is designed to further the education of the latter". This implies that teaching needs mental activity and one has to play the role of receiver and another one the giver. According to Jackson, teaching is a face-to-face encounter between two or more persons one of whom (teacher) in end effect certain changes in the other participants (students). Edmund Amidon (1967), defined teaching as, "an interactive process, primarily involving classroom talk which takes place between the teacher and pupils and occurs during definable activities.

Ned Flanders (1955-60), defined teaching as, "interactive". He further described the interaction as, "the participation of both the teacher and student." In his Social Psychological Theory, an attempt was made to test the effect of social and emotional climate on students' attitudes and learning. This was done on the pretext that the quality and quantity of *teacher-student* interaction is a critical dimension of effective classroom sessions. J B Hough and James K Duncan defined teaching as an activity with four phases, a curriculum planning phase, an instructing phase, and an evaluating phase. N L Gage came out with the democratic point of view. According to him, teaching is an interpersonal influence aimed at changing the behavior potential of another person. Another educationist, Clerk defined, "Teaching refers to activities that are designed and performed to produce a change in student's behavior. John Brubacher (1939), defined the term teaching according to the *laissez-faire* model of behavior. According to him "teaching is an arrangement and manipulation of a situation in which there are gaps and obstructions which an individual will seek to overcome and from which he will learn in course of doing so."

However, another educationist, B.O. Smith (1963), defined teaching as, "a system of actions involving an agent, an end in view, and a situation including two sets of factors those over which the agent has no control (class size, size of the classroom, physical characteristics of pupils, etc.) and those that he can modify (ways of asking questions about instruction and ways of structuring information or ideas gleaned. Thomas F. Green, (1971), defined the construct as "Teaching is the task of teacher which is performed for the development of a child." Another educationist Yoakum and Simson, defined "Teaching is the means whereby the experienced members of the group guide the immature and infant members in their adjustment of life."

These definitions highlight many elements which are directly and indirectly involved in the teaching process. Any teaching process to be effective requires many inputs in terms of students, classroom structure, courses and syllabus, book material, print media, teachers' level of knowledge, and awareness about the subject taught. These variables are important facilitators of classroom sessions. Presently, the widespread use of the term pedagogy also brings in a new dimension to education and teaching. Although many methods were in use for the teachers to disseminate knowledge, today with the impetus

* *Assistant Professor, Institute of Business Management, GLA University, P.O. Chaumuhan, Mathura-281 406 (Uttar Pradesh). E-mail: dr.abhishekanand2020@gmail.com*

of information and communication technology, a key drastic change has been brought about in the teaching arena. It is pertinent to mention that in higher educational institutions, the widespread use of technology has led to an enhanced level of interaction between teacher and student. The objectives of the Research Paper are:

a) to decipher various philosophies and psychology of teaching.

b) to understand various teaching methodologies applied by faculties.

Nature of Teaching Activity

The effectiveness of teaching lies in the ability of the teacher to transmit the knowledge and expertise scientifically to an audience of diverse backgrounds in the classroom. Teaching is an art and to acquire this art, the teacher needs two things viz. the complete knowledge of the subject matter and the scientific knowledge of the teaching style for disseminating the knowledge to the pupils. Before undertaking the class, the teacher or instructor needs to have the following philosophies in his/her mind for increased productivity among the audience in the classroom.

Simple to Complex

The teacher should first understand the intellectual level of students by presenting simple and baser information mostly known to the student. For example, to teach mathematics, the teacher should first recollect the concept of Natural numbers, composite numbers, and fractional numbers which are basics of mathematics. Later on, once the students are well aware of these, the teacher can teach them various theorems, formulas, and geometrical propositions which are quite complex in nature. The same rule has to be applied while teaching Physics, chemistry, biology, and even social sciences.

Known to Unknown

The process of gaining knowledge is complex and also time taking. To generate interest in students in new knowledge, there have to be some linkages with previous knowledge. Hence it is necessary that before teaching one should activate previous knowledge and present new knowledge based on the activated previous knowledge base. For example, while teaching social sciences at intermediate and graduation levels, students should be aware of different

social ideologies like Socialism, Communism, Autocracy, Anarchy, Capitalism, etc. Then only the teacher should move forward to analyze the historical facts of the cold war, the French Revolution, and also different approaches towards historical interpretation. In short, every teacher should move forward after establishing a relationship between the known and unknown. In other words, previous knowledge should form the basis of new knowledge.

Seen to Unseen

Students learn at the perceptional level. It is called learning by direct first-hand experiences that they perceive right in front of them. The immediate presentation is easy to grasp because they see it in totality. Perception is simpler than imagination. Hence knowledge based on the maxim of seen to unseen is simpler and easy to grasp. The unseen must be based on seeing. This can be practiced by way of presenting case studies relating to actual happenings in real life. To teach Crisis Management a live example of a road accident can be given to protect the life of the victim. These should include the use of first aid boxes, and medications to be done on the spot. Similar other live simulations can be organized for Disaster Management, Natural Calamities, and also pandemics.

Concrete to Abstract

Closely related to seen to unseen is the maxim which lays down emphasis on basic knowledge of concrete foundation. Concreteness should precede Abstractness. The fundamentals of audio-visual education are also based on this maxim, so much so, that even the most abstract of ideas are given some concrete presentation to make them easily intelligible to the learner. Concrete knowledge of Management Education can help the practitioner over the period to develop the Mission and Vision of the Organization. In this aspect of forecasting the market scenario, the objective and existential definition of an organization can come only when the concrete foundation of all management principles is given and understood.

Particular to General

This refers to the Induction and Deduction method of reasoning for academic inquiry. In induction, we arrive at a universal/general premise based on bits of knowledge derived from individual experiences, whereas in deduction we move from general to particular in an analytical manner. Hence

generalization and principle should be given later and be based on the number of particular premises. It makes a lesson easier for students to understand phenomena. Hence specific examples should be presented before the pupil first, and then general Laws/principles/generalizations may be derived from these specific/particular experiences.

Indefinite to Definite

It is a psychological fact that the pupils' intellectual development proceeds from indefinite to definite. As the pupil grows, his/her intellectual and value element develops. Through these developments, he/she establishes connectivity with objects and happenings in surroundings while at the same time living in the contact with his parents, brothers, sisters, other family members, and social environment. Based on this gained knowledge he/she gradually frames personal concepts and assumptions regarding the external world. These concepts and assumptions need to be tested in life. The teacher must develop awareness about sensing and experiencing every phenomenon before it can be learned permanently. The teacher needs to develop logic and rationality in the mind of growing students through "Rational Emotive Behavior" to demarcate judiciously between right and wrong, whims and logic, and also between the permanent and transitional nature of activities.

Psychological to Logical Dimensions

Knowledge should take the course from psychological to logical. Psychological arrangements refer to the selection and arrangement of contents by pupil's age understanding level, psychological age, maturity level, and comprehension level, whereas Logical dimensions refer to the division of a lesson into mutually related subunits that flow from each other logically and sequentially. Psychological arrangements are related to the students whereas logical arrangement refers to the content. In this relationship, the student takes precedence; hence, the psychological arrangement is primarily important in the lower classes. A healthy psychological disposition in childhood develops the cognition among the student to handle complex subjects at a later stage of education. So, the fitment between the two is required at every stage from kindergarten to primary and secondary stages.

Analysis to Synthesis

Initially, the knowledge of students is vague, uncertain, and unorganized. To make his knowledge clear, definite, and well organized, a maxim named "From analysis to synthesis" is used. Analysis means to divide a problem into such living components which on assembling may solve the problem. In other words, in analysis, the problem is separated into its various elements and then studied. Synthesis presents a holistic knowledge view and therefore rightly comes after analysis. Even in Bloom's taxonomy of cognitive operation, analysis precedes synthesis. Synthesis is a more refined, superior, and sophisticated cognitive operation. However, for clear definite, and well–organized knowledge of various subjects, the analytic-synthetic method would be used in classroom teaching.

## Teaching and Learning Theories

Behaviourism

The single propounder of this school was B.F. Skinner. In his book 'About Behaviourism' an attempt has been made by the author to explain this phenomenon. It assumes a learner is essentially passive and will be shaped through positive/negative reinforcement. Learning is defined as a change in behavior. Skinner (1974), believed that behavior is a function of its consequences. The learner will repeat the desired behavior if positive reinforcement is given. The behavior should not be repeated if negative reinforcement is given. That means giving immediate feedback whether positive or negative, should enable learners to behave in a certain way. Positive reinforcement can include verbal feedback.

Cognitivism

Jean Piaget was one of the main contributors to this school of thought. Piaget identified stages of cognition that all children pass through universally based on their age and stage of mental development. The predictable stages of cognition that Piaget identified were sensorimotor, pre-operational, concrete operational, and formal operational. Piaget stated, "Teaching means creating situations where structures can be discovered." Real learning depends on our ability to access information from our long-term memory when we need it. This refers to what happens in the minds of the student such as thought processes, problem-solving skills, perception, and observation. New knowledge is built upon prior knowledge and learners need active participation to learn. Changes in behavior are observed but only as

an indication of what is taking place in the learner's mind. Cognitive uses the metaphor of the mind as a computer- information comes in, is processed and learning takes place. Cognitivism, also known as cognitive learning theory, helps in developing better programs for learners because it uses research that focuses on the brain and mental processes for acquiring and using new information (Fig 1).

Fig 1: Roadmap for Cognitivism
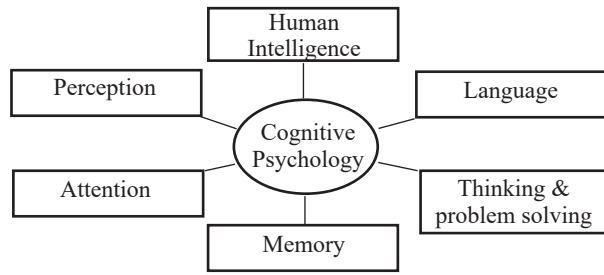
Constructivism

It is about learning as an active, contextualized process of constructing knowledge rather than acquiring it. The learner brings past experiences and cultural factors to a current situation and each person has a different interpretation and construction of knowledge processes. Jean Piaget is referred to as the father of constructivism. Piaget's (1936) theory of cognitive development gave sufficient details as to how children learn. According to Piaget, children learn by constructing a design in their minds of the environment they find themselves *(https://www. simplypsychology.org/piaget.html)* (Mcleod, 2018).

Vygotsky, another propounder of this theory believed that for cognitive development to take place, interaction within the society is a must. He admitted that a child's learning takes place in a social environment as the child always interacts with people in social circles. The relationship child has with a person more knowledgeable than him leads to the acquisition of language which is the basis for thought. He asserted about three major dimensions: Social Interaction, More Knowledgeable Others (MKO), and Zone of Proximal Development (Vygotsky, 1978).

Social Interaction plays important role in cognitive development. Social learning precedes development and stated that every function in a child's cultural development appears twice. First on a social level and later on an individual level. More

Knowledgeable Others refers to anyone who has a better understanding or a higher ability level than the learner, concerning a task, process, or concept. Zone of Proximal Development refers to a distance between a learner's ability to perform a task under adult guidance with peer collaboration and their ability to solve the problem independently. Learning occurs in three zones viz. what the learners can do, what the learners can do with others' help, and what the learner can't do yet but will attempt to do. The two types of constructivism are cognitive and social constructivism.

Experiential Learning

This refers to learners experiencing things for themselves and learning them. Kolb (1984), proposed a four scales model as an experiential learning cycle. It is a way by which people can understand their experiences and hence modify behaviors. It is based on the idea that the more often a learner reflects on a task, the more often they have the opportunity to modify and refine their efforts. The process of learning can begin at any stage and is continuous i.e. there is no limit to the number of cycles that can be made in a learning situation. This theory suggests that without reflection, people would continue to repeat their mistakes.

Humanism

The eminent humanistic psychologist who propounded this theory were Carl Rogers and Abraham Maslow. In his book titled 'Freedom to Learn', he emphasized the need to have a person-centered teaching approach with an element of empathy, emotions, caring about students, and showering affection and respect on them in the learning process. It is an approach that believes learning is seen as a personal act to fulfill potential. Humanists believe that it is necessary to study a person as a whole, as they grow and develop over their lifetime. Rogers (1983) and others have developed the theory of facilitative learning based on the belief that people have a natural eagerness to learn. Humanistic educators believe that both feelings and knowledge are important to the learning process. Unlike traditional educators, humanistic teachers do not separate the cognitive and affective domains. This aspect also relates to the curriculum in the sense that lessons and activities provide focus on various aspects of the student and not just rote memorization through note taking and lecturing. Humanistic

educators believe that grades are irrelevant and that only self-evaluation is meaningful. Grading encourages students to work for a grade and not for intrinsic satisfaction. The tutor or lecturer tends to be more supportive than critical, more understanding than judgmental, and more genuine than playing a role. Their job is to foster an engaging environment for the students and ask inquiry-based questions that promote meaningful learning.

