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CATALYSING NPE-2020'S VISION OF HOLISTIC AND MULTIDISCIPLINARY HIGHER EDUCATION WITH TECHNO-PEDAGOGICAL INNOVATIONS.

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Abstract

With the advent of new education policy (NPE-2020), India is moving ahead on the path of becoming a knowledge-based global economy and leading the world in knowledge and wisdom as in ancient times. Higher education has a greater share in making India a superpower. Policy suggest radical changes for higher education to achieve this end. There is a learning crisis in most of higher education institutions in the lack for holistic approach, rigidity of disciplines, proper learning environment, student support system and apathy to use technology in education processes. This research paper critically examines the high need of holistic and multidisciplinary education (HME) for its young and energetic learners for transforming them into all-rounded and creative citizens. To succeed with the scheme of HME, there is a vital need of complete metamorphosis of higher learning institutions, especially in terms of optimal learning environment (OLE) and student support (SS). Policy lays stress on integration of latest technology and evolving pedagogies for effective learning as per the needs of 21st century India. The education world is witnessing a huge wave of techno-pedagogical (technological and pedagogical) innovations in all spheres of teaching, learning and assessment, especially post-pendamics era. There is a growing trend of ICT, internet and digital technology, MOOCs (Massive Open Online Courses), blended and mobile learning, and other educational technologies in education. Technological advancement coupled with innovative pedagogies have the potential to optimize learning experiences by building optimal learning environments (OLE); and to generate a functional and efficient student support system (SS). Research paper analyzes the game-changer role of techno-pedagogical advancements to provide necessary inputs to evolve and implement the idea of HME by promising an effective OLE and SS in higher learning institutions across India.

***Key Words**: higher education, NPE-2020, holistic education, multidisciplinary education, optimal learning, student support, techno-pedagogical innovations, ICT, HME, OLE, SS.*

Introduction:

National Policy on Education (2020) of India regards education as a fundamental tool in accomplishing maximum human capacities; development of an equitable and unbiased society; and ultimately transforming India into a vibrant and knowledge-based superpower over the globe (p. 3). The prosperity and quality of life is directly linked with the quality of education. The Ministry of Education, India (n.d.) has accepted the crucial role of education in maintaining the social and economic balance of the nation and it considers the citizens as important and valuable resources which can be refined through quality education (para. 1). UNESCO has recognised the very essence of education in transforming lives in its global agenda entitled 'Education 2030' in its Incheon Declaration where Sustainable Development Goal 4 (SDG 4) captures one of its new visions as "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (p. 7). Higher education (HE) is crucial in societal, human and economic well being of a nation. Higher education enables an individual with personal accomplishment, social service, and productive contribution for social and national development. HE is a key to "vibrant, socially engaged, cooperative communities and a happier, cohesive, cultured, productive, innovative, progressive, and prosperous nation" (p. 33). NPE-2020 proposes a high quality higher education with equity and inclusion. To achieve this, the policy looks forward to include some root level changes in the current system. This research paper takes into account some of these changes that include moving toward holistic and multidisciplinary approach in all HEIs; revamping the learning environment with researched curriculum, pedagogy and assessment; and strong student support system for extended learning experiences.

Three most important milestones that the policy seeks to achieve include: Holistic and Multidisciplinary Education (HME), Optimal Learning Environment (OLE) and Student Support (SS) have been discussed in detail. Paper also throws light on the strategies of implementing HME set-up in the HEIs throughout the nation; developing and sustaining optimal learning environments for effective and quality learning; and developing effective student support mechanisms for redressal of personal, educational and vocational guidance.

Objectives: Research Paper has the following objectives to achieve:

1. To review the role of Techno-pedagogical innovations in achieving policy's vision.
2. To study and discuss implementation plans for Holistic and Multidisciplinary Education.
3. To develop and sustain an Optimal Learning Environment in HEIs.
4. To devise an effective mechanism for Student Support?

Methodology of Research Paper: Methodology of the research paper is descriptive in nature. It is based upon the review of various related studies, new educational policy, and various government documents. Personal experiences of researchers as educators have been a great source of enlightenment for the present paper.

