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In This Issue

National Professional Standards for Teachers: Retrospect and Roadmap

Pradeep Kumar Misra*

The educational policy documents across the globe are unanimous that teacher quality is one of the most significant factors in raising student outcomes (Misra, 2015). In continuation, policy documents from countries like the UK, USA, and Australia argue that professional standards for teachers help in raising the quality of teaching (Call, 2018). Thinking alike, The National Education Policy (NEP) 2020 of India supports the notion that National Professional Standards for Teachers (NPST) will help to improve the quality of teaching. Proposing the NPST, the NEP–2020 states:

The standards would cover expectations of the role of the teacher at different levels of expertise/stage, and the competencies required for that stage. It will also comprise standards for performance appraisal, for each stage, that would be carried out on a periodic basis. The NPST will also inform the design of pre-service teacher education programmes (MHRD, 2020, p.22).

The NEP–2020 hopes that a common guiding set of NPST will be developed by 2022. The policy further suggests that once developed, the NPST

[This] could be [then] adopted by States and determine all aspects of teacher career management, including tenure, professional development efforts, salary increases, promotions, and other recognitions. Promotions and salary increases will not occur based on the length of tenure or seniority, but only on the basis of such appraisal (MHRD, 2020, pp. 22-23).

The NEP–2020 entrusts the responsibility of developing NPST on National Council for Teacher Education (NCTE) in its restructured new form as a Professional Standard Setting Body (PSSB) under the General Education Council (GEC), in consultation with NCERT, SCERTs, teachers from across levels and regions, expert organizations in teacher preparation and development, expert bodies in vocational education, and higher education institutions (MHRD, 2020, p.23). Against the backdrop of the above descriptions, this article explores about history, meaning, and purpose of NPST by analytically and critically reviewing the current literature in this area. Afterward, the article presents a road map for developing and implementing NPST in India.

History and Advocacy of NPST

The history of evolving professional standards for teachers goes back to the formation of the National Commission on Teacher

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Education and Professional Standards in the USA in 1946.Detailing the history of professional standards for teachers, McDonald (1951) noted:

As America was emerging from World War II, M*r. McDonald conceived the idea of an official agency of the profession of education to lead the teachers of the nation to true professional status. After organizing the Chautauqua Conference in 1946 and authoring the resolution which was adopted unanimously by the NEA Representative Assembly at Buffalo establishing the National Commission on Teacher Education and Professional Standards, Mr. McDonald served as Executive Secretary of the Commission from the date of its establishment until July, 1951 (p.163).*

Initially, the primary idea behind evolving standards for teachers was to support the claim that teaching qualifies as a profession. Since then, the debate about having NPST and their utility for raising the quality of educational offerings has continued. Sachs (2005) highlights that the 'idea of standards for the teaching profession has been circulating in education policy discourses and public debates in Australia, the UK, the USA since the mid 1990s' (p.579).

The voices for evolving and implementing NPSTgot louder after the first administration of OECD's Programme for International Student Assessment (PISA) in 2000. The PISA test, now covering over 90 countries, is conducted after every three years to provide comparative data on 15-year-olds' performance in reading, mathematics, and science (OECD, 2021). The results of previous PISA tests are always a major discourse among both educational and political circles among many countries. Often, those countries whose students performed well in previous PISA tests feel proud and laud their systems, and those countries whose students attain lower ranks appoint commissions or committees to review the performance and take vows to perform well in next round of PISA test. Underlining the impact of PISA tests on teachers' professional standards, Call (2018) observes:

Since the publication of results from the first iteration of testing within the Programme for International Student Assessment (PISA) and the ensuing media consternation and political rhetoric about teacher quality in education systems around the world, professional standards

for teachers have been considered, developed and implemented globally in various forms (p. 93).

Slowly different countries across the globe have either evolved or in the process of developing NPST. The advocates of professional standards for teachers points-out that teachers matter most for promoting learning outcomes, managing educational institutions, and bringing educational reforms. Specifying the purpose of developing professional standards for teachers, a framework from UNESCO (2019) states:

Key to the development of professional standards is the idea of a teaching profession defined by its shared knowledge and expertise, and its shared commitment to defending its standards of practice (p.1).

But not everyone agrees that professional standards will significantly improve the teaching quality. Their first concern is the lack of research evidence that setting up professional standards helps to improve the quality of teaching (Hudson, 2009; Tuinamuana, 2011). The second concern is that standards are just intentions rather than solutions to solve teaching-learning issues. The third concern is a possibility that standards may evolve as a checklist of teacher attributes and practices that every teacher should try to tick rather than practicing in real life (Zionts, Shellady, & Zionts, 2006). And the fourth concern is that such a competency-driven model will reduce the scope of treating education as an intellectual discipline (Connell, 2009).Summarizing all these concerns, Call (208) aptly views that:

..some 70 years later there is still debate over the place of professional standards for teachers. Discussions range from questioning their necessity, to debating their content and formats, all of which are often underpinned by questions of how they should, might or will be used by those within and outside the profession (p. 93).

In comparison, the advocates of teaching standards argue that standards will bring professionalism in teaching and raise the status of the teaching profession (Beck, Hart, & Kosnik, 2002). The other equally compelling argument is that teacher standards will inform the development of professional learning goals, provide a framework by which teachers can judge the success of their learning, and assist self-reflection and self-assessment (Yinger

& Hendricks-Lee, 2000). The widespread belief among policy makers is that professional standards will help teachers recognize their capabilities, review their professional achievements, and renew their professional aspirations. Summarizing all these arguments about and expectations from professional standards for teachers, Révai (2018) writes:

In sum, it is teacher professionalisation and the status of the teaching profession that are at stake for countries when developing standards and improving teacher education. In turn, these are believed to contribute to raising teacher quality and improving student learning (p.10).

Purpose and Framework of NPST

The professional teaching standards may be termed as fundamental beliefs, values, and practices that underpin the teaching profession. The teaching standards are a statement of practice that reflects teachers' professional commitment and work (UNESCO, 2019). Simply stated, professional standards are a description of what teachers should know and be able to do, including a desirable level of performance (Toledo, Révai, & Guerriero, 2017). Standards are seen as neutral, value-free constructs that are fairly straightforward in what they define: what teachers should know, understand and be able to do (Tuinamuana, 2011, p.79). Explaining the purpose of professional standards, UK's Training and Development Agency for Schools suggests:

Professional standards are statements of a teacher's professional attributes, professional knowledge and understanding, and professional skills. They provide clarity of the expectations at each career stage. The standards are not to be confused with and do not replace the professional duties contained in the School Teachers' Pay and Conditions Document, which sets out the roles and responsibilities of teachers. (TDA, 2007, p.2).

The NPST are seen as public statements defining the professional, social, and ethical expectations from teachers. Making it clear, the Australian Institute for Teaching and School Leadership (AITSL) suggests that professional standards provide a framework:

...which makes clear the knowledge, practice and professional engagement required across teachers' careers. They present a common understanding and language for discourse between teachers, teacher educators, teacher organisations, professional associations and the public (AITSL, 2018).

Usually, the professional standards for teachers are clubbed under different domains. These domains represent the nature of work or kind of expectations from teachers. A teacher professional standards framework from UNESCO highlights that:

the principles that underpin a teaching standards framework are expressed as domains, or categories, within which teachers' work can be most usefully described (UNESCO, 2019, p.2).

The domains are further discussed in terms of focus areas or descriptors. Let's have a look at how different institutions and organizations categorize and envision teacher professional standards.

Table1: Professional Standards for Teachers Suggested by Different Organizations/Institutions

Institution/Organization	Domain I	Domain II	Domain III
UNESCO	Knowledge and understanding	Practice (pedagogy)	Teaching relations (professional relationships)
General Teaching Council for Scotland (GTCS)	Professional knowledge and understanding	Professional practice	Professional values
Australian Institute for Teaching and School Leadership (AITSL)	Professional knowledge	Professional practice	Professional engagement
UK's Training and Development Agency (TDA)	Professional knowledge and understanding	Professional skills	Professional attributes
Ontario College of Teachers	Professional learning for the teaching profession	Standards of practice for the teaching profession	Ethical standards for the teaching profession

*Source: UNESCO, 2019; GTCS, 2020; AITSL, 2018; TDA, 2007: Ontario College of Teachers, 2021

An analysis of Table-1reveals that professional standards for teachers are mainly categorized under three heads, i.e., *professional knowledge, professional practices, and professional values*. These three terms look very familiar and popular in education discourses and are defined and explained in various ways in policy documents and literature. Therefore, having a look at some popular explanations of these three terms will be helpful to understand NPST in a better way.

- **Professional Knowledge:** From a general perspective, professional knowledge means all the required knowledge by teachers for conducting effective and meaningful teaching. In an article on teacher knowledge, Shulman (1987) categorized teacher knowledge into seven categories. These categories mainly include knowledge of the subject matter, knowledge of general pedagogical principles and strategies, knowledge of learners, knowledge of educational contexts, and knowledge of educational goals, purposes, and values.

- **Professional Practices:** Professional practices may be termed as a teacher's use of his or her knowledge and understanding related to classroom approaches, pedagogical techniques, and management of resources, contents, and learners to deliver curriculum and promote the learning and achievement of his or her pupils (James, & Lee, 2020).

- **Professional Values:** Professional values in teaching consist of four fundamental values: dignity, truthfulness, fairness and responsibility, and freedom. All teaching is founded on ethics – whether it be the teacher-student relationship, pluralism, or a teacher's relationship with their work (Trade Union of Education, 2020).

The professional standards for teachers are presented in the form of a framework. The framework usually starts with a description of domains. These domains are divided into different standards, and different standards are further divided into focus areas and descriptors. Simply stating, the standards describe the domains, and domains are further detailed in terms of descriptors. For example, Australian National Professional Standards for Teachers have 3 domains, 7 standards, and 37 descriptors (Table 2). In comparison, UNESCO's National Professional Standards for Teachers framework have 3 domains, 10 standards, and 21 descriptors (UNESCO. 2019).

From the above discussions, it is evident that different agencies or institutions have developed several NPST frameworks. These developed frameworks can help the NPST developers in India in two ways. First, they can conduct a thorough review of all the available frameworks to learn about those policies and practices that can be used and adapted in the Indian context. Second, they can learn about how these frameworks were visualized and developed to formulate strategies and processes to evolve a well-defined NPST.

Significance of and Expectations from NPST

As discussed earlier, the standards were initially perceived to help teaching be recognized as a profession. Since then, the standards have moved in a big way. Nowadays, the standards provide the framework for a teacher's career and clarify what progression they have to make. The standards

Table 2: Domains, Standards, and Descriptors in Australian NPST*

Domains	Standards	No. of Descriptors
Professional knowledge	Know students and how they learn	6
	Know the content and how to teach it	6
Professional practice	Plan for and implement effective teaching and learning	7
	Create and maintain supportive and safe learning environments	5
	Assess, provide feedback and report on student learning	5
Professional engagement	Engage in professional learning	4
	Engage professionally with colleagues, parents/carers and the community	4

*Source: AISTL, 2018

suggest the professional characteristics that a teacher should maintain and build on while remaining in the profession (TDA, 2007). The standards are supposed to apply and helpful to almost all the teachers. A write-up from Welsh Government (2020) suggests that professional standards for teachers intend to

- Set clear expectations about effective practice during a practitioner's career including, where applicable, entry to the profession

- Enable practitioners to reflect on their practice, individually and collectively, against nationally agreed standards of effective practice and affirm and celebrate their successes

- Support practitioners to identify areas for further professional development

- Form a backdrop to the performance management process.

The first and foremost function of professional standards for teachers is providing a reference point for self-evaluation. Regarding the use of professional standards to support reflection and self-evaluation, the General Teaching Council for Scotland offers the following guidelines to teachers (GTCS, 2021)

As an individual, you will engage in self reflection and self evaluation using the Standards, as part of the Professional Update process, to think about and ask yourself challenging questions about such areas as your values, your knowledge and skills at present and where you would wish to develop and deepen these further. The Standards can support you and help structure your thinking and so help you to plan your professional learning and consider the impact of this learning on yourself and your pupils:

- What is the focus of my Professional Learning?

- What type of Professional Learning?

- How will I know that my learning is addressing pupil needs?

Many countries promote the NPST as a means and tool for self-reflection and self-evaluation among teachers. Most importantly, the professional standards are perceived to help teachers at different stages of their careers. For example, Australian National Professional Standards for Teachers detail the attributes and practices for teachers at the various career stages of teaching, e.g., Graduate teachers,

proficient teachers, highly accomplished teachers, and head teachers (AITSL, 2018).