Teaching Methodologies

Teaching Methodology refers to various methods adopted by teachers in the classroom for sharing knowledge of the subjects among the students. Since the learners are from different backgrounds and age groups, hence the prime task of the instructor is to impart subject knowledge through various methods. This methodology can change depending upon the content and nature of the subject. For instance, arts, humanities, and social science subjects may be taught with lecture method, commerce and management subjects can be delivered through a practical and pragmatic approach whereas engineering and computer science subjects may be discussed through effective use of Information and Communication Technology (ICT).

Approaches toward Teaching Methodologies

A teaching method comprises methods used by teachers to enable student learning. These methods are determined partly by the subject matter to be taught and partly by the nature of the learner. For a particular teaching method to be appropriate and efficient, it has to be about the characteristics of the learner and the type of learning it is supposed to bring out. In today's world, the trend is of enhancing creativity and reasoning, and critical thinking among students. Basic approaches in teaching methodologies are as follows:

a) Teacher-centered Approach.
b) Learner-centered Approach.
c) Content-focused Approach.
d) Interactive-participative Approach.

In a teacher-centered approach to learning, teachers are the main figure and Students are viewed as "empty vessels" whose primary role is to passively receive information and knowledge (via lectures and direct instruction) with an end goal of testing and assessment. Examples of such methods are the expository or lecture methods. This requires little or less involvement of learners and precisely due to this aspect, it is referred to as closed-ended.

In a learner-centered approach, both teachers and students play an equally active role in the learning process. The teacher plays the role of teacher and learner at the same time. The teacher's primary role is as a resource person to facilitate student learning and overall comprehension of the material. Student learning is measured through both formal and informal forms of assessment, including group projects, examination and viva, and class participation. Examples of this approach are group discussion, inquiry-based approach, and Hill's model of learning through discussion.

In Content Centered Approach, the teacher and learner both have to fit into the content that is being taught. That means the information and skill to be taught are considered to be sacrosanct or very important. Emphasis on careful analysis of the content is very high. The teacher and learner cannot make any changes in the content of the subject or course as per their comfort. An example of the method that subordinates the interest of the teacher and learners to the content is the programmed learning approach.

In the Interactive- Participatory approach, all the three stakeholders the teacher, the learner, and the content are treated equally. The approach is totally driven by the situational analysis which is being faced in the classroom sessions. They require a participatory understanding of various domains and factors.

Some of the teaching methodologies implemented by teachers are being discussed here.

Lecture

Lecture is an oral presentation intended to present information or teach people about a particular subject, for example by a university or college teacher. 'The Word Lecture' from a Latin word called lectus, past participle of the verb legere which means "to read". Lectures are used to convey critical information, history, background, theories, and equations. A politician's speech, a minister's sermon, or even a businessman's sales presentation may be similar to a lecture. Usually, the lecturer will stand at the front of the room and recite information relevant to the lecture's content. This old method has been very effective as it can be addressed to many students sitting in a large classroom. The student

plays a passive role in this method as they have to listen and understand the content delivered by the lecturer. Since at once the teacher can address the students, it is most commonly used in schools and colleges. There are many advantages of this method. It creates new ideas and can be administered in a large classroom. The students learn through listening and can freely ask questions if they need any clarification. The teacher discusses the whole topic in class in easy language so that students can easily understand the topic. Since the teacher has experience and mastery of the subject and can answer all the questions, it generates enormous interest among the students.

Group Discussion

According to Meriam Webster a group discussion involves several people who are connected by some shared activity, interest, or quality. A group discussion is a formal method wherein free exchange of ideas between students and teachers takes place. Both the instructor and the learner come prepared beforehand and join the class. This method of teaching has lots of advantages like more participation of students as in students listen to the other's opinion and expresses their opinion as well. The discussion also takes place on the points which have been missed. Students also learn on their own and find out the key points. Mostly after discussion, when students give their presentations, the teacher corrects their mistakes. Also, the students are free to make their own notes and learning are more effective as they don't have to rely on rote learning. This teaching methodology fosters the development of creativity and thinking capacity among the students.

Demonstration

In the demonstration, the students are set up to potentially conceptualize class material. It is often used when students have a hard time connecting theories to actual practice or when students are unable to understand the application of theories. Teachers demonstrate specific learning concepts within the classroom. Through this method, teachers also make an effort to improve their own teaching strategies; this in another way helps them to get a new perspective of students and also the course /subjects taught by them. Another way, this also facilitates personal responsibility among the students to learn and internalize.

Role Plays

Role Plays occur when participants come out voluntarily to adopt differentiated roles in a simulation. These may be highly prescribed including biographical details, personality, attitude, and beliefs. These techniques have demonstrated their applicability to a large number of learners, subjects, and levels. To gain maximum benefit from this method, the incidents selected for enactment should be as realistic as the situation allows. To implement role play, the teacher should select role incumbents and brief them about the roles in general. During the role-play the teacher must keep quiet, listen and take notes, avoid cutting the role-play short and also give time warnings. After the role-play, the teacher must thank the participants, ask for feedback from the lead participants, take comments from observers, and ask other participants to comment.

Fishbowl Discussion

A fishbowl conversation is a form of dialog that can be used when discussing topics within large groups. Fishbowl conversations are sometimes also used in participatory events such as conferences. The advantage of the fishbowl is that it allows the entire group to participate in a conversation. Several people can join the discussion. An advantage of a fishbowl conversation is that it is suitable for large groups. It also lessens distinctions between the speakers and the audience. This has made fishbowls popular in participatory group meetings and conferences.

Online Learning

Teaching online was less in practice before COVID-19, pandemic, but teachers have loved to prefer to work online during lockdown. Online tutors often enjoy the freedom of working from home, choosing their working hours, and being their own boss. Teaching online is a process of educating others using the internet, whether that is through individual or group video calls, webinars, or messaging platforms. It is a combination of things to make students involved. Digital resources need to be created and used for presentations, lesson plans, worksheets, and video or audio lectures.

Online learning is accessible to many people. Of course, technology can be a barrier to education too, but as the years go by, this barrier is breaking down.

Experiential Learning

Learning is a product of experience. While everyone deserves to have an access to education, it

is pertinent to learn in a way that suits and respects our individual needs and differences. Experiential Learning is a theory that provides an alternative to more traditional learning models which are focused on rote learning and passing examination. It is the idea that experiences are generated through our ongoing interactions and engagement with the world around us, and learning is an inevitable product of experiences. This theory of learning is different from cognitive and behavioral learning theories as it takes a more holistic approach. It considers the role that all of our experience plays in our learning, including our emotions, cognitions, and environmental factors. Experiential Learning theory advocates for deep learning rather than surface learning. Surface learning normally involves studying for an exam, which might be achieved through memorizing information in a textbook and information may not be retained well. Deep learning, however, involves learning about something using several different methods from reading and experimenting to role-playing and discussing. These methods help students to truly understand what they are learning by having them apply and discuss theories rather than just memorize them. Learning from experience involves a process of resolving conflict between contradictory ideas. This demonstrates that experiential learning may cause students to change old habits, question old ideas and explore new ways of thinking. David Kolb, an American educational theorist has spoken in detail about the experiential learning cycle (Fig 2) (Concrete experience, reflective observation, abstract conceptualization, active experimentation).

Experiential learning has lots of advantages. It facilitates more room for creativity, allows one

Fig 2: David Kolb's Experiential Learning Cycle
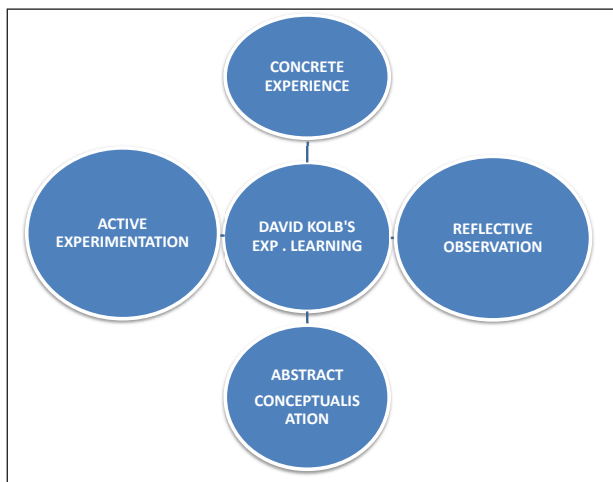
to learn from mistakes, encourages reflection and introspection, helps to grasp difficult and abstract concepts, prepares one for future experiences and adult life, and improves attitude toward learning. It can be effective for several subjects, especially during science experiments, sports coaching, and group projects.

Some simple ways to encourage experiential learning in the classroom include encouraging students to assess themselves regularly and reflect on what they have learned. The teacher may want to record his/her teaching or keep feedback journals to reflect on previous lessons.

Differentiation

Differentiated learning is a teaching method that tailors instructions to students depending on their individual needs. This method could be a great option for teaching mixed–ability classes and want everyone to get the most out of each lesson. Some teachers may choose to teach entirely different content depending upon student ability. Teachers should create an inclusive classroom where students of all abilities are welcome, regardless of gender, race, sexuality, or disability. Differentiated learning should never be used to make some students feel inferior to others. A better way to approach differentiation is to teach in a variety of ways including books, films, images, and verbal presentations. This allows different students to get involved and understand the lesson content.

Blended Learning

Essentially blended learning is a combination of traditional face–to–face learning and technology-based learning. Using a blended learning model can be great for both students and teachers because it forms a middle ground between traditional and technology-based methods. It uses enough technology to keep students focused and interested, but it also provides opportunities for students to talk in person to teachers and fellow classmates, which can be invaluable. Some great examples of blended learning include:

Station Rotation: students rotate around different "stations" during lessons, with these being a mixture of online and hands-on activities.

Flex-learning: students are in class with teachers, but they primarily use online learning methods. Teachers are there to support and facilitate learning whenever needed.

Virtual Reality: Students are in a physical classroom but can use virtual reality (VR) to immerse themselves in an environment. This could be a historical landmark, art gallery, or natural wonder, to capture their attention and further their learning.

*Enriched Virtual Learning***:** Activities and coursework are completed online using digital technologies, but students can arrange a face-to-face session when required.

Game-based Learning

Game-based learning or Gamification is a teaching method to make lessons more fun, engaging and interactive. It is a great way to engage students, particularly those in primary and secondary education. The definition of gamification is a strategy that implements game-like elements into non-gaming activities to enhance motivation. Since children are very interested in games, from video games and mobile applications to simple playgrounds and board games, this can be a great place to start. Some of the ways to incorporate game-based learning into the lessons are Point systems, levels and progress bars, challenges and competitions, unique rewards, and learning badges.

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Indian Teacher Education: Where and Whither To

Chhaya Goel* and Devraj Goel**

The School Ladder proposed in the National Education Policy-2020 is 5+3+3+4, wherein, a child of three years would have the first transition from home to school in the first year of *Aanganwadi* The initial tial 5 years of schooling would comprise 3 years of *Aanganwadi* and then Standards 1 & 2. These 5 years together constitute the Foundation stage. Next three years constitute the preparatory stage, that is, Standards 3, 4, and 5. The next three years 6,7, and 8 constitute the middle stage, whereas, the final 9, 10, 11, and 12 years constitute the secondary stage. But, the emerging questions are:

- Who will construct this ladder?

- Which are the implications of having *Aanganwadi* with the main school stream?

- How the children of labourers who go with their parents to the workplace will come to the schools?

- How the roadside children will come to the schools?

- How the children's acrobats will come to the schools?

- How the children of farmers will come to the schools?

- How the children of barbers will come to the schools?

- How the children of the cobblers will come to the schools?

- How the children of the *Gadia Lohars* will come to the schools?

- Of the two, that is, Gross Enrollment Ratio, and Entrepreneurships which will select?

- Can we realize GER and Entrepreneurships together?

- Who will prepare the *Aanganwadi* Teachers?

There is a Need for Teacher Education Rigor for the Foundation Stage!

