# Changing Dimensions of Universities Transforming Higher Education for Global Sustainability in the Context of National Education Policy–2020

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Sustainability challenges are real, and there is a global shortage of suitably trained talent around the world. Higher education needs to be reimagined or redesigned with sustainability in mind. Fortunately, there is a growing number of online courses that all higher education institutions (HEIs) around the world can leverage as they build their own ecosystems. It is time for the HEIs to make sustainability and sustainable development goals (SDG) literacy a core requirement for all faculty members and students. Sustainability education at its core exposes students to real-world problems and immersive learning and research experiences. Ultimately, the education culture at the HEIs needs to change so that it encourages students to learn via experimentation and critical thinking from multiple perspectives. HEIs need to increase efforts to encourage young minds to take up sustainability education and careers, and to continue to effectively communicate the immense benefits of sustainability in terms of economic growth, human well-being, and a healthy planet Earth.

A holistic curriculum reassures students of the analytical style of the traditional, moral and political frameworks of their day-to-day lives. The holistic curriculum includes: The essential significance of understanding learner development in context, as a basis for understanding the documentation of special educational needs for different students, the significance of perception that students do not know everything, and trusting that alteration is conceivable, the need to communicate understanding and resolve the difference between the people who have useful knowledge, the need to distinguish between the learning environment as a site for the development of teaching know-how and the creation of knowledge, deep understanding of teaching and of oneself as a teacher.

National Policy on Education (NPE) 2020 is built on the foundational pillars of access, equity, quality, affordability, and accountability, this policy is aligned with the 2030 Agenda for Sustainable Development and aims to transform India into a vibrant knowledge society and global knowledge superpower by making both school and college education more holistic, flexible, multidisciplinary, suited to 21st century needs and aimed at bringing out the unique capabilities of each student. Education must also cultivate in young people spirituality, admiration for the natural environment, create a sense of social justice, intellectual capacity, physical-fitness, health maintenance, career-preparation, leadership, emotional-health, self-appreciation, civic-responsibility, cultural-engagement, family-relationship, peer-relationship, community-care, art-appreciation, moral-commitment, and spiritual-quest. hence making education an inspirer of learners' creativity, imagination, compassion, self-knowledge, social skills, and emotional strength.

## COVID-19 Pandemic Explored New Opportunities for Universities

New levels of integration are required between those collaborating, from science, technology, and engineering disciplines through to the arts, humanities, and social sciences. In addition to the capacity to engage in integrative research for the SDGs and to provide investment and protected niches for challenges by generously contributing their scientific knowledge and resources to help in the fight against the pandemic. Within a few weeks after the onslaught of the deadly virus, universities developed a faster and cheaper COVID-19 test in places as diverse as Colombia, the United Kingdom, and Viet Nam. Laboratories within universities have produced medical supplies, sanitizing equipment, medicines and ventilators. In sub-Saharan Africa, several universities have been at the forefront of epidemiological research and communication to the public on the COVID-19 crisis, notably in Ghana and Nigeria. Before the February 2021 coup, two universities in Myanmar, Yangon Technological University and Mandalay Technological University, designed robots that can transport food, medicine

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and trash at hospitals and thereby reduce the need for person-to-person contact. The strong contribution that research universities can make is conditional upon governments recognizing and respecting their key scientific role. In Brazil, several universities stepped in to provide health advice to the population, in the absence of evidence-based policy guidance at the highest levels of the federal government.

## Multidisciplinary, Interdisciplinary, and Transdisciplinary Curriculum

*Multidisciplinary* brings together knowledge from different disciplines to address a given issue.

The process of knowledge production and power relations between disciplines is mostly left unaffected in multidisciplinary collaborations. Each discipline works in a self-contained manner without aiming to transform the disciplines themselves.

*Interdisciplinarity* describes a mode of knowledge production that focuses on coordination and interaction between different disciplines to both advance knowledge and action. In contrast to multidisciplinary, there is an attempt to integrate scientific practices, including information, data, concepts, and theories from more than one discipline

***Transdisciplinarity*** was introduced as an explicit addition to interdisciplinarity to describe collaborations that go beyond coordinating interactions between different disciplines and aim at transcending them, therefore moving beyond disciplinary boundaries. In addition, transdisciplinarity rests on the premise that researchers alone cannot solve these problems, and that therefore academic boundaries also need to be transgressed through the incorporation of extra-academic actors and knowledge into processes of problem-definition, knowledge production, and knowledge use.

## Reforms Introduced in The Higher Education System

With the increasing need for a creative, multidisciplinary, and highly skilled workforce for employment, the Indian higher education system needs to be re-adjusted and revamped to meet the emerging requirements. Some of the key reforms introduced vide NEP–2020 in the Indian higher education system include: -

### *Quality Universities and Colleges*

Recognizing the problems which are currently prevailing in the higher education system in India, which inter alia include poor employability of the educated workforce, severely fragmented higher educational ecosystem, poor learning outcome and development of cognitive skills of students, rigid separation of disciplines with too much early specialization and streaming of students into narrow areas, NEP 2020 intends to completely overhaul and re-energize the higher education system in India.

### *Institutional Restructuring and Consolidation*

NEP–2020 intends to end the fragmentation of higher education by transforming higher education institutions into large multidisciplinary universities and colleges, each of which will aim to have 3,000 or more students. The idea is to build vibrant communities of scholars and peers, break down harmful silos, enable students to become well-rounded across disciplines (including artistic, creative, and analytic subjects as well as sports), develop active research communities across disciplines (including cross-disciplinary approach) and increase resource efficiency, both material and human across higher education.