The NPST also helps teacher education institutions to chalk out their teacher education programs in line with the developed standards. The standards also allow teacher-trainees to test their skills and preparation. Citing the example of Australia, Hudson, Hudson, Weatherby-Fell, and Shipway (2016) observe:

..in most states and territories, final-year pre service teachers are assessed against the graduate standards in their final practicum reports (e.g. NSW Professional Experience Framework). By aligning the graduate standards to the professional experience reports it has allowed for the pre service teachers to not only demonstrate knowledge of the standards but an opportunity to apply and demonstrate the standards to their teaching (p.138).

Professional standards are also used for the assessment and grading of teaching and teacher quality. But this practice is criticized on the ground that the use of standards for teacher evaluation will undermine the purpose and spirit of NPST.

A Roadmap for Developing and Implementing NPST

The NEP 2020 expects that NPST will help to improve the quality of teaching and teachers in India. A review of the literature reveals that the three aspects are vital in any NPST, i.e., *the process of development, the developed framework, and implementation strategies*. A discussion on all these aspects will help us to suggest a roadmap for developing and implementing NPST in India.

The development of NPST is a task of specialists and practitioners from the teaching field. Therefore, forming a team of experts who have a thorough knowledge, teaching experience in real situations, and an open mind to accept and deliberate on different issues need to be the first step for developing NPST. The chosen team will be required to prepare a detailed plan of action, have thorough consultations, and invite unbiased feedback from stakeholders to come up and finalize a comprehensive and clear NPST framework. As another significant measure, the standards developing team have to keep in mind that NPST is not for marking or grading the quality

of teaching or teachers. Instead, the standards are to help teachers to involve in self-evaluation and betterment of teaching.

The second step will be to decide and propose the domains, standards, and descriptors for the NPST. The experiences from other countries reveal that standards need to be developed by considering the ground realities of teaching and in consultation with the teachers. Therefore, the developers have to go through varied experiences, practices, and experiences of a spectrum of teachers to propose a viable framework of NPST. The developers have to further work on a plan of detailing the philosophical orientation of the detailed standards, researches supporting the standards, real-life examples of practicing the standards, case studies related to the standards, and benefits by following the set standards in the framework. Besides, the developers have to also design a self-help manual to help teachers to learn in detail about the NPST and using it in their professional lives.

The third step is related to the implementation of NPST. The appropriate use and wider acceptability of NPST among the teaching community will ensure its success. For this purpose, key stakeholders will be required to make all-out efforts to promote the developed standards among the teaching community. After development, the concerned agencies like NCTE have to run training programs/workshops/advocacy programs to popularize NPST among the targeted groups. The agencies may also use technologies for promoting NPST among teachers. The agencies may design and develop an online portal to disseminate information related to NPST among teachers. This online community platform will provide ample opportunities and scope for teachers to share their professional standards experiences, challenges, and success stories with colleagues.

Conclusion

The development of teaching standards for teachers has emerged as a global practice. O'Meara & MacDonald (2004) observe that worldwide there has been a range of initiatives in the area of standards for teachers as part of a discourse of professionalism (p.111).The main argument in favour is that the standards help teachers to become professionally responsible and engage them in meaningful, sustained, and relevant professional development throughout their careers. But it is also true that standards are not a magic bullet to solve all the problems of the world of teaching (Darling Hammond, 1998).Therefore, the developers have to adopt a careful and cautious approach while developing and implementing NPST in India. The developers have to keep in mind that the success of NPST will depend on its acceptability and use by the teaching community. Therefore, the NCTE and all others involved with NPST planning and development have an arduous responsibility to vision these standards well, promote them adequately, and have a viable mechanism to support the teachers to make the best use of the developed NPST.

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Buniyadi Shiksha and Its Relevance in Contemporary Times

Gouri Srivastava* and Bhawna Paliwal**

The Gandhian philosophy of *Buniyadi Shiksha* was an integrated part of his overall design for the curriculum of life. It was based on his life experiences and practices at different points of time. During his stay in Champaran, Gandhiji laid the foundation of Buniyadi Vidyalayas. The purpose behind setting up of these schools was to fight illiteracy and generate awareness among rural people. This experience provided in giving shape to the cherished concept of Buniyadi Shiksha in practice. During the Champaran Satyagraha Gandhiji took up the cause for addressing the woes of the peasants who were forced to grow Indigo on 3/20 of the total land (called as *Tinkathia* System). Gandhiji took up the issue of peasantry and was able to convince the authority that this system should be abolished and that the peasants should be compensated for illegal dues. In his own words Gandhiji said "the work at Champaran is over, but something still more important remains. If a man who has shaken off slavery and gained his freedom is not properly educated, he may possibly abuse his freedom. The people of Champaran have secured local self-government of a sort. How it is to be used is the problem now…For this purpose my co-workers, Babu Brij kishore and other have jointly decided to open schools and over the place and educate the people in general knowledge, especially in rules of hygiene."[1]

Thus, for addressing the poverty of the peasants, education was seen by Gandhiji as an important vehicle for transforming their lives. To initiate a beginning, the system of knowledge transmission could focus on the language of the learner's and the content should be so designed that it needed to lay emphasis on the lives and conditions of the common masses. He felt that for quality living one must lead a simple life based on a harmonious link with human activities and the habitat. Nurturing the human potentials, based on truth and non-violence in thought, words, deeds and action was what Gandhiji stood for throughout his life. The kind of curriculum that he envisioned was the one that led to synchronization of head, hand and heart which according to him was essential for realising the inner potentialities of humans. This was what he emphasised in *Buniyadi Shi*ksha ,the education of his dream. This scheme of education focused on learning by doing.

During his stay in Champaran, he laid the foundation of Buniyadi Vidyalayas. The purpose behind setting up of these schools was to fight illiteracy and generate awareness among the rural people about the importance of education. He was of the view that the key to *swaraj* lays not so much in the hands of the government as in our system of education. During the Champaran Satyagraha, he opened three schools at Badharva Lakhansen on 13.11.1917, Bhitiharva on 20.11.1917 and at Madhuban on 17.01.1918. At present these schools are the inheritors of his philosophy and thoughts. These historic Vidyalayas were conceptualised by Gandhiji, as schools that connected children with their experiential realities. The main function of these schools was to translate learning by doing in practice. The Buniyadi Vidyalayas at the time of independence were definitely an innovative ideas and method in challenging the western system of education, by suggesting an alternative paradigm rooted in the Indian context..

The aims of education according to Gandhiji was to promote, strengthen national service, build character, know the self, kindness to all, not limit itself to employment only. In addition, the content and process of education should instill in the minds of beneficiaries, the qualities of serving humanity, develop fearlessness, strengthen freedom from bondage, motivate the beneficiaries for undertaking a journey in seeking truth and cultivate hygienic habits for quality living.

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Gandhiji felt that education should draw the best in every child in his own words he said, "By education I mean an all-round drawing out of the best in child and man-body, mind and spirit. Literacy is not the end of education nor even the beginning. It is only one of the means whereby man and woman can be educated. Literacy in itself is not education by teaching it a useful handicraft and enabling it to produce from the moment it begins its training…I hold that the highest development of the mind and the soul is possible under such a system of education. Only every handicraft has to be taught not merely mechanically as is done today but scientifically, i.e. the child should know the why and the wherefore of every processes."[2] In addition, Gandhiji, emphasized on questioning and inquisitiveness among learners. In his own words , he elaborated on these qualities, "persistent questioning and healthy inquisitiveness are the first requisite for acquiring learning of any kind. Inquisitiveness should be tempered by humility and respectful regard for the teacher. It must not degenerate into imprudence. The latter is the enemy of the receptivity of mind. There can be no knowledge without humility and the will to learn."[3]

Gandhiji also saw the spiritual aspect in education. In his own words he said, "Every one of us has good inherent in the soul it needs to be drawn out by the teachers, and only those teachers can perform this sacred function whose own character is unsullied, who are always ready to learn and to grow from perfection to perfection."[4]

Curriculum in the *Buniyadi Vidyalayas*

- Mahatma Gandhi's concept was to provide elementary holistic education to every child.

- Schools were meant to provide education that was connected with lives of children.

- Training in Spinning, Carpentry, Farming, Weaving was to be part of the pedagogy in these schools.

- Teachers were expected to have skills in different crafts.

Understanding *Buniyadi Shiksha*

Mahatma Gandhiji felt that education that connected child with their roots had elements in transforming the village children to model villagers. It would imply that inspiration for the same, need to come from the villager themselves. Infact, Buniyadi Shiksha linked the children, whether of the cities or the villages, to all that was best and lasting in India. It had elements of both the body and the mind, and kept the child rooted to the soil with a glorious vision of the future. He later elaborated that the object of Buniyadi Shiksha was physical, intellectual and moral development of the children through the medium of a handicraft. Gandhiji later added that, any scheme which is sound from the educative point of view and is efficiently managed is bound to be sound economically. For instance, according to him, human labour and material should never be used in a wasteful or unproductive way. The emphasis needs to be laid on the principle of spending every minute of one's life productively, which according to him had elements for the development for citizenship and incidentally went on to make Basic Education self-sufficient and self-reliant.[5]

The Fundamentals of the *Buniyadi Shiksha*

1. All education to be true must be self-supporting, that is to say, in the end it will pay its expenses excepting the capital which will remain intact.

2. In it the cunning of the hand will be utilised even up to the final stage, that is to say, hands of the pupils will be skilfully working at some industry for some period during the day.

3. All education must be imparted through the medium of the provincial language.

4. In this there is no room for giving sectional religious training. Fundamental universal ethics will have full scope.

5. This education, whether it is confined to children or adults, male or female, will find its way to the homes of the pupils.

6. Since millions if students receiving this education will consider themselves as of the whole of India, they must learn an inter-provincial language. This common inter-provincial speech can only be Hindustani written in Nagari or Urdu script. Therefore, pupils have to master both the scripts."[6]

Components of *Buniyadi Shiksha*

- Crafts, Art, Health and Education to be integrated into one scheme.

- Nai Talim is a beautiful blend of all the four and covers the whole education of the individual from the time of conception to the moment of death.

- Our System of (Basic) Education leads to the development of the mind, body and soul. The ordinary system cares only for the mind.

- The roots of this new education go much deeper. It lies in the application of truth and love in every variety of human activity, whether in individual life or a corporate one.

- True education should be of use to every villager in his daily life.

- Such education is not derived from nor does it depend upon books. It has no relation to sectional religion.

- It is learnt from the "Book of Life" which costs nothing.

- Children must from their infancy be taught the dignity of labour.

- Mother-tongue needs to be the medium of education.

The early mentors of the school established by Mahatma Gandhi were Babban Gokhle, Devdas Gandhi, Avantika bai Gokhle and Mr. Soman.

In order to give shape to his idea ,the All India Education Conference was held in Wardha, Maharashtra on October, 1937 under the leadership of Mahatma Gandhi wherein, Buniyadi Shiksha also known as *Nai Taleem*/Basic Education was deliberated upon. This scheme, as stated earlier, was a significant step in proposing an education which was rooted in the child's lived context. In the conference, persons from different walk of lives such as educationalist, ministers of education of the seven out of the nine newly elected provincial governments participated. Members in the conference discussed on the Gandhian scheme of basic education in detail. The deliberation held, discussed at length on making productive work an integral part of teaching and learning. The other component that was discussed was on making schools self-reliant.