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*Former Professor of Education, Maharaja Sayajirao University of Baroda, Pratapgunj, Vadodara- 390002 (Gujarat)
**Professor Emeritus, Res: 204- Avasar Flats, 2- Pratap Ganj Vadodara- 390002 (Gujarat). Email: goel_d_r34@rediffmail.com

Here we recall the efforts of Sucheta Jasrai, Gijubhai Badhekha, Froebel, and Madam Montessori.

It is a very challenging task to realize the first transition of a child from home to school and then to be a Gardener of Kinder Garten and transcreate home at school. The initial three years with these little angels are most challenging. From birth to two years is the sensorimotor stage, from 2 to 4 years is the pre-operational stage, from 4 to 7 concrete operational, whereas, from 7 to 11 years is the formal operational stage. The initial eleven steps of the School Ladder are most challenging, wherein, a learner has to move from no thinking through transduction, concrete thinking, and finally abstract thinking. There is a move from the scribbling stage, through pre-schematic stage schematic stage to the pseudo-naturalistic stage. The question is how to take care of the formation and foundation stage?

D. El. Ed. and B. El. Ed.

The NCTE is expected to formulate the norms for Diploma in Elementary Education and Bachelor of Elementary Education.

M.A. (Education) and M.Ed. (Master of Education)

M.A. (Education) is a degree in pure education, whereas, M.Ed. is a degree in Professional Education. So, M.A. (Education) be considered for teaching pure education at B.A. (Education) level or M.A. (Education) levels, whereas, M.Ed. is a Professional degree in Education. M.Ed. degree holders are expected to deal in Professional Programs. Prof. Uday Shanker (KUK) completed his M.A. (Education) from London School of Education, whereas, Prof. M. Verma completed his B.Ed. from Edinburg and M.Ed. from the University of Gorakhpur. Both these experts contributed a lot to the formulation and implementation of pure education and professional Teacher Education in India.

Teacher Education- Standalone or Integrated

Teacher Education- Standalone & Integrated, both, should go on. There should be no move to switch over from the standalone to integrated. In fact, Teacher Education begins with the first transition

of a child from home to *Aanganwadi*. The different children have many various learning styles, whereas, the teachers have many varied teaching styles. Some learners are accommodators, some assimilators, some reflectors, whereas, critiques. There are rare teachers who are in a position to realize personalized teaching in a class setting. In this age of mass communication, be it through e-PMVIDYA, SWAYAM, or other MOOCs it is really a challenging task to establish the attributes of e-contents. There is no substantive research base and logical base to switch over from standalone Teacher Education to integrated Teacher Education, that is, Integrated Teacher Education Programme (ITEP).

Validity of Move of Shifting Teacher Education to Multidisciplinary Universities and Institutes of Higher Education

There is a move to offer the 4-year ITEP by the multidisciplinary universities and institutes of higher education. But, Teacher Education on its own is interdisciplinary and multidisciplinary.

Education and Teacher Education have their own standalone identities. Whether the Higher Education Teachers from various disciplines who usually have orientation from HRDCs will be compatible for Teacher Education. Professional Development of Teachers and Mentor-Mentee relationship has already been rooted in the culture of the orient. These have to be revived exhaustively.

Degeneration of Teacher Education

There has been evident degeneration of Indian Teacher Education, more so, during the previous one and a half decades. The first blow to Teacher Education was when the then MHRD tried to supersede the NCTE in 2011. The second blow was when the Journals being published by the NCTE, namely, Teacher Support, Anveshika, and the Indian Journal of Teacher Education, though substantive, were abruptly stopped by the NCTE in 2015. The third blow to Teacher Education was when the Justice Verma Commission found that there are below standard 10,000 Teacher Education Institutions in India who are selling degrees. The nth blow on Teacher Education was when the Teacher Education was in quest of identity. The NCTE is chaired by the Service Cadre Functionaries, the bureaucrats, a large majority of whom have little understanding of the structure and functioning of the NCTE.

Public and Private Dichotomy in Teacher Education

At present, a large majority of the Teacher Education Institutions (>90%) are being run by the private sector. But mostly the private sector has an evident profit motive rather than a service motive, whereas, the public sector has evident indifference towards Teacher Education. It does not require any illustration.

Teacher Education Policy in India

There is no Teacher Education Policy in India. We have been playing with Teacher Education arbitrarily. One year standalone B.Ed., Two years B.Ed., Four-year B.A. B. Ed,, B.Sc. B. Ed, There is rare manpower planning for Teacher Education, State-wise, Program-wise, Level-wise. The number of Teacher Education Institutions has overgrown Enrolment. This is high time that the Teacher Education Policy is in place.

Teacher Education Curricula and Modes of Transaction

The Teacher Education Curricula and modes of transaction ought to be worked out carefully. Face to Face Mode, e-mode, and blended mode have to be decided amicably. The Justice Verma Commission has been of the view that the first degree in Teacher Education has to be through F2F mode. The philosophical and historical as well as Futurological foundations of Teacher Education need to be strengthened. Teacher Education should include and develop many innovative courses.

Teachers Eligibility Test

We should do away with (TET), Thematic Apperception Test (TAT), National Eligibility Test (NET), and State Eligibility Test (SLET) by duly focusing on all the systemic parameters- input, process, and output. This in fact is undermining & disowning the degrees earned.

ICT Competency of Teacher Educators and Teachers

All teachers and teacher educators should be competent in ICT with respect to the entire Education System. The characteristics of the e-software, MOOCs, VR, AR, and MR need to be fully established. All Teacher Educators and Teachers ought to be info-savvy and techno-savvy. All of them should be experts on content, pedagogy, and technology. There ought to

be proper spinning and weaving of content, pedagogy, and technology.

Teacher-driven Pedagogy to Learner-driven Pedagogy

There should be a substantive and sizable shift from Teacher Driven Pedagogy to Learner Driven Pedagogy. There is a need of re-engineering Teacher Education for learner progression in the context of Industrial Revolution 4.0 and beyond. There is a need of realizing fully interconnected computer networks; a network of persons, a network of operations, and a network of things resulting in complete automation.

SANATAN Teacher Education

There is a need of realizing SANATAN Teacher Education which is *Chir Puratan* and *Nit Nootan*. We need to revive the culture of the Ancient Indian Universities, at the same time, we ought to be in tune with the innovations and advancements. We should be in a position to respect our affective attributes, such as truthfulness, compassion, and forbearance, at the same time, we should be in a position to be in tune with every disruptive technology.

Innovative Approaches

Innovative approaches, such as follows be employed in Teacher Education:

a. Personalized Teacher Education
b. Wholistic Teacher Education
c. Inter-disciplinary Teacher Education
d. Constructivist & Connectionist Approaches
e. Participatory Approach to Problem Solving

Recognition of Teacher Education Institutions

Foolproof mechanisms are evolved for recognition of the Teacher Education Institutions. The Visiting Teams for recognition of the teacher education institutions ought to be decided very carefully.

Valid Assessment and Accreditation of Teacher Education Institutions

Criteria & mechanisms are evolved for valid assessment & accreditation of the Teacher Education Institutions. Innovative programs evolved and implemented by the Teacher Education Institutions should be given due weightage. There is an immediate need to revise the assessment and accreditation criteria by the NAAC.

e-Modular Approaches at All Levels

Teacher Education should be supplemented with the e-Modular Approaches at all levels.

Manpower Planning in Teacher Education

There is an immediate need for Scientific Manpower Planning in Teacher Education.

Characteristics of e-Resources

Progressively there is a craze for OERs, MOOC, Augmented Reality & Virtual Reality. The characteristics of all these ought to be fully established and utility ensured.

Revival of the ethos of NALANDA and Escola Normal

There is a need to revive the ancient Indian Teacher Education, such as that of Nalanda. Also, there is an immediate need to revive the culture of Teacher Education at Escola Normal Goa.

Revival of the Publications of the NCTE

The NCTE should revive the publication of its journals without further loss**.**

Inclusive Education

There ought to be added focus on Inclusive Teacher Education at the operational level.

Comprehensive Lesson Designs

Every lesson design for Teacher Education should delineate objectives with respect to all the domains (Cognitive, Affective and Psychomotor).

Taxonomy of Educational Skills

The taxonomy of Educational Skills needs to be integrated into Teacher Education.

Taxonomy of Educational Skills has been presented under the following 14 Domains:

1. Self Development Skills
2. Social Skills
3. Life Skills
4. Critical Thinking & Training Thinking Skills
5. Research Skills
6. Constructivist & Connectionist Skills
7. Systems Thinking Skills
8. Information Age Skills

9. Leadership, Administration & Management Skill
10. Spiritual Development Skills
11. Yoga Skills
12. Wholistic Development Skills
13. Inclusive Education Skills
14. Universal Becoming Skills

1. *Self Development Skills*

    Category-I:

    a. Monitoring one's own learning needs.
    b. Locating appropriate resources.
    c. Transferring learning from one domain to another.

2. *Social Skills*

    Category-II: Interpersonal and Collaborative Skills

    a. Demonstrating Networking & Leadership
    b. Adapting to Varied Roles & Responsibilities
    c. Working Productively with others
    d. Exercising Empathy
    e. Respecting Diverse Perspectives

    Category -III: Communication Skill

    a. Sender Analysis
    b. Message Analysis
    c. Receiver Analysis
    d. Medium Analysis
    e. Communication Analysis

    Category-IV: Social Responsibility

    a. Acting Responsibly
    b. Demonstrating Ethical Behavior in
        ➢ Personal life
        ➢ Workplace
        ➢ Community

    Category- V: Human Relation Skills

    a. Decency
    b. Decorum
    c. Discipline
    d. Empathy
    e. Sharing

f. Fellow-Feeling
g. Politeness
h. Peace and Harmony
i. Healthy Competition

Category VI: Emotional Skills

a. Self Awareness
b. Self Management
c. Social Sensitivity
d. Social Management

Category VII: Adjustment Skills

a. Skill of Home Adjustment
b. Skill of School Adjustment
c. Skill of Social Adjustment
d. Skill of Emotional Adjustment
e. Skill of Health Adjustment
f. Skill of Symbiosis

Category- VIII: Human Development Climate

a. Trust
b. Risk Taking
c. Openness
d. Reward
e. Responsibility
f. Support
g. Feedback
h. Team Spirit
i. Collaboration

Category IX: Citizenship Skills

a. Sovereign
b. Social Sensitivity
c. Learning about Community
d. Secularity
e. Democratic
f. Public & Republic
g. Leadership
h. Management
i. Cooperation & Collaboration
j. Participation Skill

Category- X: Accountability and Adaptability

a. Exercising personal responsibility in personal, workplace & community contexts;
b. Setting & meeting high standards.

3. *Life Skills Category-XI: Life Skills*
    a. Self Awareness
    b. Empathy
    c. Interpersonal Relationship
    d. Effective Communication
    e. Critical Thinking
    f. Creative Thinking
    g. Decision Making
    h. Problem Solving
    i. Coping up with emotions
    j. Coping up with Stress

4. *Critical Thinking and Training Thinking Category- XII: Critical Thinking Skill*
    a. Analyzing
    b. Reflecting
    c. Querying Evidence
    d. Conjecturing Alternatives
    e. Drawing Conclusion
    f. Stating Results
    g. Justifying Procedures
    h. Presenting Arguments
    i. Self Regulation

    Category XIII: Training Thinking
    a. Depressive to Booming
    b. Non-Pathological to Pathological
    c. Invalid to Valid
    d. Polar to Null
    e. Ego-centric to Socio-centric
    f. Obsessive to Final
    g. Partistic to Wholistic
    h. Non-sensible to Sensible
    i. Traditional to Modern
    j. Pessimistic to Optimistic
    k. Crooked to Straight
    l. Rigid to Flexible
    m. Unsocial to Social
    n. Dependent to Autonomous
    o. Narrow to Broad
    p. Practical and Theoretical
    q. Non-Technical to Technical
    r. Non-Logical to Logical
    s. Non-Imaginative to Imaginative

5. *Research Skills Category-XIV: Research Skills*
    a. Skill of identifying the problem
    b. Skill of formulating Problem
        ▪ Developing Conceptual Framework
        ▪ Skill of Reviewing & implication
        ▪ Skill of Research Questioning
        ▪ Developing Rationale
        ▪ Constructing Statement
        ▪ Enunciating Objectives
        ▪ Formulating Hypotheses
        ▪ Operationlization/Explanation of Terms
        ▪ Deciding Research Type
        ▪ Research Designing
        ▪ Population & Sampling Techniques
        ▪ Specifying Delimitation
        ▪ Constructing/Selecting Tools & Techniques
        ▪ Laying down Data Collection Procedure
        ▪ Working out/ Deciding Data Analysis Techniques
        ▪ Interpreting Analyzed data
        ▪ Formulating Findings
        ▪ Discussion Mechanism
        ▪ Converging into Theses
    c. Building Theory

6. *Constructivist and Connectionist Skills Category-XV: Constructivist Skills*
    a. Engagement
    b. Germination
    c. Incubation
    d. Innovation
    e. Creation

    Category-XVI: Connectionist Skills
    a. Interpretation of units
    b. Activation of the network of units
    c. Learning Algorithm
    d. Recurrent Neural Networking
    e. Evolving continuous, dynamic systems approaches

7. *Systems Thinking*
    Category-XVII: Systems Thinking
    a. Cognizing all the parameters

b. Establishing interrelation & interdependence

c. Realizing Integrated Whole

d. Ensuring Efficiency

e. Ensuring Cost Effectiveness

8. ***Information Age Skills Category-XVIII: Info-Savvy Skills***

a. Asking

b. Accessing

c. Analyzing

d. Applying

e. Assessing

Category-XIX: Techno-Pedagogic Skills:

a. Media-Message Compatibility

b. Media Designing

c. Integration of message, media, and modes

d. Proximity of Message Forms

e. Media Language Proficiency

f. Media Choice

g. Media Credibility & Message Authenticity

Category-XX: Digital Skills

a. Functional Literacy skills: Use of images, graphics, videos, charts, and visual literacy.

b. Scientific Literacy skills: Understanding both theoretical and applied aspects of science and mathematics.

c. Technological Literacy skills: Competence in the use of information and communication technologies.

d. Information Literacy skills: Ability to find, evaluate and make appropriate use of information, including via the use of ICTs.

e. Cultural Literacy skills : Appreciation of diversity of cultures.

f. Global Awareness skills : Understanding of how nations, corporations and communities all over the world are interrelated.