Paradigm Shift in Role of Higher Education in India with NPE-2020

NPE-20 lays stress on the extreme role of higher education in development and promotion of individuals as well as social well-being. It equally envisions developing India, as per the tenets of her constitution, into a democratic, impartial, cultured and humane state by protecting and upholding equality, fraternity, liberty and justice for its people. Higher education plays a vital role in sustaining livelihood and economic blooming of the nation (p. 33). National Policy on Education (1986) remarked the role of higher education as survivor and it has a great share in national development through generation and diffusion of scientific knowledge and skills (p. 18). National Knowledge Commission (2009) briefed in its report that higher education has a noteworthy contribution in economic, social and political development and well-being of independent India. The commission also quoted that higher education keeps the economy dynamic which is a very important phenomenon for a developing economy (p. 66). Twelfth Five-year Plan, 2013 asserted that higher education furnishes the young learners with needed skills and outlook required in the labor market; and simultaneously imparts them the chances for social mobility; and inculcates among them a sense of responsibility and values toward India's democratic and pluralistic outlook. Higher education is the major asset that can help examine and refine as well "national goals, developmental priorities and civic values" (p. 89).

Diversity is an emblem of India which provides it a unique outlook. This diversity can be seen in the form of languages, religions, communities, beliefs, cultures and traditions; climate, flora and fauna, vegetation, etc. In order to best garner the benefits out of this rich diversity of

India, there is no finest alternative other than higher education. As per National Youth Policy (2014) of Government of India, the number of youths in the age group 15-29 composes 27.5% of population, which makes India leading one of the youth nations. This demographic dividend provides a substantial opportunity to India (p. 10). The report of the Ministry of Labour and Employment (2014) revealed that the average age of India is expected to be somewhere 29 years in 2020 which is far below that of China, Japan, USA and other European countries. The report also forecasted that the global market shall witness a shortage of skilled labor supply to the stretch of around 56 million by 2020 whereas India would have a surplus of 47 million youth (p. 1). The policy also pointed out the very worrying fact that India has terribly low formally skilled workforces of nearly 2%. This number is lower than that of even small countries like Japan and South Korea with a skilled workforce of 80 and 96 percent respectively (p. 4). It shows that the potential of youth in India is still undiscovered and their contribution to national GDP and global market is still undermined. The creative urges, innovative thinking, work proficiencies, skill sets, values and ethics can only be nurtured, sustained and extended among youths through well thought vocationalisation, scientific research and qualitative relevant higher education. It is also worthwhile to briefly review the current expanding status of Indian higher education.

Unpredicted Quantification of Indian Higher Education: Incompatible with Quality

Higher education system of India ranked at third position in terms of enrolment after USA and China (Sharma & Sharma, 2015, p. 1, drishti, 2019). As per the UGC Annual Report (2019-20), at the eve of independence in 1947, India owed 20 universities, 500 colleges and an enrolment of around 2.1 lakhs students in higher education (p. 3). The growth and expansion of higher education in India has been reckless and unplanned since independence. This rapid and unpredicted explosion in almost all fields of education has posed many threats and challenges before the educational planners and other stakeholders of education, which we shall discuss in this paper under a fresh heading.

Statistics of Higher Education: As per the report of All India Survey on Higher Education (2020-21), Ministry of Education, Government of India.

Table: 01

Sr. No.	*Title*	*2015-16*	*2020-21*	*% Hike*
1.	*Number of Institutions*	*39071*	*43,796*	*12*
2.	*Number of Universities*	*799*	*1113*	*32*
3.	*Enrolment*	*3,45,84,781*	*4,13,80,713*	*20*
4.	*Gross Enrolment Ratio (GER)*	*24.5*	*27.3*	
5.	*Gender Parity Index:*	*0.92*	*1.05*	
6.	*Pupil Teacher Ratio*	*21*	*24*	

Gross Enrolment Ratio (GER): Gross Enrolment ratio is one of the important features of a higher education system. Ministry of Education, in its report, 'Educational Statistics at a Glance-2018' has defined gross enrolment ratio as, "Total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year" (p. 11).

Gender Parity Index: GPI is an important parameter to assess the participation of females in an educational system relative to males and provides an overall picture of gender equality. It is defined as, "ratio of Gross Enrolment Rates of female students enrolled at Primary, Secondary and Tertiary level of education to the corresponding ratio of male students at that level" (Educational Statistics at a Glance, p.12).