Mahatma Gandhi holistic concept of education called *Nai Taleem*, Buniyadi Shiksha, aimed at restructuring and rejuvenating the rural economy through self-reliant villages. While addressing the Wardha Conference, Mahatma Gandhi stated: "What I am going to place before you today is not about a vocation that is going to be imparted alongside education. Now, I wish to say that whatever is taught to children, all of it should be taught necessarily through the medium of a trade or a handicraft. You may argue that, during the middle age, children were taught only trades (crafts) in our country. While I agree with this contention, but the proposition of imparting the whole of education through the medium of trades (crafts) was not considered in those days. A trade (craft) was taught only from the standpoint of a trade (craft). We aim at developing the intellect also with the aid of a trade or a handicraft…..Therefore, it is my submission that, instead of merely teaching a trade or a handicraft, we may as well educate the children entirely through them. Look at *takli* (spindle) itself, for instance. The lesson of a *takli* will be the first lesson of our students through which they would be able to learn a substantial part of the history of cotton, Lancashire and the British Empire…..How does this *takli* work? What is its utility? And what are the strengths that lie within it? Thus the child learns all this in the midst of play. Through this he also acquires some knowledge of mathematics. When he is asked to count the number of cotton threads on *takli* and he is asked to report how many did he spin, it becomes possible to acquaint him step by step with good deal of mathematical knowledge through this process. And the beauty is that none of this becomes even a slight burden on his mind. The learner does not even become aware that he is learning. While playing around and singing, he keeps on turning his *takli* and from this he learns a great deal."[7]

Conceptualising the Scheme in Practice

For implementing Buniyadi Shiksha in practice it was envisioned that a school of say five and a half hour could roughly be divided on the following basis:

- Physical activity- 20 Minutes.
- Mother tongue- 20 Minutes.
- Social studies and General science-60 Minutes.
- Art- 40 Minutes.
- Arithmetic- 20 Minutes.
- Craftwork including study of correlated subjects- Two and half hours.
- Free and compulsory education to be given for eight years (6 to 14 years) in the stages instead of 7 to 14.
- Junior stage covering 5 years and the senior 3 years.
- Social and physical environment for correlation in addition to craft.

- The self-supporting aspect is not to be over-emphasised. The sale proceeds of the finished goods should be able to help the school to cover some part of its expenditure.

The All India Educational Conference held at Wardha in October, 1937 discussed the ideas of Gandhiji and passed the following resolutions. The resolution highlighted some of the important deliberations held. They are as follows:

1. Provision of free and compulsory education for 7 years on a nationwide scale.

2. Relating education with manual and productive work and some form of handicraft.

3. Mother-tongue to be the medium of instruction.

A committee was formed under the chairmanship of Dr. Zakir Hussain to prepare a scheme of education keeping in view the suggestions of the resolutions. Gandhiji formulated his scheme of education in the Indian context and it was the outcome of his long experience. A summary of the Wardha Scheme of Education is mentioned below:

The basic education should comprise a course of eight years from the age of 6 to 14 years and that this course while preserving its essential unity should consist of two stages-the first stage, the 'junior' stage, covering a period of 5 years and the second stage, the 'senior', 3 years.

The transfer of children from the 'basic' school to other form of post-primary education should be allowed after the 5th grade, i.e., at the conclusion of the 'junior basic' stage.

The various types of post primary school to which suitable children may be transferred at the end of the 'junior basic' stage should provide a variety of courses extending over a period of at least five years after the age of eleven. These courses, while preserving an essentially cultural character, should be designed to prepare pupils for entry to industrial and commercial occupations as well as to universities.

Special arrangements should be made in these schools for assimilating pupils who decide to continue their education after completing the full course in the 'basic' school, i.e., after reaching the 8th class.

Suitable courses should be framed for girls attending 'senior basic' schools, which should include such subjects as cookery, laundry work, needle work, home crafts, the care of children and

first aid, the remainder of the instruction to be correlated with this course of domestic science in accordance with the general principles of the 'basic education' scheme.

The Action Taken Report gives a brief over view about the status of implementation of the Wardha Scheme of Basic Education by different provincial governments in pre-independent India. It is of significance to note that this scheme could not take off the way it was conceptualised by Mahatma Gandhi. Some of the provinces did not initiate the scheme and the few who had implement it, did it in a limited manner. The provinces that did not implement the scheme were Bengal, Punjab, North-West Frontier Province and Sindh. In provinces where the scheme was implemented partially was the United Province which appointed a committee under the provincial government and submitted an interim report recommending the adoption of Wardha scheme of basic education with certain modifications. In Bihar, the Patna training school had turned out batch of Wardha Scheme teachers. This batch of teachers started work at schools at Brindaban, near Bettiah, North Bihar, in April 1939. In the Central Provinces, it was proposed to introduce the scheme along with syllabus in the primary schools in a compact area in the Wardha district.

There were other issues raised by people from different walks of life, for seeking more clarity on the scheme. The few significant observations were in connection with the self-supporting nature of the scheme. In addition, observations were made on turning schools into manufacturing small scale industries. Few critiques also felt that it placed too much emphasis on crafts and neglected the major components of formal education. Added to these comments from stakeholders, was the need for proper conceptualisation of the philosophy of learning by doing. It was also viewed by some that the crafts to be taught at different stages of school education were not properly selected, as per the context of the learners. Further, it was pointed out that many of the teachers lacked in-depth knowledge of crafts and were not suitably trained to implement craft-centered education. In addition, it was also pointed out that the linkage with higher education was not properly documented in implementing the scheme. Along with these observations was the paucity of printed materials on craft education which was highlighted by few. It was observed that the Director of Public

Instruction did not give it the due importance, nor did they find ways to address doubts raised by the scheme. Thus, this laudable scheme could not take off the way it was envisioned by Mahatma Gandhi.

Despite, not being implemented in letter and spirit, some of its guiding philosophies have influenced curriculum frame works and the educational policies. The latest being the National Education Policy, 2020

The philosophy behind the Gandhian scheme of Basic Education is relevant for all times to come. This has been reiterated in the present National Education Policy, 2020. The focus of the policy is to strengthen inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. It reiterates that the Pedagogy must evolve to make education experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centered, discussion-based, flexible, and, of course, enjoyable.

Excerpts from the National Education Policy, 2020

The focus on learning by doing finds a mention in the National Education Policy 2020. The policy highlights that "…the curriculum must include basic arts, crafts, humanities, games, sports and fitness, languages, literature, culture and values…"[8]

The curriculum must include basic arts, crafts, humanities, games, sports and fitness, languages, literature, culture, and values, in addition to science and mathematics, to develop all aspects and capabilities of learners; and make education more well-rounded, useful, and fulfilling to the learner. Education must build character, enable learners to be ethical, rational, compassionate, and caring, while at the same time prepare them for gainful, fulfilling employment.[9]

"..Education must build character; enable learners to be ethical, rational, compassionate, and caring…"[10]

"….The vision of the Policy is to instill among the learners a deep rooted pride in being Indian, not only in thought but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen…"[11]

"…This policy aims to overcome the social status hierarchy associated with vocational education and requires integration of vocational education programmes into mainstream education in all education institutions in a phased manner. Beginning with vocational exposure at early ages in middle and secondary school, quality vocational education will be integrated smoothly into higher education. It will ensure that every child learns at least one vocation and is exposed to several more. This would lead to emphasizing the dignity of labour and importance of various vocations involving Indian arts and artisanship…"[12]

Reflection of Learning by Doing in Curricular Frameworks of NCERT

Excerpts from the Curriculum for the Ten-year School (Framework), 1975

The curricular framework lays emphasis on linking education with the needs and aspirations of people. In this very context, it suggests work experience as a source of learning. The excerpts of the curricular framework related to work experience is given below.

2.4.1 *Work experience as a source of learning*

…Work experience should provide an opportunity to learn from the use of the hands, give insight into the material phenomenon and human relationships involved in any organised productive work, and create the attitudes necessary for cooperative accomplishment of tasks and discharging of social responsibility within a framework of equality as well as of the freedom of the human spirit…

2.9.1 *Character Building and Human Values*

…The school curriculum should have a core cantering round the objective of character building… Hence, attempts have to be made to nurture the child to discover its potentialities, Educational activity should be organised in such away that, always and ever, in each and every task, the child is encouraged to express itself and find its best fulfilment.[13]

The objectives of general education have also made a mention of giving emphasis to work centred education. "The child should acquire healthy attitudes towards human labour and its dignity".[14]

At the middle stage, covering classes VI-VIII, the objectives states that the children should be prepared adequately to face life and develop

capacities and attitude for productive work in which they have to participate. It suggests that children can at this stage, which is terminal should be able to acquire useful knowledge and skills, proper work habits, attitudes and character which contribute to productivity and national integration that should have started from the middle stage should be accelerated and brought to a satisfactory level of development.[15]

Interestingly, it also suggests that the first ten years of school education should include work experience in a holistic manner. In connection with areas of school work, work experience was accorded an integral space from classes I to X.

Excerpts from the National Curriculum for Elementary and Secondary Education: A Framework, 1988

0.1 Curriculum Scenario in Retrospect

…The father of the nation, Mahatma Gandhi, had visualised education as a basic tool for the development of national consciousness and reconstruction of our society. *Buniyadi Shiksha* as *Nai Talim* as expressed in the Wardha Scheme of education in the late thirties, represented the first significant effort to develop an indigenous national system of education in conformity with the needs and aspirations of the people. The main thrusts of this scheme of education, commonly referred to as basic education, were emphasis on all round development of the child, development of a secular national outlook and readiness to undergo and withstand pangs of national building, use of the immediate environment and work as the source of knowledge, integration of and correlation between knowledge and work, emphasis on the importance of experience in acquisition of knowledge and use of mother tongue as the medium of instruction and learning. The main goal of education was character building and not mere acquisition of knowledge. The emphasis was on evolving an educational system that would enable an individual to discover his/her talents, to realise his/her physical and intellectual potentialities to the fullest, to develop character and desirable social and human values to function as a responsible citizen.[16]

In this scheme of studies from the elementary to the secondary stage, work experience was seen as an integral part at all levels. It was also suggested that work experience should inculcate in the learners a respect for manual work, value of self-reliance, co-cooperativeness, perseverance, helpfulness, inquisitiveness, work ethics, attitudes and value related to productive work, and concern for the community. "…This experience would also be helpful on their entry into the work force. It should enable the learners to understand the concepts, facts, terms and scientific principles involved in various forms of work situation, know the source of raw material, understand the use of tools and equipment in production and service process acquires skills required in a technologically advancing society and conceptualise their role in the productive situation…"[17]

Excerpts from the National Curriculum Framework for school Education (2000)

The curricular framework highlights that at the primary stage, there is need for introducing an interdisciplinary area of learning integrating the major concerns of health and physical education, art education and work education. At this stage, emphasises need to be placed on nurturing ground for love of labour, positive social attitude and moral values so as to enable the child to be receptive to ideas of others with humility and sincerity in thought, work, and deed. This would provide children with opportunities for their development into social human beings and dedicated and contributing citizens for the society and the nation. The framework views work education as purposive and meaningful and needs to be an integral part of the learning process.

"The competency to be developed in this field should include knowledge, understanding, practical skills and values through need based life activities. Major categories of work which need to be specifically stressed include: (a) work pertaining to needs of the individual such as health, hygiene, clothing, cleanliness, etc.: (b) work in home to be performed as a growing member of the family: (c) work in the classroom, school and in the out of school activities integrated with school life as well as learning of other subjects such as physical education, art education, social studies, science and others specifically designed to foster certain learning objectives of work education; (d) work in the community focused on self-less service or seva; and work relating to vocational development, production, asocial usefulness and exploration of the world of work."[18]

Up to the secondary stage provisions exist for giving the students an opportunity under work education to do work. There is also a provision for an alternative scheme of pre-vocational education programmes at the secondary stage.[19]

Excerpts from the National Curriculum Framework, 2005

3.7 Work and Education

Work is also an arena of learning for children whether in the home, school, the society or the work place…Through work one learns to find one's place in society. It is an educational activity with an inherent potential for inclusion. Therefore, an experience of involvement in productive work in an educational setting should make one appreciate the worth of social life and what is valued and appreciated in society…The aspects of work…draws attention to the meaning working and the knowledge construction dimension of work…This is the pedagogic function that work can play in the curriculum…[20]

A separate section discusses in detail the importance of work centred education wherein there is an emphasis on how work education helps in promoting skills among children so that they have in-depth knowledge of resources, livelihood and they can appreciate its relevance and importance. The introduction of productive work as a pedagogic medium in the school curriculum will thus facilitate the linkage of students with their surroundings. It would entail reconceptualisation and restricting of specific aspects such as academic autonomy and accountability, curriculum planning, sources of texts, teachers recruitment and so no.

Thus, the National Education Policy, 2020, and all the curricular frameworks developed by the National Council of Educational Research and Training (NCERT) have accorded due importance to learning by doing, a vision that Mahatma Gandhi upheld in his scheme of *Buniyadi Shiksha*.