Category – XXI : Open Education Resourcing

a. Open Education Resources for Learners

   I. Learning- Content (geogebra, google earth)

   II. Creativity (hot potato, C map)

   III. Evaluation (R-campus & Mahara)

a. Open Education Resources for Teachers, Teacher Educators and Facilitating Learning

   I. Learning Management System (Moodle & Wiki spaces)

   II. Teacher Managed Communication Platforms (Classroom 2.0 & Web Quest)

   III. Statistical Tools for data processing

   V. e-books

   VI. e-News Letters

   VII. Webinars & Web Conferencing

   VIII. WBI

9. ***Leadership, Administration & Management Skills Category XXII: Creative Leadership Skills***

a. Socio-centric rather than ego-driven

b. Empowers the people to make decisions rather than take decisions

c. Listen oriented than tell oriented

d. Pulls the organization towards a vision

e. Listens to intuition

f. Generates lasting commitment

g. Open-mindedded than opinionated

h. Teaches the importance of self-responsibility rather than teaches subordinates to take directions

i. Models self-responsibility rather than in a self-protect mode

j. Knows, relaxing control yields results rather than is afraid of losing control

k. Focuses on building on strengths rather than finding & fixing problems.

l. Teaches how to learn from mistakes rather than quick to fire those that fail

Category: XXIII: Administration Skills

a. Planning

b. Organizing

c. Staffing

d. Coordinating

e. Budgeting

Category XXIV: Time Management

a. The ability to Say " No", Learning to Say "No", How to Say "No"

b. Spacing Things Out; do not procrastinate

c. Using Social Time Wisely

d. Prioritizing and Re-prioritizing constantly

e. Keeping your health/sleep/exercise in check

Category- XXV: Key Skills for Every Manager

a. Leadership and People Management Attract, retain, motivate, coach and develop team members for high performance.

b. Communication Skills Communicate, present, assert, speak senior management language

c. Collaboration Skills Influence, build relationships, manage conflicts

d. Business Management Skills

Understand strategy, business functions, decision-making and workflow

e. Finance Skills Budget, forecast, manage cash flow, understand financial statements, manage business metrics

g. Project Management Skills Plan and manage successful projects, manage risks, costs, time and project teams

10. *Spiritual Development Skills*
    Category XXVI: Spiritual Development

    a. Religiosity

    b. Knowledge of Soul

    c. Quest for life values

    d. Conviction, Commitment & Character

    e. Happiness & Distress

    f. Brotherhood

    g. Equality

    h. Acceptance & Empathy

    i. Love & Compassion

    j. Flexibility

    k. Leadership in Educational Change

11. *Yoga Skills*
    Category XXVII: Yoga Skills

    a. *Yama* or Eternal Vows: *Ahimsa, Satya, Astey, Aprigraha* & *Brahmacharya*

    b. *Niyama* or Observances: *Saucha, Santosha, Tapas, Savdhyaya, Ishvarapranidhana*

    c. *Asana*: Firm, Comfortable Meditative Posture

    d. *Pranayama*: Regulation of the Vital Force

    e. *Pratyahara*

    f. Dharna

    g. Dhyana

    h. Samadhi

12. *Wholistic Development Skills Category XXVIII: Wholistic Education Skills*

    a. Subject Knowledge

    b. Inter-disciplinary

    c. Environmental Attitude

    d. Health Development

    e. Emotional Development

    f. Spiritual Development

    g. Integrated Development

13. *Inclusive Education Skills*
    Category XXIX: Inclusive Education Skills

    Various sets of Skills are required for realizing inclusive Education including all the children, such as:

    a. Attention Deficit Hyperactive

    b. Compulsive Obsessive Neurotic

    c. Visually Challenged

    d. Hearing Impaired

    e. Mentally Retarded

    f. Deaf, Dumb & Autistic

    g. *Beta Thal Major & Sickle Celled*

    h. Gifted

    i. General

14. *Universal Becoming Skills*
    Category XXX: Universal Becoming Skills

    a. Relating Self with all the entities

    b. Treating Nature as a Source

    c. Realizing Resonance amongst all Entities

    d. Realizing Universal Development Index (UDI)

Common Wealth Consortium of Teacher Education

Common Wealth Consortium of Teacher Education (CWCTE) could be established in India. Common Wealth Consortium of Teacher Education is the Consortium of Institutions and individuals for

Teacher Education. It is a self-managing network of educational bodies that play a substantive role in the field of Teacher Education.

It is the Consortium of Institutions and individuals for Teacher Education. It is a self-managing network of educational bodies that play a substantive role in the field of Teacher Education.

CWCTE aims at assembling a diverse coalition of partners to formulate questions worth asking, contribute to Teacher Education which is relevant in the contemporary contexts, helps in understanding Teacher Education mechanisms, promotes holistic learning and highlight their policy implications worthy of action.

The consortium is proposed entirely as a voluntary effort with its secretariat at a suitable place. The member institutions and individuals shall be required to contribute to its activities. It will strengthen networking with the apex national agencies, such as National Council for Teacher Education (NCTE), University Grants Commission(UGC), National Council of Educational Research and Training (NCERT), Indian Council of Social Science Research (ICSSR), All India Council for Technical Education (AICTE), Association of Indian Universities (AIU), National Institute of Educational Planning and Administration (NUEPA), Council for Advancement and Support of Education (CASE), Central Institute of Indian Languages (CIIL), English and Foreign Languages University (EFLU), __Homi Bhabha Centre for Science Education (HBCSE) and also at the international level with various institutions and agencies of the Common Wealth Countries.

CWCTE shall be a non-profit forum consisting of institutions organized and operated for educational and professional purposes. An institution shall be eligible for membership if it has made a definitive, substantial, and continuing commitment to a credible Teacher Education or to CWCTE goal to facilitate high-quality Teacher Education. Specifically, the Consortium seeks to become an intellectual center that will maximize the potential of Teacher Education and foster the development of networks of collaboration and support among educationists.

Aim/Goal

The broad goal of the CWCTE is to strengthen Teacher Education. Shared goal is to provide powerful tools for data-driven Teacher Education policy research, evaluation, and implementation. It is dedicated to improving Teacher Education through conducting and disseminating various Teacher Education Programs & Innovations. By connecting the professional expertise and practical wisdom of Teacher Education Practitioners', the agenda could be set so that results are useful in decision-making and program development

The Mission

The mission of CWCTE is to engage key stakeholders and experts in high quality Teacher Education for the benefit of Teacher Education across all the 52 Common Wealth Countries. The consortium seeks to answer contemporary Teacher Education policy questions. It shall provide research-based evidence to policymakers and administrators and inform its members on the national policy initiatives for improving Teacher Education. This is proposed to be carried through the processes of:

- contributing to the quality of Teacher Education of the Common Wealth Countries through mutual linking and sharing high - level knowledge and experience.
- shaping the consortium as an influential, dynamic and responsive network that supports the individual and organizational interests of its members.
- representing the interests of the member institutions in international Organizations and networks.

Objectives

To promote quality Teacher Education through:

- meta-analysis of research studies undertaken in Teacher Education and observe trends in the processes /approaches and findings of the studies.
- design of strategies for utilization of the findings to policy formulation and implementation, improving effectiveness of Teacher Education both in the synchronous and asynchronous modes, increasing efficiency of various educational procedures.
- promoting collaboration among different institutions/ agencies both within the country and abroad for undertaking multifaceted and multiagency researches and utilization of their findings with the aim of enhancing understanding of different concepts, theories and phenomena of Teacher Education.

- providing a forum for exchange of information, holding discussions on the quality and relevance of studies and identification of priority areas for future research in Teacher Education.

More specifically, functions of the CWCTE are envisaged as follows:

- Coordinating Teacher Education infrastructure across institutional campuses and developing new, shared resources and services amongst the Common Wealth Countries.

- Sharing the sources & resources of Teacher Education amongst all the Common Wealth Countries.

- Enhancing the visibility and impact of Teacher Education through publicity, advocacy and implementation amongst the Common Wealth Countries.

- To strengthen the Teacher Education through Management Information System Series through Manpower Planning, Infrastructure, Time-Space-Personnel Management, Foundation & Core Courses, Special Areas, Modes of Transaction, Evaluation, Placement & Promotion.

- To strengthen Teacher Education at all levels in all phases - Pre-service, Induction & In-service.

- To strengthen the e-PATHSHALA at various levels of Teacher Education right from ECCE through Higher & Continuing Education.

Strategy

CWCTE strategy is based on the simple idea that the exchange of information and expertise among professional educators gives added value to their own activities in terms of knowledge, efficiency, effectiveness and the growing dimensions of Teacher Education for development.

Activities

CWCTE would unite Teacher Education Institutions across Common Wealth Countries in an effort to improve Teacher Education through research on education reform and policy. A series of cross national and thematic reviews would be developed to strengthen Teacher Education. An extensive annotated bibliography would be developed and made available. Partners would be encouraged to produce Teacher Education research plans. CWCTE would promote activities such as study visits and meetings of experts in order to stimulate the sharing of information and experiences. CWCTE would also organize international collaborative projects that could function as input for research and development in Teacher Education. The collaborative projects that are initiated by the members would be encouraged. In this way CWCTE would ensure the mobilization and circulation of high-level knowledge and information amongst its members.

Working of the CWCTE

The Annual General Meeting (AGM) under supervision of its elected president shall decide on the strategic plan and the admission of members. The AGM would also elect the Board and make policy decisions.

The members would receive following benefits:

- Abstracts of researches undertaken in Teacher Education and brief information about the investigators.

- Data base of Innovations in Teacher Education.

- Information on the recent and leading researches, and trends in Teacher Education.

- Information on the Governmental policies, schemes and projects including appraisals-mid- term and final.

- Publications including proceedings of the meetings.

The Board under supervision of its elected chairman shall put forward the topics to be discussed and agreed by the AGM. It would implement resolutions and look after the interests of CWCTE during the periods in between the meetings of the AGM.

The Secretariat shall be responsible for the administrative and financial operations, publicity and organizational tasks. Furthermore, the secretariat would be responsible for:

- program coordination,

- promotion of communication and contacts among institutions,

- promotion of CWCTE as a knowledge network in relation to the member institutions, and

- support to the design of a long-term policy and annual plan of activities in Teacher Education.

CWCTE main PR and communication tool would be its website. The website would

contain information on members (institutions and individuals) and collaborative programs & projects. CWCTE newsletter, would contain information about the developments in the member institutions, achievements and forthcoming activities.