Trends in Programme-wise Enrolment: The enrolment has increased over the last five years in almost all programmes at all levels except B.A. and B.Tech. It includes regular as well as distance programmes (AISHE, p. 48-52).

Summing up, as it is well revealed by the AISHE report that higher education in India has shown outstanding growth and expansion in almost all of its phases. In spite of all these quantitative increases, the quality of education, research and innovations has not stepped up in the right proportion. Access, equity, quality and excellence, relevance are still the major issues in Indian higher education.

Major Questions before Higher Education in India as NEP-2020 Suggests

As the AISHE report highlighted, Poor GER is an indicator of poor accessibility of masses to education facilities. It also signifies the sincerity and gravity of efforts applied to develop and update the educational system and educate its citizens. Even after 74 years of independence, we have achieved a GER of only 27.3 in higher education by 2021. It is far below than many other countries like USA, UK, China and Australia which lags behind India in terms of various demographic dividends. Among these problems, quality of education is a major issue that the paper undertakes to study by focussing upon its relevant components as suggested by policy..

Some other related and relevant problems, as reviewed by New education policy, are that Indian higher education is suffering from rigid separation of subjects and disciplines which further makes the whole ecosystem a fragmented one that places very little emphasis on higher order cognitive skills such as creativity, critical thinking, problem solving, and imagination. Quality of learning at classroom level is below par which further owes its root in the whole learning ecosystem prevalent in HEIs. Higher education has a negligible scope for teachers' academic freedom and institution's autonomy. Regulatory framework, governance and leadership is not up-to optimal level. Quality of pedagogy and research is very poor at most higher educational institutions across the country. Many institutions and colleges are running at substandard levels which need immediate healing. Learning environment and student support in most institutions is not satisfactory and effective. It can be concluded that there is a strong need for a holistic approach, multidisciplinary outlook, effective learning ecosystem, and sound support system in almost all HEIs scattered across nation.

Keeping in view the plethora of issues and concerns cursing higher education, the research paper has focussed on three most important aspects of higher education, as proposed by new policy. To achieve the cardinal principles of quality and excellence in education, the three aspects should be given due attention. These three aspects are as under:

Table: 02

Sr. No.	Aspects
01	Holistic and Multidisciplinary Education (HME)
02	Optimal Learning Environment (OLE)
03	Student Support (SS)

Rationale of the Study

Internationalization of Indian higher education is one of the chief concerns of policy planners as highlighted in the policy. Meeting global standards of quality and excellence in education and research requires absolute remaking of institutional, and instructional structure. Policy aims at

making learning holistics, integrated, joyful and life related by redesigning curriculum, pedagogy and assessment formats. Policy seeks to develop individuals who are well-rounded, creative, socially sensitive, knowledgeable and skills, ethically sound and filled with spirit of service and scientific temperament. Achieving these milestones needs dedicated efforts, deep thinking, strong political will and complete restructuring of the existing format of higher education. It is high time to re-imagining our institutions and universities to provide holistics and multidisciplinary education to young aspiring minds and create an optimal learning environment for their right transformation. Student support that has been a most overlooked aspect of higher education so far, now finds its right place in education policy. Present educational system has become highly stereotyped as it has neither a plan for holistic development of learners nor any strategy for developing a positive and optimal learning environment. There is a great need for student support mechanisms to sort out their learning barriers and enrich their learning experiences. There is also a very less focus on integration of technology in teaching and learning activities. Without using the latest technology and advanced pedagogy with classroom instructions, the ideals of holistics and multidisciplinary education can never be achieved. Creating optimal learning environments at institutions and thinking plans for student support would also not work without merging and adopting technology by hand and heart by teachers and professors. As we are aware, there is an evolving and growing trend of using multiple technological and pedagogical inventions in the form of MOOCs, blended learning, ICT, internet technologies, advanced software and application, etc. Leveraging latest techno-pedagogical innovations in education can work well for achieving the three proposed ideals of the policy listed at **table no. 02**. Let us have a detailed discussion over the measures and solutions to achieve the above three important parameters of the new education policy with digital and educational technologies.