Footnote

1   Harijan 9-11-47, p401

2   The Collected Works of Mahatma Gandhi, Vol.72, pg79

3   Harijan19-1-47, p484

4   Harijan10-11-46, p394

5   Harijan, 6.04.1940

6   Harijan, 2.11.1947

7   Excerpted from the address by Mahatma Gandhi at the Wardha Education Conference, 22 October 1937 (translated from Hindi, Hindustani Talimi Sangh, 1957, pp, vii-viii) taken from the 'Report of the Wardha Education Committee of the central Advisory Boards of Education, 1939'

8   National Education Policy, 2020, p3

9   National Education Policy, 2020, p3

10   National Education Policy, 2020, p3

11   National Education Policy, 2020, p6

12   National Education Policy, 2020, p44

13   The Curriculum for the Ten year School: A Framework, 1975, p4-5

14   The Curriculum for the Ten-year school, A Framework, NCERT,1975, p11

15   The Curriculum for the Ten-year school, A Framework, NCERT,1975, p12

16   National Curriculum for Elementary and Secondary Education : A Framework, 1988, p1-2

17   National Curriculum for Elementary and Secondary Education : A Framework, 1988, p28

18   National Curriculum Framework for School Education, NCERT, p69-70

19   National Curriculum Framework for School Education, NCERT, p89

20   National Curriculum Framework, 2005, p59

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8.   *Harijan, 6.04.1940.*

9.   *Harijan 2.11.1947.*   ❑

Successful Mentoring of Students in Higher Education Institutions: Assess Pre and Post Mentoring Skills

Pratibha Bundela Gupta* and B L Gupta**

The success of mentoring programmes depends on the ability and willingness of mentees to harness the full potential of the mentoring offered by the institute for their personal, academic, and professional development. There is a wide range of skills that mentees should possess, or these skills should be developed before offering formal mentoring, or these skills should be simultaneously developed during the development of core skills through mentoring. The personal characteristics and level of ability and proficiency possessed by students for effectively undergoing a mentoring programme of the institute decide the time and efforts required by mentors to make the mentoring programme successful. The analogy of the potter and the suitability of soil for making decorative earthen pieces fits here. If the soil is not suitable for making the decorative pieces or if the quality of the soil is not up to a predefined level even the skilled potter may not produce the quality earthen decorative piece. The same analogy goes with the mentors, if the potential mentees do not possess the prerequisite qualities even the professional mentor will not be able to produce the expected results of mentoring. Gupta (2008) stated that students having characteristics such as aggressive, arrogant, cheater, conservative, complainant, defensive, depressed, destructive, frustrated jealous, lazy, procrastinator, worrier, and like requires counseling and not mentoring. Mentoring should be seen from two perspectives from the institute perspective to socialize the students in changing context of education. The other perspective is the student perspective which varies on a wide range of areas within personal, academic, and professional development. In many situations' students are not clear about their vision of life and related aspects of education, training, and development. They are not aware of their latent potential. Therefore, the need for mentoring students should be created by examples. The ability and willingness of students need to be developed before implementing the mentoring programme for students. The development of personal, academic and professional skills in students through mentoring programme determine the success of the programme. Indicative pre and post mentoring skills are listed in this paper.

Literature Review on Mentees Skills

NEA (1999) classified the qualities of effective mentors on attitude and character, professional competence and experience communication skills, and interpersonal skills. Lonnie D. Inzer (2005) described the mentoring component such as the mentor, mentees, relationship between mentor and mentees, and the organization. Lois Schenk (2019) stressed the quality of the relationship between mentor and mentees. The authors mentioned that a satisfying and trustworthy relationship results in positive outcomes. Darlington Agholor (2017) developed a conceptual framework for studying mentoring future engineers in higher education. Researchers described the characteristics of mentees on demographic and dispositional aspects. Phillips-Jones (2003) described the shared core skills of mentees and mentors such as listening, building trust, encouraging, identifying goals and current realities. The author further listed the mentee's skills such as acquiring mentors, learning quickly, showing initiatives, following through, and managing the relationship. Gupta (2008) stated parameters to explore self for students. The author included 25 parameters to explore the self. These are ambitions, aptitude, attitudes, aspirations, behavior, capacity, capability, confidence, habits related to learning, hobbies, interest, potential for learning, talent, reading skills, communication skills, self-learning and collaborative learning, relationship building, and the like. Gupta (2008) stated more than 50 types of behavioural problems of students and suggested avoiding such type of behavior during the mentoring process. UGC (2019c) declared curriculum life skills to unlock and discover potential and making students responsive citizens. The curriculum encompasses

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skills such as communication, professionalism, leadership and management, interpersonal skills, and universal human values. UGC (2019a) released a guide to student induction programme incorporating various activities such as socializing, associating, governing, and experiencing. AICTE (2018) issued guidelines for induction of students in technical institutions comprising a wide range of activities for students to induct, socialize and develop generic abilities in students. MacGregor (1992) described the collaborative approach to learning which is equally applicable for mentoring of the students. Melanie Moorcroft (2014) stated the characteristics of effective mentees such as commitment to the mentoring relationship, clarity in expectations, realistic, receptive, potential to perform at a high level, willingness, and respect. The authors stated key skills such as listening, reflecting, reframing, focus on learning, and commitment to own learning. Judy McKimm (2007) stated characteristics of good mentees such as willingness to learn, develop, and participate, intelligent, learn quickly, ambitious, keen to succeed, accept power and risk, loyal, committed, conscientious, flexible, adaptable, self-aware, well organized, accept challenges, and receive feedback. Serrat (2009) stated that 'coaching and mentoring can inspire and empower employees, build commitment, increase productivity, grow talent, and promote success'. The author stated reasons to coach and mentor are building skills, progressing projects, developing careers, solving problems, brainstorming, overcoming conflict, and re-motivating staff. Collett (2012) stated the skills of the coachee as questioning, a shared vocabulary, listening, self-reflection, critical thinking, self-evaluation, refine the focus of learning, be positive, respond to questioning, and be active.

Skills of Students' Mentees for Undergoing a Mentoring Programme of the Institute

Before Mentoring

- Appreciate the importance of mentoring programme of the Institute for one's own development.
- Study mentoring programme guidelines of the institute to take maximum advantage of it.
- Attend an awareness programme conducted by the institute on mentoring to have a deeper understanding of the programme.

- Clear doubts and apprehensions about mentoring from the mentoring coordinator to get involved in it.
- Choose the aspect of mentoring in which mentees want to participate.
- Prioritize the areas of interest in which mentoring is required to participate in relevant mentoring events.
- Show willingness to participate in mentoring events aligned to one's personal, academic, and professional development.
- Believe mentoring help attainment of goals.
- List the expectations from the mentors which mentees want to satisfy during the mentoring process.
- Demonstrate strong zeal to learn and develop to achieve the goals set.
- Ask relevant questions related to goal accomplishment and socio-emotional support.
- Accept the challenge for learning and development to achieve the goals.

During Mentoring

- Study the profile of the mentor and match the profile with self-preferences
- Set the challenging academic career goals which are attainable in a specified period
- Show determination to achieve the personal, academic, and professional goals
- Practice conscious learning and development process to achieve the goals
- Believe in openly sharing information with mentor
- Openly receive feedback for learning, and improving the performance
- Demonstrate proactiveness for learning and development
- Pay respect to mentors for their expert advice
- Exhibit cheerfulness during the mentoring process
- Cooperate mentor for understanding the mentoring requirements answering their questions
- Demonstrate faith and confidence in mentor and mentoring process
- Show commitment tolifelong learning

- Learn learning to learn skills and thinking to think skills
- Participate in the mentoring process
- Create a supportive environment for mentoring to happen effectively
- Prepare a tentative mentoring schedule
- Demonstrate enthusiasm for learning and development
- Act on new ideas and share experiences with the mentors
- Complete projects, assignments, tasks, and activities in time with the expected level of quality
- Demonstrate listening skills during the mentoring process to understand mentor's perspective
- Articulate career goals
- Use feedback for improving learning
- Communicate effectively
- Share information frankly and openly with mentors
- Seek guidance, help, advice, guidance, support, encouragement, consultation, and direction from the mentors
- Manage time during the mentoring process
- Familiarize mentoring approaches and methods with mentors
- Practice a high level of self-learning skills
- Demonstrate micro observational skills
- Develop network with mentors and mentees for collaborative learning
- Explore learning and development methods for self
- Solve learning problems
- Remove barriers to learning
- Accept challenges
- Maintain trustworthy relationship with mentor and other mentees
- Manage emotions during the mentoring process
- Document significant learning and development experiences in the form of anecdotes
- Assess progress of learning and development
- Adhere to the code of conduct of mentoring
- Welcome constructive criticism

- Mobilize resources for learning
- Assume corrective learning and development assignments
- Reflect on learning and development progress with respect to personal, learning, and career goals
- Self-appraise progress on the learning process
- Appreciate the efforts and time devoted by mentors
- Report progress on learning and development to mentors
- Use tools and techniques of learning and development
- Self-reward for achievement
- Stretch capacity to learn

After Mentoring
- Self-assess achievement of goals
- Provide feedback on the effectiveness of mentoring and improving mentoring programme of the institute
- Share experiences of mentoring
- Encourage other students to participants in a mentoring programme
- Terminate mentoring relationship

Development of Competencies in Mentees

Development of competencies in mentees after undergoing a mentoring programme of the institute is another significant aspect of the success of the mentoring programme of the institute. The core competencies are stated in NEP–2020 (MHRD, 2020) Jeevan Kaushal (UGC, 2019c), students induction programme (UGC, 2021), self-assessment report (NBA, 2018), (Hadiyanto, 2010). Mentees demonstrate the abilities under a major competency framework at the workplace.

Domain-specific Abilities

Demonstrate domain-specific abilities to deal with different situations in the world of work such as planning, decision making, problem-solving, performing the task, managing resources, and the like.

Creativity

1. Demonstrate creativity in various situations of professional life.

2. Encourage creativity of team members in various situations.

3. Apply creative ideas in real-life situations.

4. Visualize whole based on parts.

5. Visualize a future image of the situation.

Leadership

6. Use influential skills to mobilize the team for goal accomplishment.

7. Apply the appropriate style of leadership in a situation.

8. Perform the role of a leader effectively and efficiently in a given situation.

9. Use the power of expertise to influence the behaviour of followers in a given complex situation.

10. Evaluate the effectiveness of leadership.

Planning

11. Set SMART goals in a context.

12. Diagnose status with reference to goals.

13. Design strategies to accomplish the goals.

14. Put plans in action.

15. Evaluate the achievement of goals.

Problem Solving

16. Identify problems at an early stage.

17. Define the problem in a context.

18. Explore the root cause of the problem.

19. Use appropriate tools and techniques in the problem-solving process.

20. Assess the consequences of the solution in a context.

Decision Making

21. Identify the decision-making situation at an early stage.

22. Analyze the situation with reference to decision-making.

23. Generate adequate alternatives to make the decision.

24. Identify appropriate criteria for decision-making.

25. Involve affected parties in decision-making.

Communication

26. Analyze the situation requiring communication and set the purpose of communication.

27. Design effective messages and media to communicate.

28. Communicate the message using the verbal, non-verbal, and written modes of communication.

29. Receive feedback on the effectiveness of transferring the message.

30. Analyze the effectiveness of the communication.

Working in a Team

31. Form a team for achieving a specific goal.

32. Build a team to achieve the goals.

33. Mobilize the resources of the team to achieve the goal.

34. Influence the team to perform in an integrated and effective way.

35. Evaluate the performance of the team.

Conflict Management

36. Diagnose the conflicting situation.

37. Analyze the situation to identify the sources and causes of conflict.

38. Use conflict management styles to resolve the conflict.

39. Use conflict management tools and techniques.

40. Evaluate the conflict management effectiveness.

Motivation

41. Analyze the needs that motivate you.

42. Ensure self-motivation.

43. Motivate others in a specific situation.

44. Assess your effectiveness on motivation.

45. Provide recognition for achievement to self and others.

Feedback

46. Receive feedback on performance.

47. Provide feedback on performance to others.

48. Use feedback for improving the performance.

49. Use tools, techniques, and media for enhancing the effectiveness of the feedback process.

50. Take self-feedbackbased on progress on the task.

Time Management

51. Minimize time-wasting activities.

52. Improve efficiency in performing the task.

53. Prepare plans to achieve objectives in time.

54. Decide priority of goals with respect to time.

55. Use time-saving methods in performing tasks.

Career Selection

56. Set goals for career advancement.

57. Gather adequate information related to career options.

58. Diagnose self-strengths and weaknesses with respect to career.

59. Design strategies to achieve the career goal.

60. Satisfy the aspirations and expectations of parents and significant others.

Learning

61. Diagnose learning styles of the self.

62. Use appropriate learning styles for developing a competency.

63. Use appropriate learning methods for developing the competency.

64. Refine the skills through practice.

65. Review the progress on learning.

Thinking

66. Use opportunities to develop thinking skills.

67. Reflect on the thinking process.

68. Analyze situations from nontraditional/creative point of view.

69. Bring different perspectives to a situation.

70. Apply theory in a real-life situation.

Stress Management

71. Diagnose the situations that create stress.

72. Identify the stressors.

73. Use stress prevention and management techniques.

74. Develop healthy mental, physical, social, and spiritual habits.

75. Manage difficult situations with patience.

Reading

76. Assess the need for reading.

77. Read between and behind the lines.

78. Read graphs, charts, figures, drawings signs, etc.

79. Read in different situations.

80. Review reading skills.

Notes Taking

81. Maintain a diary of significant events and experiences.

82. Use standard words, symbols, and signs in notes taking.

83. Use a variety of ways of note-taking.

84. Take out the meaning from the notes.

85. Use notes for various purposes.

Report Writing

86. Decide parameters of writing a report.

87. Use graphs and charts in the report.

88. Draw conclusions based on facts and figures.

89. Make a presentation of the report before the teachers and experts.

90. Share experiences of the report.

Professional Ethics

91. Demonstrate professional ethics

Use information technology

92. Use learning management system

93. Use e-learning resources

94. Use learning platforms

Professional Skills

95. Adhere to safety rules

96. Use hygienic practices

97. Maintain cleanliness

98. Assure quality of product or service

99. Encourage transparency in the functioning

100. Develop sustainable solutions

Suggestions

It is suggested that higher education institutions should:

1. Design the mentoring programme for students in totality incorporating the provision of schemes of UGC, AICTE, and national education policy 2020, requirements of most of the students, and mentor's competence in the institute.