Concluding Remarks

Earlier, the society was governing the society; then the State started governing the society. Now the economy is overarching, both, the State and Society. There are many problems due to Public-Private dichotomy in Teacher Education. Now, mostly the governance of Teacher Education is being done by the Service Cadre People; the bureaucrats, who very often have little understanding of Teacher Education. Many Visiting Team members for recognition of the Teacher Education Institutions are involved in the malpractices. They need to sustain their identities as Teacher Educators. Another big issue is regarding Teacher Education standalone or Teacher Education integrated. There is no research evidence to this effect. Then one fails to understand how it becomes

a Policy Resolution to offer 4 Year B.Ed. Integrated (ITEP). Another issue is regarding the emerging status of NCTE, Partly for norms setting and partly under HECI. This is how we believe our Apex body of Teacher Education, namely, NCTE. If there is problem with our belief then even the God will not like to support us! In this age of inflation how the nation would invest 6% of the GDP in Education is another evident issue. It seems that Education is our least priority. There is a notion that teachers are good for everything, at the same time, the teachers are good for nothing. We need to reestablish our belief in Teachers and Teacher Education. It is because it is Education and Education only which can bewitch the minds and facilitate eternal connect of *Atma* with *Paramatma*.

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Environmental Ethics *among* Teacher Trainees

Jyotsanaben L Barad*

The most significant environmental issue that we are facing today, is one that is hardly ever mentioned, and that is, lack of conservation ethics in a big chunk of our population. Inculcating environmental ethics in our children at school level is the key ingredient in the recipe to "*save the Earth*"**.** In this rapid changing world, environmental ethics is something that every person should be well versed with, and should also have a sense of responsibility to conserve the environment as the world is suffering from serious environmental threats. The principles of ecology and fundamentals of environment can really help create a sense of earth-citizenship. A sense of care towards the Earth and its resources, and to manage them in a sustainable way, so that our future generation can inherit a safe and clean planet to live on.

It is obvious that ethics can be inculcated in school students through model teachers who are themselves aware, ethical, and disciplined. Training towards these can be given to the teachers during the Teacher Training Programmes for preparing teachers for all levels of schooling viz, Kinder Garten, Elementary, Primary, Middle and Secondary. It is therefore, mandatory to include environmental ethics at all levels of teacher training. However, it is seen generally that this aspect is not taken very seriously in the teacher training institutions. In view of this, A Study on 'Awareness regarding Environmental Ethics' was conducted on 300 B.Ed. Teacher Trainees in Banaskantha District of Gujarat to find the environmental ethics related awareness among them.

Ethics attempt to establish a basis for judging good or bad, and right or wrong. Environmental ethics is the branch of ethics that examine questions of right and wrong relating to the natural environment. In the present study, Environmental ethics refers to the moral values and behavioral action that an individual follows to conserve, preserve and manage the natural environment. Environmental Ethics Scale(EES) developed by Haseen Taj (2001), was used in the study not only to assess the existing social responsibility and

* *Assistant Professor, Smt. RKDK M.Ed. College, Karnavat Campus, Gobari Road, Palanpur, Banaskantha-385001 (Gujarat). E-mail: baradjyotsana@gmail.com*

environmental ethics of individuals but also to modify and develop the ethics in case of lack of concern and ethics towards environment among the individuals and society.

The main objective of the Study is to examine the difference in environmental ethics of Teacher Trainees owing to difference in Gender, Marital Status and Region. The study was limited to five self-financing B.ED. colleges in Banaskantha District and the sample was limited to 300 Gujarati medium students only so the study doesn't have a national character. However, since environment is a global threat and national issue, the inferences of the Study hold value for whole nation.

Statistical Treatment of Data

After the data was collected, it was subjected to statistical test of significance using SPSS package for testing the hypothesis formulated by the investigator. The major functional variable for analysis and interpretation of the data includes Spiritual Intelligence of Teacher Trainees and the personal variables include Gender, Marital Status and Region. Critical ratio was computed to test the difference in environment ethics with respect to Gender, Marital Status and Region.

Analysis and Interpretation

Hypothesis 1

There is no significant difference in Environment Ethics of Teacher Trainee owing to difference in Gender.

From the Table 1, the p-value is 0.533 which is greater that p-value (0.05) at 95% level of confidence and the hypothesis which assumed that there is no significant difference in environmental Ethics of Teacher Trainees due to Gender is accepted. Hence, we infer that there is no significant difference in Environmental Ethics owing to Gender among teacher trainees.

Hypothesis 2

There is no significant difference in Environmental Ethics of Teacher Trainees owing to difference in Marital Status.

From the Table 2, the p-value is 0.170 which is greater than the p-value (0.05) at 95% level of confidence and the hypothesis which assumed that there is no significant difference in Environmental Ethics of Teacher Trainees due to Marital Status is accepted. Hence, we infer that there is no significant difference in Environmental Ethics owing to Marital Status among teacher trainees.

Hypothesis 3

There is no significant difference in Environmental Ethics of Teacher Trainees owing to difference in Region.

From the Table 3, it can be seen that the p-value is *0.130* which is greater than the p-value (0.05) at 95% level of confidence and the hypothesis which assumed that there is no significant difference in Environmental Ethics od Teacher Trainees due to Region is accepted. Hence, we infer that there is no significant difference in Environmental Ethics owing to Region among teacher trainees.

Major Findings and Educational Implications of the Study

Main finding of the Study is –'There is no significant difference in Environmental Ethics of Teacher Trainees owing to difference in Gender, Marital status or Region'**.** The result of the study revealed that there exists average level of environmental ethics among the B.Ed. teacher trainees. With reference to some of selected variables, the study indicated significant relationships. The study finds some useful application in the global perspective in the field of education and the finding of this study may serve as a data base for the future research. Some of the educational implications are:

Human Values- preparing curriculum and textbook for Environmental Ethics in Education can play an important role in building positive attitudes towards teacher trainees. The basic human value 'Man in nature' needs to be infused through the same.

*Social Values-*Love, Compassion, Tolerance and justice which are the basic teachings of most of religions need to be woven into environmental education. These are the values to be nurtured so that all forms of life and the biodiversity on this earth are protected.

*Cultural and Religious Values-*These are the values enshrined in Vedas like (*yujur veda*) i.e.*You give me and I give you* which emphasizes that man should not exploit nature without nurturing her. Cultural custom and rituals in many ways teach to perform such functions as would protect and nurture nature and respect every aspect of nature treating them as sacred be it rivers, earth, mountains or forests.

*Ethical Value-*Environmental Education should encompass the ethical value of earth centric rather than human-centric world view. The educational system should promote the earth citizenship thinking instead of considering human being as the supreme creation, one must also think of the welfare of the earth.

Table-1: Difference in Environmental Ethics of Teacher Trainees Owing to Difference in Gender

Variable	Category	N	Mean	S.D	Std. Error	t-value	Df	p-value and significant level
Gender	Male	150	113.28	14.655	1.197	0.625	298	0.533p>0.05NS
	Female	150	112.16	16.866	1.377			

Table 2: Difference in Environmental Ethics of Teacher Trainees Owing to Difference in Marital Status

Variable	Category	N	Mean	S.D	Std.Error	t-value	Df	p-value and significant level
Marital Status	Married	45	115.69	15.604	2.326	1.375	298	0.170 p>0.05 NS
	Unmarried	255	112.16	15.787	0.989			

Table 3 Difference in Environmental Ethics of Teacher Trainees Owing to Difference in Region

Variable	Category	N	Mean	S.D	Std. Error	t-value	Df	p-value and significant level
Region	Urban	198	113.70	15.797	1.123	1.520	298	0.130 p>0.05 NS
	Rural	102	110.78	15.654	1.550			

The above-mentioned human values, socio-cultural, ethical, and religious values if incorporated into environmental education can go a long way in attaining the goals of sustainable conservation. Value based environmental education can bring a total transformation of students' mind-set attitudes and lifestyles which will result into saving Earth.

Conclusion

The purpose of the present investigation was to study the Environmental Ethics among B.ED. Teacher Trainees with reference to some selected personal variables and the study indicated significant relationship among the variables. The study may find some useful in the field of education and the finding of this study may serve as a data base for the future research.

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Technology is a Valuable Enabler of One's Development

Himanta Biswa Sarma, Hon'ble Chief Minister, Assam delivered the Convocation Address at the 4th Convocation Ceremony of Indian Institute of Information Technology Guwahati, Assam on July 13, 2022. He said, "You are at the prime of your youth. The way in which you utilize your energies will decide not only your future but also the nation as well. Swami Vivekananda who had deep faith in youth power urged the young generation to amplify their mental energies and physical fitness and work for social transformation. Swami ji said, "Take up one idea. Make that one idea your life, think of it, dream of it, live on that idea, let the brain, muscles, nerves, and every part of your body be full of that idea, and just leave every other idea alone. This is the way to success." I also urge the students to be more focused on their goals, resolute with their ideas, and committed to their mission. " Excerpts

At the outset, I extend my heartiest congratulations to all the graduates of this prestigious institution who are receiving their degrees at today's Convocation. It is indeed a moment of pride and jubilation for all of you, your families and this institution.

Today, I propose to start with something which is all known but still I would like to highlight it, ie. the importance of Information Technology. The steam engine, an 18th century invention, was an iconic technology of the Industrial Revolution. It has the same relationship to the Industrial Revolution as the Transistor has to the Information Revolution. While the working of the steam engine is quite intelligible it is not the case with a transistor. Working of the transistor has something magical about it. It is something beyond one's comprehension as to what goes on inside a computer or a mobile phone when they work. The technology of the steam engine is essentially confined to limited areas. But the transistor, embodied in the computer, is a universal technology. Right from the wrist watch to a space station, it is central to their working.

Secondly, Information technology has spread faster and over a larger area than any of the industrial technologies do. IT has become critical to the working of every feat of human activities today. Sequencing of human genome or operation of atomic power plant would not have been possible without the application of Information Technology. Today electronics constitute over 20% of the components of a high end car. Aeroplane and factories and even homes are being designed much more efficiently with aid of the computer.

It is the combination of these two factors that have empowered the information revolution to transform practically every facet of human activity. Whether it is the economy or education, polity or entertainment, the application of Information Technology is radically changing their character.

Today, we are living in an Information Society where the computers have relieved us of complex tasks, made work more meaningful, rendered the production process more efficient, reduced costs at all level, made decentralization possible and thereby enabling people to work from home, opened more avenues for creative pursuits and so on and so forth.

That is why when the Government of India announced the scheme of IIITs in public-private partnership mode, we saw this as an opportunity to set up a national level institute specializing in Information and Communication Technology in the State. We had already acquired space for an IT Park near the LGBI airport, and we found that we could acquire land next to the IT Park for the Institute. This would enable interaction between the faculty and students of the Institute on the one hand, and entrepreneurs who would be establishing their businesses in the IT Park, on the other hand. This would help attract investors into the IT Park, and also help researchers in the IIIT to interact with industry to solve real life problems. Thus the IIIT campus got established by 2018.

When Information technology was first invented, immediate feature that caught people's imagination was its probable impact on globalization, by elimination of constraints of time and place. People noticed that it enabled the transnational corporations to grow much faster through exercise of remote control in real time. It's argued that IT was developed by commercial interest. Advent of IT has also brought along with it a host of curses as

evidently million of workers having lost their jobs or their jobs deskilled. As of now employability of IT in our country is more as an instrument of corporate profits.

But now it's essential we turn towards its humane facets and have a fuller appreciation of how the IT can be used more on societal causes. We are all aware of the remarkable achievements of Indian software industry. What is inspiring about this part of the story is that IT is applied on the countryside to empower the villagers. We have to now focus more on an overview of the information revolution as to how it unfolds in our developing economy. IIIT, Guwahati has a constructive role to play in this.

The benefits of IT do not fall from heaven. It has to come though infrastructure and technological advancement. The university education system, particularly the system of research universities has a bigger role to play in bringing IT closer to the society through its social applications. Educational, research and industrial infrastructure complement such an ecosystem. We need to create such infrastructure of education and research over time. Industries provide a fertile soil for growth of research in IT. A culture in mathematics in the society and love for the subject generated in the young minds at the school level itself always foster development of IT culture in the society.

Our government is very much keen in applying of IT Enabled Services (ITES) in the government machinery. We have a deep sense of purpose and earnestness in applying ITES to make the administration more people friendly. With an aim to make the system more objective, our government is planning to bring in IT to a wider area of government functioning. I am sure of a substantial public benefit likely to accrue from our government's purposeful drive to use IT in the service of the people. Recently our government started a project called *Sadbhabana* to dispose of all old files pending in the Assam Secretariat. This project was launched with an aim to efficiently deliver public services by using IT enabled services. Under this Project, steps are taken to dispose of all pending files till May 10, 2021 within August 15, 2022. For all pending files, concerned persons were given the option to upload their petition informing the subject matter, giving reference number etc. through *Sadbhavana* portal. Such petitions are then processed at the concerned department and people can track the status of their files on the Portal itself. Implementation of the project is also monitored through a dashboard.