A Brief Review of Techno-pedagogical Innovations in Higher Education

Kimav & Kurum (2021) highlighted in their recent study the ongoing trends, momentum and popularity of exploiting the advanced technology and pedagogy in the field of teaching, learning and assessment. MOOCs (Massive Open Online Courses), artificial intelligence and collaboration in online mode has made learning more effective and accessible than in traditional mode. **CEPPE (2013)** revealed that using information and communication technologies (ICT) has enhanced the standards of teachings, measurement and evaluation of learning and learning processes. Various

similar studies have reported the effectiveness of ICT, and other digital technologies in teaching learning, improving learning ecosystem, and student support. **Karunaratne (2023)** concluded in his study the usefulness of blended learning in a classroom setting. Blended learning was found to be a potential approach that enhances learners' engagement and learning outcomes. **Hawkey (2003)** established in his research the efficacy of educational technology and concluded that the learners had positive feelings towards online discussions and the level of interaction was comparatively higher than the face-to-face setting. Even the introverted learners too participated and re-engaged in online discussions and established interactive communication with questions and answers in the discussion forums. One most popular trend in techno-pedagogical innovations is MOOCs, novel emerging trends in the field of education and technology. MOOCs stands for massive open online courses. MOOCs as such stand for a sort of recent pedagogy supported by advanced technology used for teaching, learning and assessment. Moocs ability to deliver learning content to far off geographical locations, economizing time and human resource limitations (equipment, finance, etc.) has led to the worldwide phenomenon known as 'MOOC craze' or 'MOOC tsunami' **(Xiao et al., 2019)**. Unlike traditional mode of imparting education, MOOCs do not require any formal entry eligibilities like the educational and academic status of the learners enrolling and therefore allow a huge and unlimited number of learners to participate for free on a large scale **(Campos et al., 2022; Gomez et al., 2022; Sheng et al., 2022).** MOOCs provides its users a variety of advanced facility like the opportunity to engage and participate in discussion forums, interactive-sessions for clarifying doubts, peer and expert assessment; and reinforcement that enhances interaction with the wider educational community, in addition to traditional learning content (e.g. books, assignments, lecture notes, slides, videos,etc.) **(Lambert, 2020)**. **Yuwan & Powel (2013)** highlighted in his research finding some of the challenges and issues in the way to successful MOOCs, these include: **Sustainability, Poor Pedagogy, Quality and Completion Rates, Assessment and Credit Issues.**

Poor pedagogical practices in universities stress on rote memorization of facts and information and making learning one-sided, dull, boring and fruitless. **NPE-2020** seeks for learner-centered teaching methods where the teacher is a facilitator and learners construct their own knowledge through engagement, activities and creativities. According to **Kenski (2012)** and **Sales and Leal (2018),** the introduction of new technologies in classrooms can break monotony of rote

learning, and provides a novel approach to teaching and learning based on understanding It accelerates interaction between students and teachers, and stimulates student learning, creativity and autonomy. **Behrens (2005)** reported that 'innovative pedagogical practices' in higher education has become the chief content of discussion and research nowadays. **Carvalho et al. (2021)** found in his study the importance of combining technologies with teaching practices. Pedagogical innovations stimulate 'an active and constructive learning environment' in the classroom. Mixing suitable technologies with creative pedagogies supports the idea of optimal learning and student support by facilitating differentiated instructions, cooperative and collaborative work.

Concludingly, Plethora of research studies has shown the usefulness of integration of technology and pedagogy is evolving in higher education institutions all over the world. Techno-pedagogical innovations facilitate globalization of educational facilities, judicious mixing of pedagogy and latest technology, qualitative teaching and learning, and promotes universal agenda of open and open education.

Moving Toward Holistic and Multidisciplinary Education (HME)

The Centre for Universal Education at Brookings in its report "TRANSFORMING EDUCATION FOR HOLISTIC STUDENT DEVELOPMENT" published in September, 2022 has explained Holistic Education (HE) with an analogy "child with parent in home" to "student with teacher in school." Learner at school like a child at home is regarded as a whole: body, mind and soul. Teachers at school nurture the students as whole in the same way parents nurture their child as whole at home. Schools become the whole curriculum and context for learning of a student. Holistic education aims at balanced and harmonious development of all aspects (physical, intellectual, emotional, social, moral, spiritual) of a learner's personality, without emphasizing one and neglecting the others. Education aims at bringing about the best hidden inside a child. Without providing holistic education i.e. complete education of head, hand and heart to a child, the dream of producing an all rounded personality as envisioned in NPE-2020 cannot be realized. Existing system of education lays one sided burden on cognitive development and neglects the other dimension of personality.