2. Bring mentoring, coaching, guidance, and counseling under one umbrella and offer through a mentoring cell of the institute.

3. The students may be divided into three groups viz. possessing pre-skills at the highest level, middle level, and low level. Early accepters possessing pre-mentoring skills should be considered on a priority basis and mentored intensively to demonstrate the impact of mentoring to other

students of the institute. The other group will get influenced and come forward for participating in mentoring programme of the institute.

4. Identify the problematic group of students to be counseled to get involved in the learning and development activities.

5. Draw the profile of the students before and after mentoring to assess the impact of mentoring programme on the students.

6. Impart training to teachers to assume the role of a mentor. The teachers should use teaching, learning, and mentoring methods to develop by-product learning along with domain-specific learning. These teaching, learning, and mentoring methods should result in by-product learning.

7. Encourage students to practice self-determined learning, reflection on learning, collaborative learning, intrinsic motivational learning, and cognitive learning.

8. Offer large group mentoring on a priority basis to create an environment of mentoring of students in the institute.

9. Offer mentoring on common areas of skills development that are needed by most of the students in the institute.

10. Use mentoring push and pull approach. Use push approach for introducing change in the context of developments taking place in higher education and pull approach for harnessing the full potential of students for learning and development in priority areas of the students.

11. Use the proactive and reactive approach of mentoring to fire the latent potential of students and solve behavioural problems of the students.

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Open Educational Resources: A Complementary Tool for Teaching and Learning during COVID-19 Lockdown

Gagan Singh* and Gopal Datt**

Information and Communication Technology (ICT) empowered the way for dissemination of knowledge over a wide spectrum. This makes it very useful for improving access and equity in the entire education sector. ICTs can be leveraged to complement the formal education system as well as the distance education system at all levels. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. The educators are creating and using digital content for teaching and learning. The access to quality content is possible only for those who attend higher education institutions or those who can afford to purchase the instructional material. The OER movement aims to make this content available for free use for enhancing educational opportunities for hitherto unreached sections of the society thus leading to equalizing of access. In India also a number of meaningful initiatives are being taken up to embed the OERs into the educational environments of today by Indian universities. The Indian Government has played a proactive role by providing impetus to the growth of OER movement in the country through various national policy initiatives. A large number of national policymaking bodies such as National Knowledge Commission (NKC), University Grants Commission (UGC) and other advisory bodies are providing the support to the movement in the country for improving access to quality education.

Ancient and Modern Scenario of Teaching and Learning

In ancient Indian education system education was-free and accessible to all and the system of education was intimately connected with the social structure. Teachers were a highly honoured class and the learned men were respected everywhere. The aim of ancient Indian education was to develop both the body and the mind. It intended to develop sound mind in sound body. Education was all-round, i.e., complete or total development of personality—intellectual, physical, moral and social. The ultimate aim of education was the complete realization of the self and this system of education was individualised and not institutionalised. The basic feature of this system is that it had both catholicity and elasticity in outlook and as such it had the power of adaptability. It was not rigid but flexible. So it continued for centuries. The same is required and essential in the present education system of India.

Teachers play the most important role in schools, colleges and universities. Hence, they should be given the best of class training to cope up with the new aids of teaching and learning. In the renaissance of technology, technology and education system cannot be kept apart. Therefore, technology must be taught right from the early years of the education to make the students familiar with the advancement of ICT well in advance. Hence, technology and education must be embraced with open heart by all the higher educational institutes and it must be propagated to the students also. But it is the need of the hour that students must also be taught in-depth about the morals of life and inculcated with humanistic values.

Presently, Indian higher education system constitutes of total 993 universities, 39931 colleges and 10725 stand-alone institutions; including 1Central Open University (IGNOU), with 14 State Open Universities and 1 State Private Open University. There are 110 dual mode universities, which offer education through distance mode as well as traditional mode too. As per the AISHE survey 2018-19 the total number of the students enrolled in all the higher education institutions is 3.73 crore and number of teachers is 14.16 lakhs.

Role of OERs in Teaching-learning

The Open Educational Resources (OERs) are the learning material offered freely to anyone which

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can be adapted by educators or scholars. OER allows us flexible learning in terms of anyone, anywhere and anytime with simultaneously it enables ICT based education in the country. Today, as internet users are increasing massively the OERs can perform the special role to engage internet users towards learning. The OERs movement was started early but got momentum by MIT initiatives in year 2001, when they decided to offer their learning material free to use for the world. After that too many educational institutions came forward for this movement. Thus that OER moment got popular among the world of education. It also addresses several challenges faced by higher education such as—freely availability of educational material, quality learning material, reusability, sharing of resources, etc. In this consequence the Government of India initiated several mission-mode projects for the support of OER and ICT enabled education in the country, e.g. NPTEL, SWAYAM, NROER, Digital Library Inflibnet, *Swayam Prabha*, eGyanKosh, E-PG Pathshala, etc.

The open educational resources are considered to widen access, reduce the costs, and improve the quality of education among the community. The rapid development and the increasing use of OERs in higher educational institutions is a good signal for futuristic education. (Mtebe Joel S., Raisamo Roope, 2014). These resources can be very useful during pandemic like coronavirus and they can be used as a complementary tool for the dissemination of the knowledge amongst the learners across the world.

OERs believes sharing of knowledge and re-use of educational material either in digital or any other form for the better shaping of educational world. These OERs can facilitate the teaching and learning process when face to face teaching is not possible between the teacher and learners. OER plays a significant role to improve open and distance learning education in the country, in terms of quality, accessibility, reachability and competitiveness with traditional education. Some popular OER repositories across the globe are- OER Commons, Khan Academy, MIT BLOSSOMS, COL Virtual Learning, Directory of OER, COL's Institutional Repository, Virtual University of Pakistan, LabXchange, MIT Open Course Ware, Lumen Courses, MERLOT, eCampus, Skills Commons, NPTEL, SWAYAM, NROER, Saylor Academy and etc. The OERs have provided new direction for changing teaching-learning

practices. New collaborative learning practices are emerging. The easy and free availability of quality materials facilitate the educators towards developing and learning new pedagogical models. The use of Open Educational Resources (OERs) facilitates the sharing of knowledge and helps in preserving and disseminating indigenous knowledge.

Challenges and Barriers of OERs in Indian Perspective

In developing countries like India, OERs has a great potential for providing quality education for all aspirants as well as filling the gap of deficit of good teachers. Adoption of OERs can become the medium of reaching the unreached and also can overcome the severe challenge of accessing quality education across the country. In the era of ICT, the role of OERs is more prominent for changing landscape of education, better learning opportunities, faculty development, remote accessibility of educational resources and finally empowering education. Now the educators in India are focusing to develop and design e-contents for the teaching-learning purposes with open license. OERs movement in the country aims to access free and quality e-content till the remotest corner of the country. The OERs open the doors of new models of teaching-learning through blended and collaborative learning. Despite its benefits to learners, educators and educational institutions, there are urgent issues that need to be resolved for OER to flourish. As far as Indian scenario is concerned, inadequate resources to invest in the required hardware and software lack of broadband access, lack of the skills needed to use technology, lack of clear policy in institutions regarding OER and issue of language etc. are the certain impediments which hinder the growth of OERs in India.

With the world wide popularity and proven usefulness of OERs, still it faces some significant challenges specially in Indian perspective, e.g. infrastructural barriers, language barriers, technical knowledge barriers, availability of Internet connectivity and speed, etc.

COVID-19 and Open Educational Resources (OERs)

The current global pandemic corona virus disease (COVID-19) outbreak has posed a very serious challenge to the entire world, including

India. With the massive and abrupt move to remote teaching and learning, higher education institutions need to address a system which will be able to make education available to everyone in the country. It is the need of the hour that there should be free access to online content. Initiatives like this will assist the many educational institutions forced to move to remote learning. In this time of crises, many countries offered online learning as an alternative. It is believed that open & distance learning and online learning can have the same outcomes as campus education without requiring teachers and learners to be in the same place at the same time, if these approaches are well prepared and designed as per the need and requirements of the local aspirants. Many international and national organizations like Commonwealth of Learning are ready to share their expertise, knowledge and resources to enable stakeholders to keep the doors of learning open for all. During pandemic like corona virus, it becomes necessary to explore novel ways to enable interaction between learners and other learners, learners and teachers and to use appropriate technologies and also a renewed commitment to sharing and re-using open educational resources (OER); so that no one is left behind. Therefore, all the educationals institutions should take policy decisions to adopt alternative ways of teaching, including online learning and to ensure that learning is delivered using ICT tools such as radio, TV, mobile devices so that no learner is disadvantaged. Developing countries like India firstly identify the existing open educational resources (OERs) to provide quality learning and also encourage all the educational institutions including teachers to use free resources to conduct online classes. By using these innovative approaches, a nation can open the doors of learning not just for formal education but non-formal and informal learning that is accessible, affordable and available to the last person in the queue (COL, March, 2020).

Keeping all these in view, a study has been carried out to examine the usage and barriers of Open Educational Resources (OERs) in Indian higher education during pandemic. In this paper the role of Open Educational Resources (OERs) in ensuring the quality teaching and learning process in higher education during pandemic like COVID-19 and how the barriers which hinder the progress of OERs can be overcome has been studied. Objectives of the study are:

- To analyze the usage of Open Educational Resources (OERs) in teaching and learning process in higher education.

- To identify the barriers to Open Educational Resources (OERs) and recommend suggestions for overcoming the barriers which hinder their progress in India.

It is a descriptive research. It has been carried out to examine the acceptance and barriers of Open Educational Resources (OERs) in perspective of

Table 1: Components of Virtual Learning

OERs	The teaching- learning materials those are available in public domain under open license with no cost.
MOOCs	MOOC is an online course aiming larger audience/participation across the world and open access using web-based platforms. It typically includes, video lectures, online readings, problem sets, quizzes, and discussion forums.
LMS	LMS is a software application that is used for online courses which facilitates course administration, tracking, reporting and delivery. Example of LMS is- Moodle, Open edX, Blackboard Learn and etc.
Open Course Ware (OCW)	An OCW is a free, openly licensed, course work accessible to anyone-anytime using Internet. OCW are organized courses with high quality digital course material, course planning and evaluation tools as well as thematic content.
Online Learning	Online learning or e-learning education that takes place over the Internet. It is a form of Virtual Learning.
Open Education	Open education broadens access to the learning and training typically using online without academic admission requirements.