Our government has also taken a big stride in applying ICT in a mission called Mission *Basundhara* which is a great example of invoking ICT in the service of the people in matters relating to land. Of late we have noticed that land has become the largest source of dispute, litigation, violence and corruption. Manual maintenance of land records provides ample scope of all such menaces and suffering by the citizens. Therefore, in a bid to streamline and resolve and make land revenue services more accessible to citizens, Mission Basundhara was launched. The mission enables to reduce the pendency in updation of land records, through mission mode, accelerated disposal of services sought by citizens and an ease of doing business environment in the land management ecosystem. The implementation of the mission will see achieving the goal of 100% Digitalization of Maps and total Integration of Maps, Land Records and Registration for the State under the Integrated Land Records Management System. In the first phase, since the launch of the Mission on 2nd October, 2021 till its successful completion on May 10, 2022, altogether 8,13,981 applications were disposed.

We are also very much inclined to associating with the private sector in pursuit of promoting public private partnership in the field of Information Technology. The creation of IT infrastructure is capital intensive and its rapid expansion is possible only with private partnership as the government has other priorities to look into. Above all, level and type of expertise that the new technologies require are not readily available within the government. Private companies therefore are best suited to fill the equity gap and the gap of technological advancement. Our government is therefore receptive to the idea of IT Industry joining hands with the state government and partnering in all areas of the sector.

To that effect a project of Electronics Manufacturing Cluster is being set up at the Tech City in the vicinity of IIIT Guwahati, in a partnership of MeitY, Government of Assam and AMTRON. The project is slated to be completed in December 2022. In another initiative our government is setting up with MeitY a Computer Emergency Response Centre which will cater to the need of the entire Northeastern states. You will also appreciate that we are nurturing to set up at the Tech City itself an International

Internet Gateway (IIG) connecting Guwahati and Cox Bazar in Bangladesh starting with 100 Gbps connectivity. Moreover AMTRON has been working in the field of Augmented Reality and Virtual Reality and in another initiative AMTRON is all set to bring 3D manufacturing for industry and healthcare at the Tech City.

Regarding IIIT Guwahati, our government is committed to continue our financial support for Capital expenditure in the Institute. As has already been mentioned, the state government has announced a grant of Rs. 10 crores for 2022-23. Based on the plans of the Institute, I assure that our government will consider further requests for funding. However, I find that the number of students graduating from the Institute who are from Assam are very few. The percentage has been dropping especially after spot admissions to fill up vacant seats were stopped. I request the Institute to consider reserving some of the seats, maybe about 20%, in the B.Tech programmes for students from Assam. This will be similar to the scheme being adopted by the NITs in the country. Students from Assam are more likely to establish Start-ups in the state and we need to increase the number of such start-ups in the State. I am sure, IIIT Guwahati graduates will be very successful on that front.

We are aware that path breaking research is mostly done not by engineering graduates but by the Ph.Ds and Masters in engineering. Bachelor of engineering is produced by tens of thousands but few Ph.Ds and Masters are produced annually. It is in view of this lacuna that Indian Institute of Information Technology has been set up. IIIT admits engineering graduates for higher studies and the institute has been successful in fulfilling its given objective. For example, once the Bangalore IIIT produced nearly 150 post graduate engineers per year, a number that was higher than the combined production of Masters by all the IITs put together. IIIT Guwahati needs to look into this and efforts must be made to increase the number of masters and research scholars. It is not only the quantity that matters for the IT companies, we must also look to fulfilling the quality gap so that paucity of highly qualified scientists and engineers can be done away with. We must understand that this current era belongs to those who produce more Ph.Ds and Masters in the field of science and technology.

We must be judicious and set our priorities in using a powerful tool like Information Technology. Technology is after all a mirror of society. Its usages are shaped by the forces and interests of the stake holders. Our government is desirous for maximum usage of Information Technology in the services of our people. We are averse to a technology which serves only the commercial interests and bereft of any pretension to serve the social ends. Technology and administration are inseparable. Rather they are two arms that control the polity. Hence, IIIT and Government must forge a strong alliance as the two have to work in tandem to optimize the benefit of Information Technology and bring its much desired fruits to the common masses.

As you are stepping out of this institute, I urge you all to make best use of your knowledge and expertise to maximize the benefit of IT and ITES for the common people. I am confident that what you have learnt in this Institute will help you in fulfilling this hallowed objective. We are aware that obtaining a degree from IIIT is a privilege of a very few and you all have worked very hard in getting admission to this institute and graduate successfully.

You are at the prime of your youth. The way in which you utilize your energies will decide not only your future but also the nation as well. *Swami Vivekananda* who had deep faith in youth power urged the young generation to amplify their mental energies and physical fitness and work for social transformation. *Swami ji* said,

> "Take up one idea. Make that one idea your life, think of it, dream of it, live on that idea, let the brain, muscles, nerve, every part of your body be full of that idea and just leave every other idea alone. This is the way to success."

On this important occasion today, I also urge the students to be more focused with their goals, resolute with their ideas and committed in their mission. I congratulate you all once again for receiving the degrees in today's Convocation and wish you all success in your future.

With these few words, I conclude my speech. Thank you! Jai Hind!!

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CAMPUS NEWS

Genderlogue on Women in the Changing World of Work

The one-day Genderlogue on 'Women in the Changing World of Work: The Challenges and Opportunities' was jointly organized by the KES Shroff College of Arts and Commerce, Mumbai and the Friedrich Ebert Stiftung on August 24, 2022. The main objective of the panel discussion was to know the ground reality and also to understand the mirror view of public spaces for women. The introduction and greetings for the discussion were given by Ms. Kiran Nigam Assistant Professor and Member, Women's Development and Empowerment Cell (WDEC). The programme began with the welcome address delivered by Dr. Lily Bhushan, Principal, KES Shroff College, where she introduced all the panelists with a warm welcome and also focused on the role of women in Indian society, where much is done and much needs to be done to uplift the rights of women. Ms. Kiran Nigam formally presented a detailed introduction of all the panelists. The speech was addressed by Dr. Vibhuti Patel, VP, IAWS, Former Professor, Tata Institute of Social Sciences, Mumbai, who acted as the Moderator for the event, where she started the panel discussion after welcoming all the guests of the panel. Dr Patel (FES India) shared her gratitude towards everyone who has been a part of this program. She also introduced FES India and the area of work covered under FES India.

Dr. Vibhuti said that only 9% of space is given to women working in the country and the government quoted a percentage of 18%. She also focused on the population pyramid, sexual harassment at work space and many more.

Ms. Dolly Thakore, Veteran Actor, Newscaster, Columnist and Casting Director talked about her very first AIR audition. Ms. Thakore also shared the experience and also told to practise the exercise to have a clear voice to maintain a good personality. Ms. Thakore also focused on the journey when she was 12 years of age when she took a stand to teach alphabets to the nearby villagers and also shared that it was the moment in her childhood where she got to know the importance of her involvement in social work and has been continuously an active participant till now with various organisations. Her focus was also on technology and what youngsters are learning. The veteran actress also focused on the power of girls and asked them to believe in their dreams and that the world would follow them. Dolly Thakore mentioned her book, which is a journey about a woman.

Dr. Nandita Mondal, Assistant Professor, Tata Institute of Social Sciences, Mumbai presented a power point presentation on 'Women Work : Negotiating Unfathomable Challenges and Rare Opportunities' and also talked about the choice in life where she focused on a few questions with reference to female gender, i.e., Do we have the choice ? (Boy/Girl, Life/ Death), Choice of Education, and Career, Do we work? She shared the experience that she had in Rajasthan in the mid-90s for the girl's birth in the family. Dr. Mondal talked about holding 1% of the world's wealth where we are 2/3rd of the world's labour force and also shared the statistical data talking about the positive gain in the image development of the female gender in different areas from education to other fields. Dr. Mondal quoted, "Ms. Dolly Thakore is very correct that a particular gender has been stereotyped as women constitute only 14% of the total employment." She also emphasised a 57% gender pay gap for the same amount of work and only 7.7% of board seats, where only 2.75% hold the seats. Dr. Mondal also shared several factors affecting women's labour force participation.

Prof. Charru Malhotra, Professor (e-Governance and ICT), Indian Institute of Public Administration-IIPA, New Delhi, where she talked about information and technology, Artificial Intelligence on 'Inclusiveness in Technology: A Gender Perspective'. Dr. Malhotra said that every woman sitting here by herself is a story. She shared multiple stories on the basis of her experience to show the mirror of society coming from all the borders of India. Dr. Charru also shared a few snippets from various villages illustrating the gender divide at various levels and classes, as well as how only technology can uplift women. She also shared the data talking about harassment of women at work and also talked about challenges over there.

Dr. Sangeeta Desai, Gender Consultant, Founder-Inclusive Horizon, focused on women in the changing world of work, where she focused on job opportunities, payment, and life after marriage for a particular gender, i.e., female.

- Employment Opportunities was one of the major topics where she talked about how digital innovation is something which needs to be seen as a priority, finance and banking, e-commerce sector, food processing industry, online education, gig economy (digital economy), freelance. Apart from this, Dr. Desai also focused on challenges in work force participation where unpaid work, mismatch, skills, gender norms were shared as the major reasons.

- Desai also focused on time poverty where she talked about time spent on unpaid activity, which a woman experiences around 300 minutes per day in managing the house. She also added about the industry's need for job opportunities: communication skills, analytical skills, and core technical skills are the key needs to get jobs.

Dr. Ceena Paul, Professor, Department of Economics, Shri. M.D. Shah Mahila College, Mumbai talked about female labour force participation in India where she focused on the percentage where India is only 19% and China is four times more than us. She added a few reasons why these could be the major reasons for the major drop in work in the lives of women, i.e., increase in household income, marriage, lower female mobility, transportation in rural areas, and many others. Dr. Paul also focused on all the gender norms where women can get a level playing field. To achieve these things, there should be gender neutrality in the work performed by people, and a positive media campaign needs to be a part of it. Dr. Paul added that leaders need to participate, the local community needs to speak, the reservation facility, maternity leave, and multiple other examples were added by Dr. Paul.

Dr. Vibhuti Patel concluded by summarising the whole panel discussion into a few pointers. Prof. Kiran Nigam proposed a vote of thanks to the panelists, invited them to the audience, and invited co-host, Mr. Akshay (WDEC Member), to take over the programme for the live performance, which would be done by the Tweet Foundation (NGO for the Transgender Community), which the host introduced.

The act showed how a particular community is treated in society. The act was very successful in showing the real mirror of society, and the audience saluted the performance with continuous applause. Dr. Lily Bhushan, Princpal, KES Shroff felicitated Ms Maya. Ms. Vaishali Ojha, Chairperson, WDEC felicitated all the participants of the live performance. Ms Maya, Founder Tweet Foundation, discussed how the Twitter foundation operates and how people can get involved. She talked about various issues that the community goes through. The Vote of Thanks was proposed by Ms. Vaishali Ojha, Chairperson, WDEC.

International Seminar on Recent Trends of Diversity

A three-day International Seminar on 'Recent Trends of Diversity' is being organized by the Institute for Social Development and Research, Gari Hotwar, Ranchi (Jharkhand) on September 24-26, 2022.

The concept of diversity encompasses acceptance and respect. It means understanding that each individual is unique, and recognizing our individual differences. These can be along the dimensions of race, ethnicity, gender, sexual orientation, socio-economic status, age, physical abilities, religious beliefs, political beliefs, or other ideologies. It is the exploration of these differences in a safe, positive, and nurturing environment. It is about understanding each other and moving beyond simple tolerance to embracing and celebrating the rich dimensions of diversity contained within each individual. Diversity is a reality created by individuals and groups from a broad spectrum of demographic and philosophical differences. It is extremely important to support and protect diversity because by valuing individuals and groups free from prejudice and by fostering a climate where equity and mutual respect are intrinsic, we will create a success-oriented, cooperative, and caring community that draws intellectual strength and produces innovative solutions from the synergy of its people. The Subthemes of the event are:

- Business Diversity.
- Marketing Diversity.
- Social Diversity.
- Political Diversity.
- Cultural Heritage Diversity.
- Geographical Diversity.

- Linguistic Diversity.