Multidisciplinary education (ME) is an evolving educational practice that works in line with policy's motive of providing diverse curricular choices to 21st century learners who are

comparably more advanced, smart and active. Multidisciplinary means across disciplines i.e. learning from various subjects/courses as per learner's interest, ability and suitability. It is an integrated approach toward education where the learner is a pivotal point of the education system. ME seeks to cut rigid boundaries across various disciplines and advocates for mixing up of content, methodology and experiences from more than one discipline. ME enhances creativity, innovation skills, critical thinking, problem solving capacities, higher order metal assets, team spirit, collaboration, communication and management skills, social efficiency, moral integrity, and mastery of curricula.

Providing holistic and multidisciplinary education has been a new phenomena with the world and almost all nations in their education policies advocate for such education for their future citizens. But, with India, providing holistic and multidisciplinary education has a long tradition right from *vedic* and post-*vedic* era. Most ancient and renowned Indian universities like *Takshshila* and *Nalanda* have been centers of excellence and equality based holistic and multidisciplinary education. Curricula of these universities was enriched with various arts, science, mathematics, vocational, medicines, astrology, archery, agriculture, farming, architecture and engineering, metallurgy, etc. Chief aim of education was salvation i.e. *mukti* and liberation from bondage of birth and death. Curriculum was balanced with material as well as spiritual content. Main focus was on harmonious development of all phases of one's life. Learning environment was positive, conducive, supportive and growing. Students were enrolled in a course as per their abilities and interests. Achieving expertise in their individual courses was the main objective. Such types of enriched curricula, environment, methodology, and discipline, are missing from modern Indian education. Education policy of 2020 seeks exactly the same for its young learners.

NPE-2020 envisions that HME can lead India into 21st century advancements and 4th industrial movement. This is a right time for science and engineering institutions to work in collaboration with art and humanities institutions. It includes professional, technical and vocational disciplines. HME is supportive of lifelong learning by offering interactive, interesting, and flexible curriculum with multiple entry and exit points. There will be a chance for graduate, master's and Ph.D. students to work and interact with academics, government and industry (p. 37). Setting up HME ecosystem in HEIs will require a huge amount of investment in terms of finance, will power and resources. It needs designing fresh and flexible curricula incorporating diverse experiences,

methods, activities, technology, pedagogy and setting up model institutions and universities adopting holistic outlook. Existing Bachelors, Masters and Doctoral level programs need reframing and readjustments to meet the parameters of HME.

How can technological and pedagogical innovations work out the idea of HME? As judicious mixing of content, pedagogy and technology makes collaboration easy and effective, hence it becomes easier for learners to develop their multiple dimensions of personality. Technology meets their demand for learning and development. Pedagogy makes their learning barrier-free, smooth and joyful. For evolving HME, institutions willingly need to work in collaboration with other institutions for offering courses, providing technological support, designing credit banks, participating in content development, technological advancements, designing policies, etc.

Requirements on the part of Institutions to work out HME

There is a need for strong leadership and commitment from administrators, managers, institutions heads and teachers to materialize the dream of holistic and interdisciplinary education. There are some requirements on the part of various stakeholders to utilize technology (moocs) to evolve HME:

Table: 03

Sr. No.	Stakeholders	Requirements
1.	**Policy Planners**	a. Providing research based inputs and policy for honest implementation of HME. b. Providing effective and sustaining leadership for the knowledge economy. c. Designing concrete framework for adopting interdisciplinary and multidisciplinary approach.
2.	**Administrators**	a. To optimize the available human and non-human resources for executing HME policy. b. Make available required physical and technological resources c. Assess and help revise policies. d. Making provisions for personnel's training for HME
3.	**Academic Heads**	a. To provide strong leadership and guidance to achieve institutional goals. b. To collaborate with administrators to bring institutional autonomy. c. Make available required digital technology in the department/institution d. Make institutional policies for proper execution of

		responsibility. e. Motivating faculty for continuous professional development. f. Framing realistic time-table for implementing HME approach.
4.	**Teachers**	a. Professionally equip themselves for adopting technology in teaching and learning. b. Engage in content designing, research and teaching collaboration. c. Motivating learners to excel in their fields.
5.	**Parents**	a. Regular supervision of their children. b. Making suitable environment at home for proper learning c. Engaging in a parent teacher meeting willingly. d. Supporting learners with their tasks.