Source: Compiled by Authors.
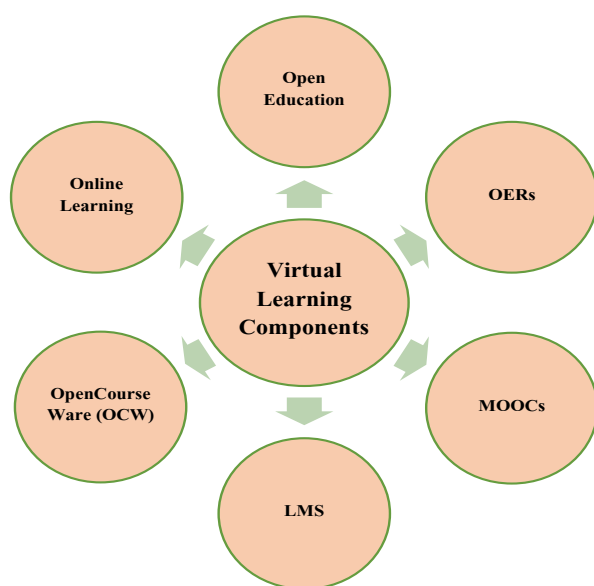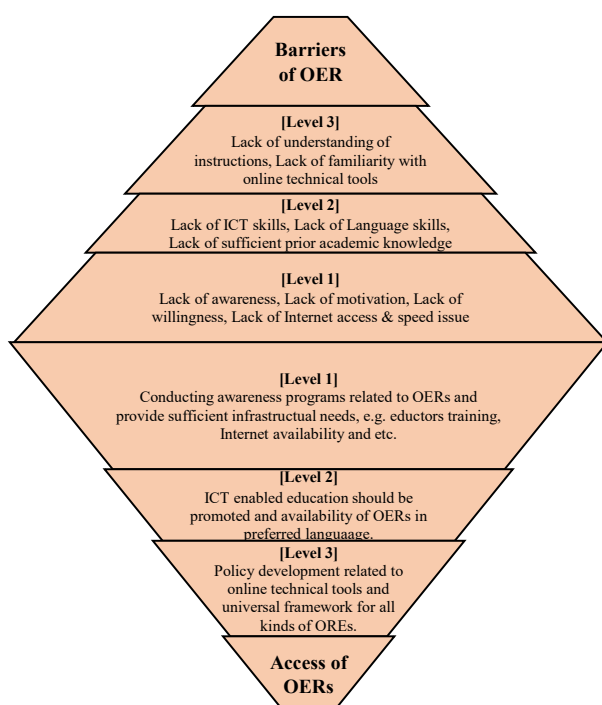
Figure 1: Virtual Learning Components

Figure 2: Access and Barriers of OERs in India

Indian higher education. The data required for the study was collected from secondary sources. In the light of the objectives of the study, the information has been collected from various published reports and notifications of Open Universities and Distance Education Institutes operating in India, University Grants Commission, Ministry of Human Resource Development, etc.

Findings and Conclusion

The Open Education Resources (OERs) have emerged as a useful means for providing high quality education to the masses across the world. The various developments in digital technologies have played a catalytic role in the open education movement in developing countries like India. In distance education scenario of today, there is a paradigm shift towards more personalized and collaborative learning. Open licensing, a distinguishing feature of OERs, sets it apart from other resources and enables the user to use and reuse content according to individual needs. Earlier it was not possible because there are many legal constraints on collective use of knowledge developed by the world leading educational institutes. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. The OER has led to an emergence of creative participation in the development of digital content in the entire education sector. A number of innovative initiatives aimed at providing easy access to educational resources have been taken up. However, OER practices in India are currently in an initial stage of development and a number of issues need to be considered. But the potential for growth of the OER phenomenon in India cannot be denied and more such initiatives should be encouraged in the open and distance learning systems in India.

In developing countries like India, there are many economically disadvantaged students who do not have access to broadbands and laptops. In situation like this digital learning might not be the ideal solution or it cannot be a substitute tool for teaching and learning. In India, majority of the learners are not tech-savvy or they don't have the access to the high-speed internet. Therefore, the teaching and learning process will definitely suffer. The inability to bear the cost can also be one of the hindrances in the way of OERs. Unless India makes internet available to all, there are chances that the gap in education quality may widen. In order to overcome hindrances caused in the way of Open Educational Resources (OERs) in Indian Higher Education, following measures can be taken into account:

- To match the teaching learning environment, new and appropriate technology should be adopted by the policy makers.

- To increase the awareness among the teachers, researchers and learners about the availability and benefits of OERs in facilitating quality teaching learning process, Government, university authorities and head of the educational institutions should initiate necessary steps.

- There is a need to develop skills among the teachers to use or share the resources developed by other teachers or institutions.

- In order to create, federate, and find the best OER resources available worldwide, proper infrastructure needs to be developed.

- It is also suggested that appropriate e-infrastructure or cyber infrastructure needs to be generated in the country.

If the Indian education system starts taking these points into serious consideration, we can attain the level of the best education system in the world.

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Purpose of Education is to Find the Beauty of Life

Nirmala Sitharaman, Hon'ble Finance Minister, Government of India delivered the Convocation Address at the 29ᵗʰ Convocation Ceremony of Nirma University, Ahmedabad, Gujarat on March 20, 2021. She said, "I appeal to all of you, you've accessed some best of education through your university but I would like to tell you that young minds should have no fear, normally they don't, but I still say they should have no fear, particularly I would appeal that you shouldn't be worrying about approval by others. It is important to contribute your own, it is important to understand what desire, what drive, what energy lies within you and contribute to society without a sense of fear." Excerpts

I am extremely glad to be participating as a guest in the 29ᵗʰ Convocation which is being held today. It's only a virtual participation and I'll admit I look forward to a day when I can physically appear and be there in the University and understand more and more about the good work that you all are doing. Established only in about 2003, within slightly over a decade you have made immense contribution to higher education in India. And on that score I think the teachers, the management, and the cohorts of students who have passed out have really made a milestone achievement in university education in India and on that score I wish to place my appreciation.

Convocation are days when students look forward to receiving their degrees, certificates of good performance, medals and all kinds of commensurations which are due to them. But every time we pass out of universities we also implicitly commit ourselves to building a better country, better society, better future for ourselves and for the generations to come. And therefore every convocation is a very sacred event. If you ask me, each Convocation builds one more brick in the fundamentals of India's society essentially because the brick is made out of the soil of this land, the spirit of our forebears and also the cultural inheritance which actually colours and also gives the strength to the brick itself and therefore I would think it's important for us to understand that whilst it gives us extreme and good joy, memorable event that it may be, a convocation is the day that foundation is getting strengthened both by the institution and also by each one of us who participate in this event and particularly the students who have to take from that day a greater responsibility towards their own career and also towards India and its future. And in this I concede the role of the government is from the platform of a duty its government's duty to

support education, to support young population, and students because it is they who look forward to building with their skills, with their knowledge a better society and after all it is a compact between the citizens and the government and the state that it is necessary for facilitation the government in the larger public good does everything to enable and facilitate the students and it is in that spirit that the New Education Policy (NEP) of India has been brought out recently and it has really been welcomed by all stakeholders in the education sector. I think it gives the students the flexibility which is required to do interdisciplinary study. I am one of those who benefited from interdisciplinary nature of education. If it is provided that actually gives a wholesome and holistic approach to education itself. So our government's focus I suppose like many others before us is very clearly on to focus on not just imparting education but also making students employable and that is where most things we have done to the student, their education, their skill imparting have all been to awaken that enterprise spirit that lies in every individual. That spirit may be useful for one particular set of trade or another particular set of trade, never matter. That spirit is what is important and I know Nirma University being in Gujarat, a land of entrepreneurship doesn't need a lot more to be said on it. But the education policy itself it focuses on not just rote learning, not just important imparting in the class between the teacher and the student a certain kind of exchange of knowledge, exchange of information; it's more to draw that spirit from within each student and that is why it is important. I would like to with great pleasure recall the words of Swami Vivekananda on this where he speaks about the purpose of education.

Purpose of education he says is to build life, to build character so life building – character

building engagement is what is education for him. And life building and character building also leads to assimilation of ideas. An assimilation of ideas is not just for itself. Whilst assimilating these ideas the key ideas will have to be completely imbued by us, absorbed by us, and not just absorbing it, living by it. Only when you live by certain of these key ideas which you may later call as your goal, your objective or your principle but unless those ideas which you assimilated, imbued within yourselves are set as your goals or principles to live by them you really don't become an educated individual. And I am only paraphrasing Swami Vivekananda's thoughts in this where he says someone who lives by the principle, lives by the key ideas that he has accumulated in the process of education is a far better educated and knowledgeable person than he who has just memorized say thousand books. Absolutely true. Wouldn't you agree because it is not by rote learning that people have become great men, it is more the way in which ideas have been absorbed, lives and exemplar life and living an exemplar's life he actually stands out as one of those knowledgeable wise men and women around and that is why that spirit of Swami Vivekananda is what is guiding this government whilst we revamp education. And education system whether it is in the primary level or in the higher education level.

One or two announcements in the budget recent one, February 1, 2021 may be very pertinent in this context for me to recall. We have come up with a National Apprenticeship Training Scheme for providing post education apprenticeship, training of graduates particularly those in engineering with diploma and graduation and I have given an outlay of Rs 3000 crores for this particular thing because most of the time when you speak to the corporate leaders, business leaders; they do say India produces a large number of graduates in every one particularly in the STEM area, you know Science and Technology, Engineering and Medicine. You have a lot of graduates coming out of universities but most often even in those sectors where the churn is a lot more people in the business areas, business leaders often say yes we have these graduates coming, we get them recruited but it takes nearly a year, complete year for them to even understand and fit in into the groove. Employability becomes an issue. Many of the employers therefore spend not just one year in investing in that employee who

has just joined them but yet to contribute to them in making him employable. So it is the necessary skill set which are for employment which are probably not adequately present even after the college or the university education. And that is where this Apprenticeship Training Scheme that we planned for which outlay is been made is of importance. There are also negotiations going on which again I mentioned during the budget with countries like the UAE, with Japan; each one according to the kind of skill sets that they would need for the various kinds of job offers that they have in this post corona world. So these kind of engagement with those governments clearly indicates to us what is actually required of many of our graduates so that opportunities are galore. Most of these countries do want our Indian graduates because they contribute with a certain amount of sincerity, with a certain kind of dedication which is so typical in the Indian students and I am so happy for that but dedication requires the suffusion of these extra skills, whether it is language or whether it is certain set of skills which is required in those particular countries and we are ensuring that the engagement is going to give us that advantage with which our youth can be better trained. And therefore I would want to say, Indian education system gives several such knowledge based talents, knowledge based endowments to the student but a bit more of value addition in the form of those skills required is what is being driven by government so that students have that lead advantage when they face the market for their jobs.

Now also I wish to recall that we had announced even in 2019 setting up of a National Research Foundation which would pool together all government's money which is scattered around, scattered across various departments and therefore not giving us that lead advantage. Now because we pooled it all up to form the National Research Foundation, I am glad to say a 50,000 crore allocation has been made for over five years in which this entire money would be available for additional research, innovative research and also looking at strengthening of those ecosystems which prevail for research in this country. There are about 24 of them. All of them need greater strengthening. They have been there but the synergy of these 24 ecosystems for research and for greater innovative thought is not yet prevalent and therefore this 50,000 crores over those five years will hopefully strengthen and give

that value addition for our research and research related activities.

I am sure many of you are aware that private sector has been given a lot of importance in this budget and in that we have opened up several areas which were till now completely reserved only for government and why do I have to say this in the university context particularly during a convocation. I say it only because the areas which are being opened up are so rich in possibilities, these are the areas in which university graduates, students who are coming out of university have immediate possibility to get in and be an entrepreneur. To innovate and support, to contribute with the newer thought, to bring in that youth energy which these sectors constantly survive and prosper with. For example, Space and Atomic Energy can immediately benefit from that energy that you have towards contributing with positive thoughts and also with your fresh skill sets and therefore space and atomic energy being opened up for private participation immediately offers immense scope for even individuals and not necessarily large companies who can contribute to that area of activity and there are immense possibilities. And therefore I quickly say that we have also in the recent budget allowed for one person companies to come into play. They can grow without any restrictions on paid up capital or on turnover. So when you have given this opportunity for one person companies to come in areas like space and atomic energy can easily have your inputs for their betterment and for your greater satisfaction that you are able to contribute to a premier frontier sector which is required in this country. Many startups have also during the COVID phase, I say this only because that is the kind of thing which Indian ingenuity has brought in. COVID pandemic was a lockdown, majority of the time you had to be partly of fully restricted in your movements. But even that did not deter our entrepreneurs. Look at the newer areas into which many of our startups have moved in saying oh even during a pandemic this is where my contribution will have to be and even then they have grown to become unicorns. Startups that have turned unicorns thanks entirely due to the corona restrictions. I can name a few, Raise the pay, Unacademy, Nykaa, stand out as entrepreneurs who have found niche areas thanks during the lockdown. So that a tendency, a good and positive tendency which exists in our minds as Indians to find newer opportunities, to find opportunities even during challenging times is what the spirit of being Indian entrepreneur is. And these are the times when most of us can find that energy, can find that positivity and find that typical Indian spirit of not just survive but prosper even if there are challenges.