- Biodiversity.

- Crop Diversity.

- Educational Diversity.

- Musical Diversity.

- Ethical Diversity.

- Species Diversity.

- Regional Diversity.

- Cooperative Diversity.

- Any other Issue Related to the Topic.

For further details, contact Organizing Secretary, Dr. Uday Narayan Singh, Institute for Social Development and Research, Gari Hotwar, Ranchi - 835217 (Jharkhand), Mobile No: 9006688743, 8987663300, E-mail: *isdr.ranchi@gmail.com* OR *isdr.ranchi@yahoo.com.* For updates, log on to: *www.isdr.co.in*

National Seminar on Media for an Inclusive and Self-reliant Nation

A two-day National Seminar on Media for an Inclusive and Self-reliant Nation: The Roadmap for *Atmanirbhar Bharat'* is being organised by the Mass Communication and Journalism Department, Tezpur University, Assam during November 17-18, 2022. The event is sponsored by the ICSSR, New Delhi. The academicians, research scholars, students at both PG and UG levels of preferably Media and Communication Studies and related/allied disciplines from any institutions may participate in the event. Also, professionals from the industry with experience and interest in this also participate and offer their valuable input.

The country had been progressing towards self-reliance in many walks of life, for some time now. However, the special ambitious scheme announced by Prime Minister Narendra Modi has accelerated the pace to a much faster one and has given specific deliverable goals to the people. Also, there has been a commitment of Rs 20 lakh crore for taking out the country from the situation of the COVID-19 pandemic to that of a self-reliant one. This has added a certain impetus to the plan that would go a long way in achieving the goals in the near and distant future. The Hon'ble Prime Minister even said that making the country self-reliant was the only way to make the 21ˢᵗ century belong to India. The crusade has been launched for an overall improvement of the living standard of the people of this country with continental proportions. This, each and every component of the society here needs to contribute its own share in whichever way it can to make the *Abhiyan's* objectives achievable by the timeframe that is set for the purpose.

The contribution of Media – the fourth basic human need – towards nation-building can hardly be exaggerated ever. More so for a country like India. The saga has been continuously keeping its stride since the days of the freedom struggle and would keep going on till the distant future. That too, with changing its role from time to time whenever the need arises. This ranges from being crusaders of freedom struggle to playing the mass information disseminator to the people at all levels of the society and much more. Media today has elevated itself to that of an 'Open Informal university' for the masses. That is because it is a platform that facilitates a fair exchange of ideas among citizens keeping its doors open for participation to anyone and everyone, offering the leadership role in times of crisis, etc. It is such a dedicated professional life that at the call of duty Media would selflessly render yeoman's services whenever needed and called for. A recent reflection is the services during the COVID-19 pandemic period. It was a testing time for each and every profession. So, even under very odd circumstances, Media stood rock solid in delivering its services through several means. All at a time when many journalists had to pay with their lives even and loss of jobs, cutting down on financial compensation, etc. were the order of the day. The Subthemes of the event are:

- Role of Media as One of the Major Factors in Promoting *Atmanirbhar Bharat Abhiyan.*

- Media's Contribution towards Inspiring Youths for Self-reliance Professionalism.

- The Way Forward by Media in Carrying Ahead the *Atmanirbhar Bharat Abhiyan.*

- Synergy between Media and Woman for Becoming Self-reliant in the Future.

- How Does Media Itself Brace up for the Challenges in the Coming Days for Self-reliance.

- Media's Role in Promoting Startups, SHGs.

- Digital Media in Facilitating a Self-reliant India Mission.

- Media as a Tool for Participation of People in this Movement.

- OTT Platform and *Atmanirbhar Bharat Abhiyan*.

- Good Practices from Media Industry for Self-reliance in Other Areas.

- Prospects and Problems for Media Industry in Becoming Self-reliant.

For details contact, Organising Secretary, Mass Communication and Journalism Department, Tezpur University, Napam, Assam-784028, E-mail:*mcj. atmanirbhar@gmail.com / abhijitbora71@rediffmail. com.* For updates, log on to: *www.tezu@ernet.in/ dmass.*

National Seminar on Future of Teaching and Learning

The one-day National Seminar on 'Future of Teaching and Learning in School Education' is being organized by the Matrushri S S Govinda and Shrimati RKD Khanushiya College of Education (M.Ed.), Palanpur, Gujarat on October 16, 2022. The Research Scholars may participate in the seminar and can present their papers based on their Ph.D., M.Phil. and M.Ed. dissertation.

The Government of India has ventured to bring out a National Education Policy of 2020 to meet the changing dynamics of the population's requirement with regard to quality education, innovation, and research, aiming to make India a knowledge superpower by equipping its students with the necessary skills and knowledge and to eliminate the shortage of manpower in science, technology, academics, and industry. The Subthemes of the event are:

- Technology Integration.

- E-learning Initiatives Post COVID-19.

- Creative Teaching Methods.

- Alternative Ways of Teaching and Learning.

- Teacher Education.

- Open and Distance Education.

- Evaluating and Assessment.

- Enhancing Quality Education.

- Ensuring ICT-based Learning.

- Participatory Role of Parents in Education.

- Problems and Prospects of School Education in Concurrent India.

- Training the Trainers for New Trends in Education.

- Value Addition in Teaching by Integrating Skill Development Along with Learning to Live Together.

- Pace Setting Roles of Schools.

- Bridging Gender and Social Gaps.

- Language across School Curriculum.

For further details, contact Convener, Mr. Chetankumar Raval, Assistant Professor, Matrushri S S Govinda and Shrimati RKD Khanushiya College of Education (M.Ed.), Palanpur-385001 (Gujarat), Mobile No: +91 9687402383, E-mail: *nationalseminar2022@ gmail.com.* For updates, log on to:*www.bkkpsm.org/ events*   ❑

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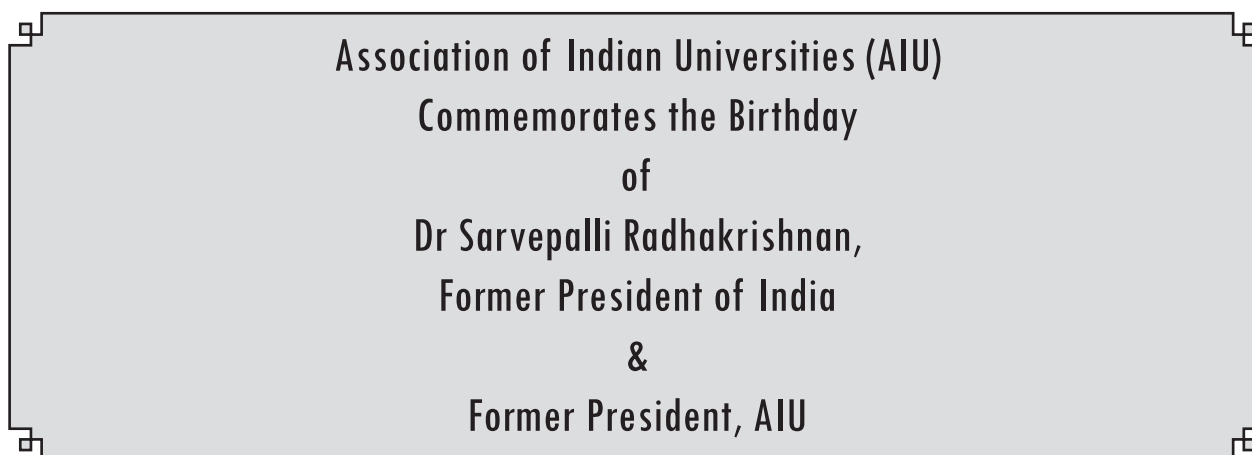
THESES OF THE MONTH

SCIENCE & TECHNOLOGY
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of July-August, 2022)

AGRICULTURAL & VETERINARY SCIENCES

Agronomy

1. Dattatraya, Arvind. **Response of *Bt* cotton (*Gossypium hirsutum* L) hybrid NHH 44 to moisture conservation practices and ferilizer levels under rainfed condition**. (Dr. B V Asewar), Department of Agronomy, Vasantrao Naik Marathwada Agricultural University, Parbhani.

Biotechnology

1. Bhatt, Ekta. **Exploring phytoremediation potential of Ocimum basilicum and Vigna radiata for antibiotic**. (Prof. Pammi Gauba), Department of Biotechnology, Jaypee Institute of Information Technology, Noida.

BIOLOGICAL SCIENCES

Biotechnology

1. Fasil, Dawit Moges. **Enhancement of aquaculture production by using engineered dietary selenium nanoparticles**. (Dr. Biswadeep Das and Dr. S K S Parashar), Department of Biotechnology, Kalinga Institute of Industrial Technology, Bhubaneswar.

2. Misra, Ananyo, Jyoti. **Photocatalytic disinfection of water borne bacteria using ZnO nanoparticles impregnated on clay minerals**. (Dr. Suraj Kumar Tripathy), Department of Biotechnology, Kalinga Institute of Industrial Technology, Bhubaneswar.

3. Singh, Archana. **Bacterial diversity study of Deulajhari hot spring cluster of Odisha across the temperature gradient**. (Dr. Enketeswara Subudhi), Department of Biotechnology, Siksha O Anusandhan University, Bhubaneswar.

Botany

1. Rhetso, Thejanuo. **Bio-efficacy of Allium Chinense G Don against Storage grain pest, pest, *Sitotroga cerealella*.** (Dr. V Sivaram), Department of Botany, Bangalore University, Bangalore.

2. Roopa, M S. **Effect of tithonia diversifolia (*Hemsl*.) A gray extracts against storage grain pest-corcyra cephalonica (*Staint*) (*Lepidoptera: Pyralidae*)**. (Dr. V Sivaram), Department of Botany, Bangalore University, Bangalore.

3. Sumalatha, B S. **In vitro conservation and reproductive biology of memecylon flavescens gamble and memecylon malabaricum cogn**. (Dr. D H Tejavathi), Department of Botany, Bangalore University, Bangalore.

Life Science

1. Borah, Dipankar. **Survey and assessment of non-timer forest products of Behali Reserve Forest in the Biswanath District of Assam India**. (Prof. Sumpam Tangjang), Department of Life Sciences, Rajiv Gandhi University, Itanagar.

Microbiology

1. Nayak, Nisha JItendrakumar. **Biosurfactant production from bacteria isolated from sea water**. (Dr. D R Tipre), Department of Microbiology, Gujarat University, Ahmedabad.

2. Shobha, B. **Biocontrol strategies for the management of BLB (Bacterial Leaf Blight) of rice using PGPR and *Trichoderma spp***. (Dr. C Srinivas), Department of Microbiology, Bangalore University, Bangalore.

3. Trivedi, Nisha Dipakkumar. **Characterization of antimicrobial metabolites from the marine actinomycetes**. (Dr. Jignasha Thumar), Department of Microbiology, Saurashtra University, Rajkot.

Zoology

1. Sarma, Indira. **Study on the effects of *Scoparia dulcis linn.* extract on Hoxa 10 expression in mice uterus during periimplantation period**. (Prof. H N Sarma), Department of Zoology, Rajiv Gandhi University, Itanagar.

EARTH SYSTEM SCIENCES

Environmental Science

1. Passah, Ribha I. **Improvement of water quality affected by acid mine drainage in Jaintia Hills, Meghalaya**. (Prof. OP Singh), Department of Environmental Studies, North Eastern Hill University, Shillong.

2. Thakur, Ina. **Water disinfection studies using hybrid process of photocatalysis and photo-Fenton in fixed mode**. (Dr. Anoop Verma and Dr. Ormeci Banu),

School of Energy and Environment, Thapar Institute of Engineering and Technology, Patiala.

ENGINEERING SCIENCES

Civil Engineering

1. Gangisetty, Sri Harsha. **Structural behaviour of reinforced concrete deep beams and development of Shear strength expression using modified strut and the method**. (Dr. P Poluraju and Dr. Veerendrakumar C Khed), Department of Civil Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

2. Walia, Sushma. **Simulation of run-off induced soil erosion and its impact on water quality from a watershed in Shivalik foot-hills**. (Dr. Sarbjit Singh and Dr. Richa Babbar), Department of Civil Engineering, Thapar Institute of Engineering and Technology, Patiala.

Computer Science & Engineering

1. Chauhan, Nilanshi. **Energy efficient coverage techniques for maximizing the WSN lifetime**. (Dr. Siddhartha Chauhan), Department of Computer Science & Engineering, National Institute of Technology, Hamirpur.