Table: 04 Catalysing Holistic and Multidisciplinary Education

Sr. No.	HME	Technology Pedagogy
1.	Multidisciplinary Approach	1. Designing Digital Platform 2. Designing quality content in digital form as per requirements 3. Seeking research collaboration with other institutions 4. Motivation learners to enroll in various course as per needs 5. Professional development of faculty for better outcomes. 6. Participation with foreign faculty to enrich learners' experiences. 7. Framing effective and functional CBCS scheme and credit transfer policy
2.	Holistic Approach	1. Designing Course in online mode for various core/optional disciplines like 1. Value education 2. Environment education 3. Yoga Course 4. Soft skill Courses 5. Spiritual Courses 6. Online Debate, Discussions 7. Online sessions with experts as per learners requirements.

There should be a memorandum of agreement between institutions for framing uniform curriculum; researching digital pedagogies; designing online courses; and ensuring eligibility, fee, criteria, credits, etc. More and more qualitative and interactive content should be designed in

digital format to benefit a diverse and huge number of learners presently in or out of higher education. Technology cuts off time and distance barriers allowing a maximum number of learners to opt far off courses with minimum fee or free. Institutions situated far off locations are a barrier to interdisciplinary education, which are now being joined together by MOOCs. Holistic education could not be successful as traditional education became exam centered and important curricular experience could not be provided to learners that would facilitate his/her all round development. With the advent of internet and educational technologies, courses in all fundamental courses, which are needed for all round and multiple development, are available online and designed by subject experts. Enhancing quality and relevance of education by endorsing techno-pedagogical upheavals in all formats of education delivery promotes holistic as well as multidisciplinary education.

Optimal Learning Environment (OLE) and Student Support (SS):

"Learning environment (LE) refers to the diverse physical locations, contexts, and cultures in which students learn. Since students may learn in a wide variety of settings, such as outside-of-school locations and outdoor environments, the term is often used as a more accurate or preferred alternative to classroom, which has more limited and traditional connotations. **(Education Reform, 2013)**". We can say a learning environment encompasses everything which facilitates learning, namely, physical surroundings, content, culture, learners skills, characteristics, resources, assessment, etc. as shown in image shown below.

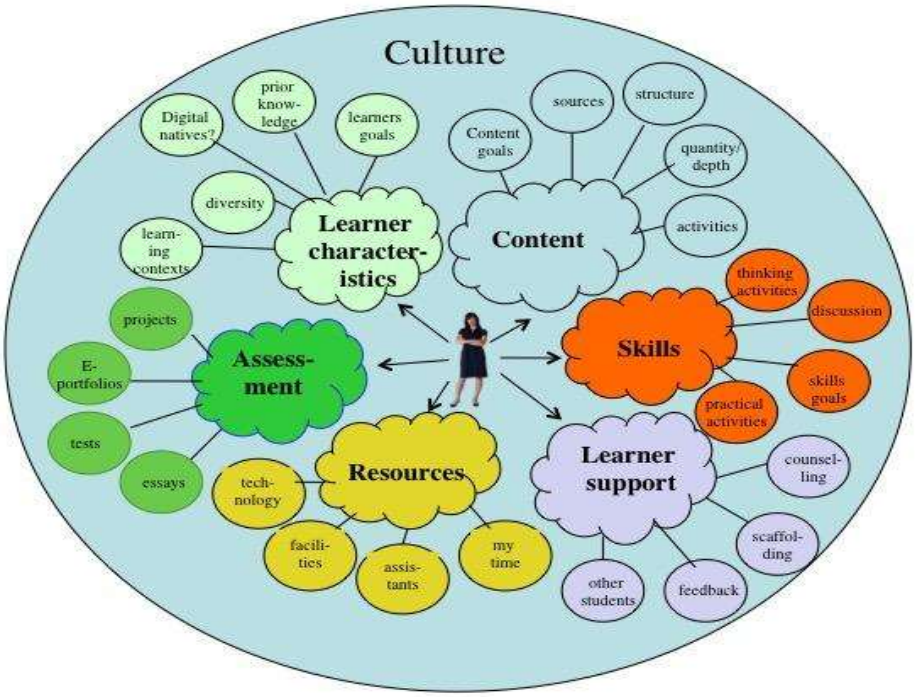

Image 01: Components of Learning Environment.