I request, appeal to each one of you students who are getting your degrees today to look for that with a greater quest because that's what is going to make you as a strikingly different graduate, as a strikingly different youth, strikingly different youngster to stand out as an example for say several more youngsters. In this, even as I talk about students what they can do, what particularly enterprising individuals can do I will not forget the role of the teachers in this digital era. Look at the unsung revolution which is happening in primary schools. Children are probably looking to have company, they want to be physically next to their friends and which is right. But even than what is the contribution of the teacher, the online classes to which many of our teachers have very quickly adapted is something I would like to talk in every street corner. Today a teacher, a simple private primary school teacher has quickly adapted all kinds of technologies to reach out to their students who come from very different backgrounds. Not all of them even possess a phone in their hand but teachers have made sure that the communication is kept, imparting of learning is happening, and children from diverse backgrounds are being kept on contact, they are in the loop. Yes, it also has highlighted the big disparity between those who can access technology and those who cannot. But the fact remains that the teachers have tried bridging this gap and have also kept the momentum abound without betraying the fatigue which can set in. I can for one surely tell you moving from one to another, back to back on video conferences can be an exhausting exercise. But never mind, these teachers have not betrayed that exhaustion, that fatigue which can set in. And therefore teachers in our society, particularly in this rapid setting in digital era have done brilliantly for us and no wonder when the Prime Minister speaks of India which can be a Vishvaguru, it is this which makes them, it is this which Prime Minister and also all the ancient seers who have told us India has the potential to be a Vishvaguru. It is this kind of quality in a teacher which can rapidly adapt to changing circumstances, but not lose connection with their students. And that is where Indian teachers have got

that kind of a quality which makes us particularly as one of those who can be honestly teacher to the entire world.

I have spoken a word about the entrepreneurial spirit of Gujarat. Very many things have always happened for the first time there. I look at Nirma University as not just an educational institution of immense national pride but also as string medium through which this entrepreneurial and resilient spirit of India which is disseminated throughout the country.

As you stand as a strong medium, I wish you all the very best but one thing I would appeal to all the students, COVID or no COVID, jobs and jobs accessing being a challenge, notwithstanding and also this whole thing of do I match up with expectation of different people, do I really match up the expectation of my peer group, do my teachers like me, do my teachers understand me, understand my skills; none of this should be as a fear in your mind. I appeal to all of you, you've accessed some best of education through your university but I would like to tell you that young minds should have no fear, normally they don't, but I still say they should have no fear, particularly I would appeal that you shouldn't be worrying about approval by others. It is important to contribute your own, it is important to understand what desire, what drive, what energy lies within you and contribute to the society without a sense of fear.

I like to quote from Bertrand Russell, one of the very important thinkers in the English speaking world. In India we do somewhat read some of the western thinkers. As we say in Rigveda, knowledge coming from anywhere is good for us we will hear from all sides of the world. The window will be left open for knowledge to come in like a gentle breeze. I like to quote from

Bertrand Russell on this particular aspect, Fear of public opinion; I'm quoting here:

Fear of public opinion like every other form of fear is oppressive and stunts growth. I repeat this line, fear of public opinion like every other form of fear is oppressive and stunts growth. It is difficult to achieve any kind of greatness, it is difficult to achieve any kind of greatness while the fear of this kind remains strong. Unquote. This is a line I've taken from Bertrand Russell's book 'The Conquest of Happiness' he wrote it in 1930s. Today it is still valid. Fear of any kind of approval, or any kind of public opinion should not tug at the heart of young minds. You are there to be unfettered and to go forward and to contribute this great country's progress.

Thank you very much Nirma University for having given me this great opportunity to be with you all and to interact with your students.

I wish all of them a very best of future and the university a bright future too.

Jai Hind!

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CAMPUS NEWS

International Lecture Series on Quality Concerns in Educational Research

The International Lecture Series on 'Quality Concerns in Educational Research' was organised by the Department of Education, Annamalai University, Annamalai Nagar, Chidambaram, Tamil Nadu in association with All India Association for Educational Research (AIAER) and International Forum of Researchers in Education (IFORE) on May 17-18, 2021 through online mode. Prof R. Babu, Head, Department of Education was the Director of the event. Around 410 participants from all over the country joined through Zoom meeting and around 650 participants watched the event through youtube.

Prof P V Shelvam, Dean, Faculty of Education welcomed the gathering. The event was inaugurated by the Hon'ble Vice Chancellor, Prof. V Murugesan. In his Inaugural Address, he emphasised the need of quality in educational research and how it will contribute in decision making and in framing policies. Prof. R Gnanadevan, Registrar I/c, in his special address appreciated the efforts taken by the Department of Education in this regard and said that the theme of the event is the need of the hour, because quality research will give quality output. Dr. Sunil Behari Mohanty, President AIAER offered felicitations.

The first lecture was delivered by Prof. Stephen Mckinney, Leader of Pedagogy, Praxis and Faith School of Education, University of Glasgow, Scotland, UK. He highlighted that how to originate research ideas, and explained the various processes of research like how to select a topic, aims of research, implementation, dissemination and its impact on Government. Six key principles of responsible research, education research during COVID-19 and post COVID-19 were discussed. The speaker was introduced by Prof P N Natraj (Retired) and he served as the moderator of the session.

The second lecture was delivered by Dr. P Ravichandran, Malaysia on 'Building Quality Literature Reviews for Educational Research and in his lecture, he pointed out the need of literature review and explained that how to write effective review and the various tools and techniques in searching reviews. Questions were raised by the participants regarding the number of reviews required which was well explained by the expert. The session was highly useful to the young researchers who participated in the event.

In the third lecture, Prof. R G Kothari, Former Vice Chancellor, Veer Narmad South Gujarat University, Surat, Gujarat discussed about errors committed in research, highlighting various errors committed in selecting the sample size, using of tools, quoting references, difference between significance and importance of the study, method, and methodology. Lots of reference books on research methodology were suggested by the speaker. The session was very useful for the participants and his rich experience was revealed by the content of his lecture. The moderator of the session, Dr. T Manickavasagam, Associate Professor, Department of Education introduced the speaker. Many questions were raised by the participants and were suitably answered by the speaker.

The last lecture of the day was delivered by Prof Ram Ganesh, Bharathidasan University, Trichy, Tamil Nadu on how to publish a paper in high profile journals. He spoke about the various metrics like impact factor, h index of the journals, the expectations of the reader and the points that author should consider before writing an article, created awareness about publishers like Elsevier, web of science, research gate, etc., the format of the article to be followed with proper citations using various style manuals like APA, MLA, etc. The session was very informative and will really help the scholars in publishing their article in high profile journals. The speaker was introduced by the Moderator, Dr. T Manickavasagam.

Director of the event, Prof R Babu, Head, Department of Education, Annamalai University, delivered the lecture on 'Education Research in India: A Prelude'. He emphasized the point that research must be honest and highly objective one

and he mainly focussed on all the essential aspects such as Swami Vivekananda and Socrates views on Education, M B Buch Survey of Educational Research, areas of research in education, researches conducted in the Department of Education, Annamalai University, recent areas of research and greatness of Indian researches. He also highlighted the role of budding researchers in doing research on current issues of education. The speaker was introduced by the Moderator, Dr. T Manickavasagam.

Prof Balakrishnan Muniandy, Head, Centre for Research and Innovation and Professor of Educational Technology, Wawasan Open University, Malaysia spoke on 'Addressing Quality Concerns in Educational Research'. The significant contribution of his lecture was that it will help the researchers to identify the areas of research and what are the factors that influence educational research. A-Z of learning was well dealt with. He mentioned ten points that concerns with quality research. The speaker was introduced by Prof PN Natraj (Retired) and he served as the moderator for the session. The session was highly informative and was beneficial to the participants.

The next lecture was delivered by Dr. Rekha Koul, Dean, International, Faculty of Humanities, School of Education, Curtin University, Australia on 'Paradigms and Quality Standards in Educational Research'. In her lecture, she highlighted the various paradigms in research, how the students' emotions should be taken care of (personal approach) was dealt in a nice and interesting way. Emotional response to COVID-19 during and after lockdown was explained stage by stage. The lecture was informative; it touched upon the current issue of research and was well received by the participants. The speaker was introduced by Dr. K Praveena, Associate Prof, Department of Education and he served as the moderator for the session.

The last lecture was jointly delivered by Prof. Sandra Poirier, Middle Tennessee University, USA and Prof. Mary Ann, Grand Canyon University, USA on 'Sustainable Online Instructional Modules for the 21st Century'. In their lecture, they clearly explained the higher education digital capacity frameworks, factors that shape the face of education in 2030. The graphical presentation of the various aspects of digitalisation of higher education was very attractive and interesting. The lecture was highly informative making participants ponder about the future of education. Lots of questions were raised and the speakers dealt with them in an interesting way. The speakers were introduced by Dr. K Praveena.

The Valedictory Address was delivered by Prof S Kabilan, Former Dean, Faculty of Science and highlighted the significance of quality research in education and explained its need. The Vote of Thanks was proposed by the Coordinator of the event, Prof. V Ambedkar.

Online Faculty Development Programme

A seven-day Faculty Development Programme (FDP) on 'Research Methodology' was organized by the Department of Management, Sanatan Dharma College, Hoshiarpur, Punjab in collaboration with GGDSD College, Haryana, Sri Guru Har Rai Sahib College for Women Chabbewal, Moga College of Education for Girls, Moga, Babe Ke College of Education, Daudhar, Moga, and SDS College of Education for Women, Lopon, recently.

Prof. Sanjay Kaushik, in his inaugural address extended greetings to all the participants and said that every institution should develop its research capabilities and infrastructure and research should be promoted keeping in mind research ethics and its contribution to the society.

Dr. Ashish Rami, Director, Centre for Research and Development and Head, Rai School of Management Studies, Rai University Ahmadabad, in his address presented the overview of academic research and he affirmed that for a fruitful research activity one should always be motivated to do research and always involved in specialized activities associated with research.

Dr. Nimesh Bhojak, Hemchandrcharya North Gujarat University, Patan presented his lecture on 'How to Prepare Literature Review'. He asked few questions from the participants to energizes and warm up them. Further, he started his formal lecture. He explained the contents needed for an article and how to search material to write an article. He took the example of digital literacy in healthcare to clear the concept review preparation. He said that contents of articles have must title, abstract, keywords, literature review, methodology, result, discussion and conclusion. We should always go

through conceptual framework to do a research and before writing literature review we must go though literature synthesis.

Dr. Rajeev Rattan Sharma, Head and Professor, Department of Education, Jammu University, Jammu gave a comprehensive detail of sampling and sampling techniques. He explained each and every method of sampling technique in a very simple and impressive way. He suggested that one should be very particular while selecting a sample and sampling technique for a research project. While answering the queries of the participants, Prof. Sharma made it clear to all the participants that no sampling method can be said to be the best. The method is always selected as per the objectives and the need of the study, he stressed.

Dr. Ajai Pal Sharma, Assistant Professor, Central University, Haryana started his lecture on 'How to Prepare Questionnaire' with very practical and convenient approach. He explained the difference between data and information with various examples. Dr. Sharma explained that it is very essential to define the research problem before data collection. Dr. Sharma, in his address gave an overview of the process of question design. Questionnaire evaluation techniques reliability and validity of data was explained by him. The various techniques to test reliability and validity were discussed. The various secondary sources to collect data were discussed in detail.

Dr. Vijay Kumar Chechi, Head, Department of Education, LPU Phagwara started his lecture on 'Analysis of Data and Interpretation' explaining synthesis of analysis and subsequent composition of Interpretation. He explained the difference between various analytical techniques with various examples of each. Dr. Chechi, in his address gave the overview of process of analysis and described six types of research with the help of flowchart. Dr. Chechi, explained primary scales of measurement and analysis techniques. Further, he elaborated on 'Interpretation' by describing methods of arriving at correct interpretation.