2. Gupta, Rupam. **Designing and developing a lemmatizer for English morphed words handling nominalization**. (Dr. Anjali G Jivani), Department of Computer Science & Engineering, The Maharaja Sayajirao University of Baroda, Vadodara.

3. Hemant Kumar. **Traffic engineering models in wireless sensor networks**. (Dr. S M Dilip Kumar), Department of Computer Science & Engineering, Bangalore University, Bangalore.

4. Jaiswal, Arvind. **An enhanced machine learning algorithms based prognostic of chronic diseases**. (Dr. Rajeev Kumar), Department of Computer Science & Engineering, Bhagwant University, Ajmer.

5. Menon, Maniyil Supriya. **Drug response similarity prediction system with enhanced security framework using hybrid correlation based optimization approach**. (Dr. P Raja Rajeswari), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

6. Patel, Jitali Dineshkumar. **Web personalization using opinion mining**. (Dr. Hitesh Chhinkaniwala), Department of Computer Science and Engineering, Ganpat University, Mehsana.

7. Poonam. **Design and implementation of an effective ICT architecture for e-governance initiatives**. (Dr. Pushpneel Verma), Department of Computer Science, Bhagwant University, Ajmer.

8. Sarraf, Jay. **Analysis and classification of motor imagery EEG signals based on left/right hand movement**. (Dr. Prasant Kumar Pattnaik), Department of Computer Science & Engineering, Kalinga Institute of Industrial Technology, Bhubaneswar.

9. Siddiqui, Mohammed Hatim Ferhan. **An artificial intelligence approach in seasonal rainfall forecasting with integration of big data platform**. (Dr. Rajeev Kumar), Department of Computer Science & Engineering, Bhagwant University, Ajmer.

10. Sumiti. **Development of an agent based secure framework for selfish node detection in MANET**. (Dr. Sumit Mittal), Department of Computer Science & Applications, Maharishi Markandeshwar University, Ambala.

Electrical & Electronics Engineering

1. Nayak, Anurekha. **Load frequency analysis of multi source multi area power system**. (Dr. Manoj Kumar Maharana), Department of Electrical & Engineering, Kalinga Institute of Industrial Technology, Bhubaneswar.

2. Panigrahi, Rasmi Ranjan. **Signal processing techniques based power quality disturbances and transient events recognition in distribution system**. (Dr. Manohar Mishra), Department of Electrical & Engineering, Siksha O Anusandhan University, Bhubaneswar.

3. Ray, Mitali. **Sustainable Heating, Ventilation and Air Conditioning System (HVAC) in a building using artificial neural networks**. (Dr. Padarbinda Samal and Dr. Chinmoy Kumar Panigrahi), Department of Electrical & Engineering, Kalinga Institute of Industrial Technology, Bhubaneswar.

Electronics & Communication Engineering

1. Devarakonda, Hari. **RGB-D human action recognition: An ensemble of deep learning frameworks**. (Dr. P V V Kishore), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

2. Mohan Singh. **Detection of changes induced by natural disaster from satellite images using deep learning neural networks**. (Dr. Kapil Dev Tyagi), Department of Electronics & Communication Engineering, Jaypee Institute of Information Technology, Noida.

3. Sahani, Jagdeep Kaur. **Design and analysis of all digital PLL for multi frequency generator**. (Dr. Alpana Agarwal and Dr. Anil Singh), Department of Electronics & Communication Engineering, Thapar Institute of Engineering and Technology, Patiala.

4. Tangelapalli, Swapana Hari. **Performance enhancement of ultra-dense massive MIMO network using deep learning for channel estimation**. (Dr. P Pardha Saradhi), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

5. Venkata, Sowmya Kambhampati. **Enhancing performance of IoT networks**. (Dr. J K R Sastry), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

Mechanical Engineering

1. Dash, Sushmita. **Static and free vibration analysis of functionally graded material sandwich panel in ambient and thermal environment**. (Dr. Trupti Ranjan Mahapatra and Dr. Isham Panigrahi), Department of Mechanical Engineering, Kalinga Institute of Industrial Technology, Bhubaneswar.

2. Tathgir, Surinder Kumar. **Investigation of flux activated Tungsten inert gas welding and hybrid process**. (Dr. Ajay Batish and Dr. Dinesh W Rathod), Department of Mechanical Engineering, Thapar Institute of Engineering and Technology, Patiala.

Textile & Apparel Design

1. Renjini, G. **Optimizing the fusible interlining selection process in shirt manufacturing**. (Dr. R Sudhakar), Department of Apparel Technology and Management, Bangalore University, Bangalore.

2. Vidhya, R. **A study on antimicrobial properties of selected natural dyes**. (Dr. K N Ninge Gowda), Department of Biotechnology, Bangalore University, Bangalore.

MATHEMATICAL SCIENCES

Mathematics

1. Divyashree, B K. **Some studies on graph theoretical indices and their applications**. (Dr. Siddabasappa), Department of Mathematics, Bangalore University, Bangalore.

2. Prashu. **A study of magnetohydrodynamic flow and heat transfer along a smooth surface**. (Dr. Vivek Sangwan and Dr. Raj Nandkeolyar), Department of Mathematics, Thapar Institute of Engineering and Technology, Patiala.

3. Shaikh, Ameer Basha. **Some results towards the combinatorial graph theory and their applications**. (Dr. B Chaluvaraju), Department of Mathematics, Bangalore University, Bangalore.

Statistics

1. Parmar, Shivangkumar Dipakbhai. **Satisfaction level of farmers, visited Krishi Vigyan Kendra Navasari-Agriculture University**. (Dr. Haresh B Tank), Department of Statistics, Saurashtra University, Rajkot.

MEDICAL SCIENCES

Anatomy

1. Narayana, Amudalapalli S. **A study to estimate the prevalence, risk factors and NKX2.5 gene correlation of congenital heart diseases in Kanpur and periphery**. (Dr. Medha Das), Department of Anatomy, Rama University, Kanpur.

Ayurveda

1. Odhabhai, Kamaliya Sangitabahen. **Efficacy of Durvadi Ghrita Nasya, Mukkadi bidalaka and rasayana yoga internally in the management of pramehajanya Timira (Diabetic retinopathy**. (Dr. D B Vaghela), Department of Ayurved, Gujarat Ayurved University, Jamnagar.

Histopathology

1. Banerjee, Sohini. **Molecular characterization of iymphocytes in autoimmune thyroiditis and papillary thyroid carcinoma with thyroiditis**. Department of Histopathology, Postgraduate Institute of Medical Education and Research, Chandigarh.

Medicine

1. D'Souza, Sonia Edaline. **Effect of training nurses regarding patients rights: A quasi-experimental study**. (Dr. Ghulam Jeelani Qadiri and Dr. Leena K C), Faculty of Medicine, Yenepoya (Deemed to be University), Mangaluru.

2. Purandare, Vedavati Bharat. **Comprehensive assessment of glycemia in subjects with type 2 diabetes mellitus and Chronic Kidney Disease (CKD)**. (Dr. A L Kakrani), Department of Medicine, Dr D Y Patil Vidyapeeth, Pune.

Pediatrics

1. Manoj Kumar. **Association of β_2 adrenergic receptor gene polymorphisms and β-arrestin gene expression with response to asthma preventive therapy**. Department of Pediatrics, Postgraduate Institute of Medical Education and Research, Chandigarh.

Pharmaceutical Science

1. Bais, Sourav. **Pharmacological elucidation of Juniperus Communis in animal models of obesity and cholelithiasis**. (Dr. Nilesh J Patel), Department of Pharmaceutical Science, Ganpat University, Mehsana.

2. Mohapatra, Subhasri. **Designing, formulation and evaluation of polymeric nanoparticles for Alzheimer's disease**. (Dr. Karunakar Shukla), Department of Pharmaceutical Science, Dr. A.P.J Abdul Kalam University, Indore.

3. Prashar, Yash. **Phytopharmacological studies of Myrica Nagi against experimentally induced obesity**. (Dr. Nilesh J Patel), Department of Pharmacy, Ganpat University, Mehsana.

4. Rode, Madhuri Pandurang. **Spectrophotometric and chromatographic method development and**

validation for determination of some antihypertensive drugs in their combined dosage form. (Dr. Dipti B patel), Department of Pharmaceutical Science, Ganpat University, Mehsana.

5. Shinde, Sushilkumar Ananda. **Design, development and evaluation of multicomponent antidiabetic herbal formulation containing some indigenous medicinal plants**. (Dr. Karunakar Shukla), Department of Pharmaceutical Science, Dr. A.P.J Abdul Kalam University, Indore.

6. Srinivas, Martha. **Development, in-vitro characterization and enhancement of solubility, dissoloution rate of poorly soluble drugs by various pharmaceutical methods**. (Dr. Anoop Singh), Department of Pharmacy, Bhagwant University, Ajmer.

7. Swapna, K R Manasa. **Formulation, characterization and evaluation of nanoparticles as dry power inhalers for the treatment of lung diseases**. (Dr. M Siddaiah), Department of Pharmacy, Bhagwant University, Ajmer.

Physiology

1. Bhatnagar, Prashant. **Effect of classical instrumental music on stress and anxiety in medical students**. (Dr. Qazi Rais Ahmed), Department of Physiology, Rama University, Kanpur.

Physiotherapy

1. Shah, Harda Kiritkumar. **The role of physiotherapy intervention on functional capacity among kidney transplant recipients**. (Dr. Nehal Shah), Department of Physiotherapy, Gujarat University, Ahmedabad.

2. Thakrar, Gira Narendrabhai. **Developing reference range of post exercise heart rate after 3 minute step test for screening of cardio-respiratory fitness in urban children (6 to 12 years) of Gujarat**. (Dr. Nehal Shah), Department of Physiotherapy, Gujarat University, Ahmedabad.

PHYSICAL SCIENCES

Chemistry

1. Bharathi, Bestha. **Biological screening of phytochemicals isolated from different parts of red sanders (Pterocarpus santalinus L.f.) tree**. (Dr. N B L Prasad), Department of Chemistry, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

2. Manish Kumar. **Effects of different Insect Growth Regulators (IGRs) against phytophagous pest, lemon butterfly-*Papilio demoleus Linn***. (Dr. Rekha Israni), Department of Chemistry, Bhagwant University, Ajmer.

3. Maurya, Bhavna. **Mutational, biochemical analysis of MetA (*Homoserine- acetyltransferase*) from mycobacterium tuberculosis H37Rv**. (Dr. Sandra Misquith), Department of Chemistry, Bangalore University, Bangalore.

4. Monga, Divya. **Synthesis of microwave assisted transition metal dichalcogenides for the catalytic degradation of organic pollutants**. (Dr. Soumen Basu), School of Chemistry and Bio-Chemistry, Thapar Institute of Engineering and Technology, Patiala.

5. Mullangi, Sumanth. **LC-MS/MS method development and validation for the determination of potential genotoxic impurities some selected active pharmaceutical ingredients**. (Dr. K Ravindhranath), Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur.

6. Shashi, R. **Synthesis, crystal structure, DFT and Hirschfield surface analysis of some nitrogen and oxygen containing aromatic heterocyclic compounds**. (Dr. Noor Shahina Begum), Department of Chemistry, Bangalore University, Bangalore.

7. Shruthi, C D. **Antioxidant studies of various plant extracts and their applications in the development of biosensors and in the preparation of 2 dimensional metal nanomaterials**. (Dr. G S Suresh), Department of Chemistry, Bangalore University, Bangalore.

8. Singh, R Subhakaran. **Hydrothermal graphene materials for flexible supercapacitor applications**. (Dr. Y Anjaneyulu), Department of Chemistry, Koneru Lakshmaiah Education Foundation, Guntur.

9. Thakur, Tamanna. **Rosin based epoxy resins and their self healing capability**. (Dr. A S Singha and Dr. Bharti Gaur), Department of Chemistry, National Institute of Technology, Hamirpur.

10. Veeresha, G. **Studies on modified carbon nonomaterials for their energy and analytical applications**. (Dr. G. Krishnamurthy), Department of Chemistry, Bangalore University, Bangalore.

Physics

1. Roopa. **Synthesis and structural properties of rare-earth doped oxide glasses**. (Dr. B Eraiah), Department of Physics, Bangalore University, Bangalore.

2. Thakor, Sanketsinh Gopalsinh. **Dielectric properties of nanoparticles loaded epoxy resins**. (Dr. V A Rana), Department of Physics, Gujarat University, Ahmedabad.

❑

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01	Principal	01	01

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02	**Associate Professor**	01	Regular	Open
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