Learning environment includes the "Physical, Psychological and Instructional" Atmosphere of the classroom. Learning space or the environment has a vital role in students' learning outcomes and is closely linked with their success in an academic program. A positive and optimal LE has a positive impact over a student's learning whereas a negative LE proves to be catastrophic to learners' learning **(Watts & Firestone, 2022)**. Student support is also positively related to an optimal learning environment. Anything that enhances OLE als enhances student support (SS). A teacher should take every careful measure to ensure a positive, growing, stress free and engaging learning environment. OLE are developed by teachers where they create opportunities for their students to engage, interact, imagine, think, and share their learned experiences. It takes into account the following things:

a. Social and emotional competencies
b. Healthy relationship and understanding between learners and teacher.
c. Democratic environment where everyone's voice is heard and honored.
d. Safe, caring, congenial school environment and policy.
e. Positive student support

f. Students readiness and engagement
g. Minimum disruptions
h. Learning resources and tools
i. Éxtended learning beyond classroom

NPE-2020 recognises the importance of OLE in the 21st century world and seeks to provide a comprehensive approach for effective learning. Policy suggests four components for OLE i.e. **"appropriate curriculum, engaging pedagogy, continuous formative assessment and adequate student support"** (p. 38). NPE suggests some important inputs for successful implementation of OLE and student support where educational technology (MOOCs, ICT, Internet, etc.) can play a game-changer role ensuring an optimal learning ecosystem in institutions and across institutions; and evolving a sound support system for students' continuous progression. Student support is a crucial element in achieving quality education. New policy visualizes a learner centric education where individual learners' aptitude, interest, learning style and pace, nature, etc. are given priorities. Traditional education has little scope for student support and individuality. Students may require support in academic, social, linguistic, emotional, moral, economic domain. Here, we take up only the domain which is related to his academic well being. Academic well being is directly linked with learning and learning environment. Scheming of an optimal learning environment will go hand in hand with designing suitable student support. Instructional design using assistive technologies affects learners' engagement, produces an optimal learning environment and supports their learning **(Margaryan et al, 2015).** There is strong correlation between the diversity of learners MOOCs can attract and the need to adopt personalized strategies and learner-centered designs. Learner-centric design takes into account existing diversity among learners and the need to provide learning activities that cater to and support their unique learning styles and needs **(AlarioHoyos, 2014)**. Various other studies confirm the effectiveness of educational technologies to promote active learning, learning environment, student support, and diversity of learners. There is a need for a plan for concretizing policy's input for OLE and SS through designing and embracing appropriate technological and pedagogical tools.

Remodeling Instructional Environment: Approaching OLE and SS

Instructional environment is one of chief components of an optimal learning environment. How effectively instructions are planned, designed, executed and assessed make up an instructional

environment that further affects the learner's learning engagement, outcomes, and support. A reflective instructional environment will facilitate learners learn at their individual pace, support their creative urges, give them a chance to construct and reflect their learning experiences. An operative instructional environment is a strong agent for optimal learning and sustained student support. Technology plays a determinant role in designing such an instructional framework. NPE-2020 provides abundant inputs for framing a practical, useful and effective instructional design. Given table illustrates various policy inputs for developing and sustaining an optimal learning environment and student support system.