Dr. Atul Kumar, Assistant Professor, PGDAV College, Delhi spoke about plagiarism thoroughly. After defining the plagiarism, he discussed different types of plagiarism with practical examples. He talked about various popular and authentic plagiarism softwares like Urkund, Turnitin and iThink. Dr. Atul advised the participants not to use free plagiarism checker softwares because of their low authenticity. Dr. Atul Kumar gave an account of how to cite a source using 7th APA style and how to quote a source in different acceptable ways. He told that software named Zotero being used for automatic referencing and suggested NVIVO Software for making the process of review of literature easier. Dr. Atul shared the UGC policy on plagiarism and explained different levels of plagiarism including the critical level where plagiarism is a serious threat to researchers. He taught the participants how to check plagiarism and generate plagiarism report using turnitin software step by step.

Dr. Bimal Anjum, Head and Professor, DAV College Chandigarh discussed the basic terms ethics, moral and values in research. He discussed the need of research in the present era. He discussed various issues related with quality of work and manipulation data. Norms and values of research, human dignity, consent and obligation to notify, confidentiality, storage of personal data, responsibility for avoiding harm, respect for third parties, protection of children, respect for privacy and family life, respect for the values and motives of others, respect for posthumous reputations, defining roles and responsibilities, respect for private interests, respect for public administration, respect for vulnerable groups, preservation of cultural monuments and remains. He discussed publication norms and how to improve the quality of research. He discussed in detail that what should be avoided during research.

The Vote of Thanks was proposed by Dr. Nand Kishore, Principal, S.D. College, Hoshiarpur on behalf of the College Management, Principals of various collaborating colleges, Head IQAC, Organisning Committee, faculty members and all the participants.

Conference on Responsible Business for Sustainable Development

A three-day Conference on 'Responsible Business for Sustainable Development' is being organized by the Indian Institute of Management Kozhikode (IIMK), Kunnamangalam, Kerala during December 16-18, 2021.

The impact of business and development on our planet and society has assumed center stage,

especially since the turn of the new millennium. Political leaders, policy makers, business leaders, academics, researchers and other thought leaders from various walks of society have sought to grapple with the sustainability agenda, in multiple forums. As extant models of business and development struggle to emerge with big-impact solutions for the seemingly intractable issue, the relevance of alternatives, such as traditional Indian thought leadership and their ability to influence decision in a global arena, take on humungous significance. The papers are invited on the following management disciplines centred around, but not limited to the conference theme.

- Marketing Management.
- Humanities and Liberal Arts in Management.
- Strategic Management.
- Finance, Accounting and Control.
- Organizational Behaviour and Human Resources.
- Quantitative Method and Operations Management.
- Information Systems.
- Economics.

For further details, contact Mr. Anandakuttan B Unnithan, Dean, Faculty Administration and Development Marketing Management, Indian Institute of Management Kozhikode (IIMK) Campus PO, Kunnamangalam, Kerala-673570, Phone No.: 0495-2809101, E-mail: *anandunnithan@ iimk.ac.in,* For updates, log on to: *http://www. anandunnithan.net/*

Online Short Term Course on Python for Machine Learning

A five-day Online Short Term Course on 'Python for Machine Learning' is being organized by Organized by the Department of Computer Science and Engineering in association with the Center for Continuing Education, National Institute of Technology, Warangal (TS). The Eminent Faculties from IITs, Central Universities, Industry and Senior Faculties from different Departments of NIT Warangal will be the Resource Persons of the event. This short term course aims at imparting knowledge and training on the fundamentals of python with different aspects and applications to machine learning. The Course Contents of the event are:

- Introduction to Python: Installation, Python Editors.
- Variables, Objects, Operators, Primitive Data Types Compound Data types: List, Tuples, Sets, Dictionaries.
- Conditional Statements Loops: for, While, Do While.
- Functions, Building Your Own Functions.
- Numpy: Multi-dimensional Arrays.
- Matplotlib: 2D and 3D Plotting in Python Regular Expressions.
- Scipy: Scientific Library for Python Pandas: Providing High-performance, Easy-to-use Data Structures.
- SymPy: Symbolic Mathematics and Computer Algebra.
- Scikit-image: Collection of Algorithms for Image Processing.
- Scikit-learn is a Collection of Algorithms and Tools for Machine Learning.

For further details, contact Coordinators Dr. M Sandhya, Assistant Professor*, Department of Computer Science and Engineering and/or Dr. K Venkateswara Rao, Assistant Professor*, Department of Mathematics, National Institute of Technology Warangal- 506004, TS, Phone No.: +91-870-2459191, E-mail: *nitwtraining2@gmail.com.* For updates, log on to*: www. nitw.ac.in.*

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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 April-May, 2021)

AGRICULTURAL & VETERINARY SCIENCES

Genetics & Plant Breeding

1. Pole, Shivshankar Panditrao. **Genetic analysis and stability performance of single and three way cross hybrids in sunflower (*Helianthus annuus* L)**. (Dr. H V Kalpande), Department of Genetics and Plant Breeding, Vasantrao Naik Marathwada Agricultural University, Parbhani.

Horticulture

1. Jabbar, Syed Shabnam Begum Syed. **Effect of chelated micronutrients, growth regulator and biofertilizers on growth, yield and quality of pomegranate (*Punica granatum* L) cv Bhagwa**. (Dr. G M Waghmare), Department of Horticulture, Vasantrao Naik Marathwada Agricultural University, Parbhani.

Veterinary Science

1. Sharma, Dinesh Kumar. **Evaluation of pharmacological activities of *Cassia Fistula***. Department of Veterinary Pharmacology and Toxicology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana.

BIOLOGICAL SCIENCES

Biochemistry

1. Kasiviswanathan, M. **Enhancement of immunity and disease control in common carp, cyprinus carpio challenged with gram-negative bacteria, aeromonas hydrophila through spirulina, arthrospira platensis supplemented diet**. (Dr. Jesu Arokiaraj), Department of Biochemistry, Gujarat Technological University, Ahmedabad.

Bioinformatics

1. Vijayasri, S. **Identification of potent centrally acting ligands for orthosteric and allosteric sites of metabotropic glutamate receptor 5 using bioinformatics approaches**. (Dr. Waheeta Hooper), Department of Bioinformatics, SRM University, Kattankulathur, Chennai.

Biotechnology

1. Reddy, D Amala. **In vitro and in vivo evaluation of wound healing potency of adathoda vasica**. (Dr. S. Sujatha), Department of Biotechnology, SRM University, Kattankulathur, Chennai.

EARTH SYSTEM SCIENCES

Environmental Science

1. Prajapati, Harishkumar Bhikhabhai. **Status, ecology and conservation of aquatic Avian Fauna of Thol Sanctuary, Mehsana District, Gujarat**. (Dr. Arun Kumar Roy Mahato), Department of Environmental Science, Rai University, Ahmedabad.

Geology

1. Barman, Binoy Kumar. **Drainage morphometry and morphotectonics of upper Tuirial River Basin, Mizoram**. (Prof. K Srinivasa Rao and Dr. N S R Prasad), Department of Geology, Mizoram University, Aizawl.

ENGINEERING SCIENCES

Biotechnology

1. Shankar, Mukund. **Ionic liquid-assisted processing of microalgae for biodiesel production**. (Dr. Rajesh M P), Department of Biotechnology, SRM University, Kattankulathur, Chennai.

Chemical Engineering

1. Kavitha, E. **Studies on membrane assisted separation of heavy metal contaminants from aqueous streams**. (Dr. Rajesh M P and Dr. Prabhakaran S), Department of Chemical Engineering, SRM University, Kattankulathur, Chennai.

Civil Engineering

1. Jagannathan, P. **Formulation and studies on the properties of bacterial concrete**. (Dr. K S Sathyanarayanan), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

2. Prasath Kumar, V R. **Investigation on the effect of admixtures in coconut shell concrete**. (Dr. Gunasekaran), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

3. Rajan, Sancho. **Bio-remediation of selected polycyclic aromatic hydrocarbons for contaminated soil and sediment in Chennai City: A semi microcosm**

study. (Dr. Paromita Chakraborthy), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

4. Ravitheja, A. **Studies on macro mechanical properties of self healing high strength concrete with addition of crystalline and mineral admixtures**. (Dr. T Chandra Sekhara Reddy and Dr. C Sashidhar), Department of Civil Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

5. Reddy, S Ramesh. **An experimental investigation on strength properties along with mode-II fracture and XRD analysis of concrete modified with artificial aggregates, pozzolanic and nano materials**. (Dr. V Bhaskar Desai), Department of Civil Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

6. Sharma, Madhu. **Behaviour of reinforced concrete stiffened skew slab**. (Dr. Naveen Kwatra and Dr. Harvinder Singh), Department of Civil Engineering, Thapar Institute of Engineering and Technology, Patiala.

Computer Science & Engineering

1. Adhirai, S. **Cloud computing: The security perspective**. (Dr. R.P. Mahapatra and Dr. Dr. Paramjit Singh), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

2. Ahlawat, Deepak. **GA-clustering based approach to optimize the storage capabilities in cloud environment**. Department of Computer Science & Engineering, Maharishi Markandeshwar University, Ambala.

3. Brahmbhatt, Manali Shashankbhai. **IOT powered traffic management system for smart mobility**. (Dr. Sonar Sanjay), Department of Computer Science & Engineering, Rai University, Ahmedabad.

4. Gopika, S. **Blind quality assessment of natural scene statistics images and enhancement of low quality images**. (Dr. D. Malathi), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

5. Lakshmi, K S. **NBDCP-A novel network based method for disease comorbidity prediction**. (Dr. Vadivu G), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

6. Molia, Hardik Karasanbhai. **A transport layer enhancement to differentiate losses in MANETs**. (Dr. Amit D Kothari), Department of Computer Science & Engineering, Gujarat Technological University, Ahmedabad.

7. Panchal, Niketaben Rajanikant. **A comparatively study of traditional and agile methodology with design new model**. Department of Computer Sciences, Rai University, Ahmedabad.

8. Parmar, Swetaben Vinaykumar. **A soft computing approach to educational data mining for improving student performance**. (Dr. L K Sharma), Department of Computer Science, Rai University, Ahmedabad.

9. Patel, Alex Vipinbhai. **A data analysis for e-commerce application to improve customer services using data mining techniques**. (Dr. Akash Saxena), Department of Computer Sciences, Rai University, Ahmedabad.

10. Pradeep, S. **Enhanced security model with improved energy efficiency for IoT devices ensuring secure communication**. (Dr. Malathy C), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

11. Priyadharshini, B. **A framework for optimal operation of wind turbines along with solar and grid supplies for a specific region in Tamil Nadu**. (Dr. V. Ganapathy), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

12. Savaliya, Rajeshkumar Rameshbhai. **A novel and optimized approach towards designing a framework for better handling of large amount of small size files in HDFS**. (Dr. Akash Saxena), Department of Computer Science, Rai University, Ahmedabad.

13. Vidhyalakshmi, M K. **Performance improvement strategies for person re-identification over camera network**. (Dr. E. Poovammal and Dr. Vidhyacharan Bhaskar), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

14. Vutharkar, Nagaveni. **A comparative study of the performance of classification methods with special reference to e-mail classification**. (Dr. Vimal Pandya), Department of Computer Science, Rai University, Ahmedabad.

Electrical & Electronics Engineering

1. George, Fernandez S. **Economic scheduling of electric vehicles in a parking lot and charging station recommendation**. (Dr. Vijayakumar T), Department of Electrical and Electronics Engineering, SRM University, Kattankulathur, Chennai.

2. Hemakesavulu, Organti. **Investigation on active damping controllers for grid connected multilevel inverter**. (Dr. S. S. Dash and Dr. N. Chellammal), Department of Electrical & Electronics Engineering, SRM University, Kattankulathur, Chennai.

3. Priyadarshini, M S. **Application of various wavelet transform techniques for identification of power quality disturbances**. (Dr. M Sushma), Department

of Electrical Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

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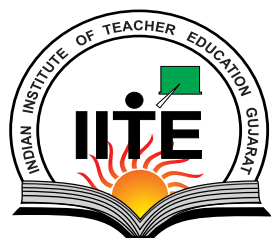
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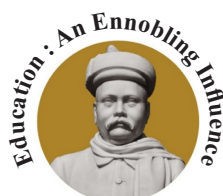
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