Table: 05

Sr. NO.	Components of OLE and SS	Solution with techno-pedagogical
1.	**Interesting and Relevant and Updated Curriculum**	**Technology** facilitates intermixing of content, pedagogy, assessment and technology. Using graphics, multimedia, internet, slides and animation make the content interesting, engaging and interactive and relevant. Traditional chalk and talk methods have become obsolete. 21st century skills can be imparted with the latest techno-pedagogical advancements. Updation with technology becomes easy and effective.
2.	**High Quality Pedagogy**	Selecting right pedagogy as per the needs and context is a tedious job for a teacher. Educational technologies provide limitless opportunities to teachers to combine content and technology to evolve a variety of quality pedagogies suiting individual needs. Quality pedagogy enhances and enriches learning outcomes and experiences. It will always optimize learning.
3.	**Authentic Assessment**	Continuous and comprehensive assessment is essential for improving learning and bringing mastery in content. Traditional methods of assessment are not sufficient to test multi dimensional growth and development of a learner. They focus on only cognitive domain, particularly rote learning. Assessment with technological tools provide vast opportunities to assess learners' comprehensive and continuous evaluation in a scientific and authentic way**.** Technology brings transparency, validity and usability in assessment methods. Designing assessment tools with advanced features make it most suitable for an authentic assessment. Assignments, works books, quizzes, tests, etc. can easily be administered, analyzed and stored with MOOCs.
4.	**Resources and Infrastructure**	Ensuring OLE and proper SS need suitable resources and infrastructure availability. Institutions must possess adequate digital technology, internet connection with reasonable data speed, technical manpower, quality libraries, computer labs, smart classrooms, discussion place and space.

5.	**Discussion Space**	There should be a fixed space for continuous discussion among learners and between learners and teachers for clarifying doubts, problems and concepts left out after class lecture. Traditional education has hardly any scope for discussion on doubts and problems. Properly designed discussion forums on digital platforms facilitates quality discussion among the academic community. It has the feature of face to face interaction through video conferencing or written communication through inbox suiting the nature of learners.
6.	**Open and Online Education**	As we discussed, GER of higher education is only 27.3 % which means a huge number of the population in the age range 18-23 is out of higher education. To increase GER in line with policy's vision, there is great need to evolve open and online education based upon access, quality and excellence, equity and relevance. Education technology therefore can work as catalyzing agents for this purpose.

Conclusion

UNESCO has recognised the value of quality and holistic education for transforming lives and has declared in its SDG4 agenda that "'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030 (p.7). Sensing the importance of UNESCO's vision, the new education policy (NPE-2020) has promised its new generation an equity based quality education. The paper has discussed the core parameters of quality education as holistic and transdisciplinary education (HME), optimal learning environment (OLE) and student support system (SS). 21st century has witnessed reckless advancement and innovations in the field of education and technology. Techno-pedagogical innovations are the latest trends that have surprised the education community over the globe with its efficacy to promote quality and lifelong learning. The paper discussed the role of assistive technologies coupled with pedagogies in achieving the said three parameters of NPE-2020 namely, HME, OLE and SS. This can happen when higher education institutions are provided with autonomy to research in the field of curriculum, pedagogy, technology and assessment within the specified framework of higher education. It will ensure consistency and uniformity among institutions, courses and modes (online and offline). The agenda of holistic and multidisciplinary education can be materialized with designing interdisciplinary and multidisciplinary curriculum, pedagogy, and assessment by subject experts using technological advancements like MOOCs, flipped classrooms, ICT based learning, etc.. There is a need for an evolving uniform CBCS (Choice Based Credit System), a Grading System,

CCE (Continuous and Comprehensive Evaluation) across the country's institutions. For developing an adequate learning environment, each institution should have its institutional development plan, then merged with a large Institutional Development Plan (IDP). IDP will be committed to holistic and harmonious development of learners and will contain a strong internal support system to assist diversity of learners as per their educational needs. Technological support is essential to interlink institutions, bring collaboration in related research areas, and create a strong instructional atmosphere and student support. NPE-2020 suggests that higher institutions should focus on research, extension and innovation by establishing start-up incubation centers, technology development centers, cutting edge area centers; seeking education-industry collaboration and promoting interdisciplinary research in science, engineering, social sciences and humanities. We can conclude that developing digital technology in the field of education (like MOOCs) and effective pedagogies has the potential to realize the dream of new education policy (NPE-2020).

Abbreviations:

1. NPE-2020: New Education Policy-2020
2. GER: Gross Enrolment Ratio
3. MOOCs: Massive Open Online Courses
4. HME: Holistic and Multidisciplinary Education
5. OLE: Optimal Learning Environment
6. SS: Student Support
7. HEIs: Higher Education Instituions

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