### *Shift Towards Holistic Education with Less Rote Learning*

It is proposed that multidisciplinary universities and colleges will facilitate the move towards high-quality arts education with flexibility in curriculum and engaging course options being developed and offered to the students. Pedagogy for these courses will strive for significantly less rote learning and an increased emphasis on communication, discussion, debate, research, and opportunities for cross-disciplinary and interdisciplinary thinking.

### *Internationalization*

NEP–2020 focuses on promoting India as a global study destination providing premium education at affordable costs. It is thus intended that high-performing Indian universities will be encouraged to set up campuses in other countries and similarly select universities will be permitted to operate in India. Research collaboration and student exchange programs between Indian institutions and global institutions will be promoted and the credits acquired in foreign universities will also be permitted to be counted for the award of a degree.

### *Teacher Education*

Recognizing the importance of creating a team of teachers that will shape the next generation, NEP 2020 lays equal emphasis on revamping teacher education as well. The teacher education needs to be conducted within composite multidisciplinary institutions having departments of psychology, philosophy, sociology, neuroscience, Indian languages, arts, history, and literature as well as various other specialized subjects such as science, mathematics, etc.

### *Professional Education*

The practice of setting up stand-alone technical universities, health science universities, legal and agricultural universities or institutions in these fields shall be discouraged and all existing stand-alone professional education institutions will have to become multi-disciplinary institutions by 2030, either by opening new departments or by operating in clusters.

### Promoting High-quality Research

Recognizing the importance of knowledge creation and research in growing and sustaining a large and vibrant economy and uplifting society, To focus on research and promote research culture in all higher education institutions in an interrelated and coordinated fashion, NEP 2020 provides for setting up of a National Research Foundation (NRF) which would bring a quantum jump in funding and support for research. The overarching goal of NRF shall be to enable a culture of research to permeate through universities and higher education institutions across.

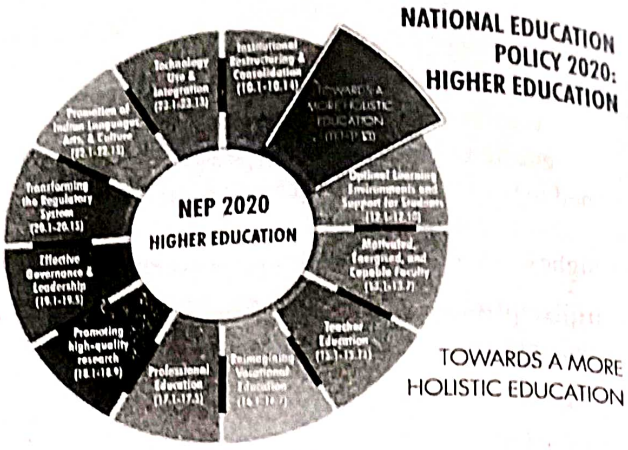
### Transforming the Regulatory System of Higher Education

India also has some of the toughest requirements in the world for setting up higher education institutions, which requirements are largely input-centric, focusing on land and space norms, endowment funds and their sources, etc. NEP 2020 mandates for setting up of a common regulatory regime for the entire education sector, eliminating duplication and disjunction of regulatory efforts.

### Some Novel Examples of New Roles of Universities: The World Scenario

#### *University of Victoria in Canada Encourages Research Within Indigenous Cultures*

The University of Victoria in Canada implemented the plan, launched in 2017 as the




*Source: www.educationworld.in*

University of Victoria Indigenous Plan: 2017-2022, recognized that the fundamental purpose of higher education is to provide students with the knowledge that will best support their achievements and success throughout their future lives. The plan also recognized that, if their delivery of that knowledge centered only upon one model of education – a Eurocentric or Western model – then they were not serving their students well, even misleading them and actively discouraging under-represented students who did not see themselves in their education. Instead, the University of Victoria noted that its intent was to provide students with diverse academic learning environments, curricula, and approaches to research within which Indigenous cultures, histories, and knowledge are embedded. The plan is, holistic, inclusive, and adaptive. In addition to addressing the campus environment for student learning and faculty research, the plan reflects upon how faculty and staff might work together in new ways and new institutional structures, how governance systems of the University must become more inclusive and equitable, the importance of Indigenous language preservation, and how Indigenous ways of knowing are evolving, not static. Just as 'Western knowledge' is constantly being reviewed and updated with new ideas, Indigenous ways of knowing are similarly dynamic, evolving systems of understanding about how our societal norms and the natural world change and evolve over time.

#### *UACH Mexico Developed a New Educational Model Innovation, Design, Undertakings and Acts For Sustainability*

In recognition of the strategic role of HEIs in working towards sustainable development the

*Universidad Autónoma de Chihuahua* Mexico (UACH) developed a new educational model that heavily promotes inter- and trans-disciplinarity through its training schemes, which focus on societal challenges and contributions to global development and the betterment of society. Through a humanistic and competency-based approach, this educational model, called *Modelo Educativo para el desarrollo sostenible* (UACH-DS), considers innovation, design, undertakings, and acts for sustainability (IDEAS Transformadoras). The study divisions under this model are ordered in such a way that collaborative approaches to academic work are prioritized, crossing disciplinary and professional boundaries. Such interdisciplinary approaches to divisional training are part of the preliminary approach to the professional world and allow for training and competency development rooted in the emerging problems of society. The central study divisions developed at UACH include Accounting, Administration, and Economics for Social Development; Philosophy, Arts and Humanities; Matter, Energy, and its Transformation; Health and Human Welfare; Society, Justice, and the Rule of Law; Sustainability and Food Security. These study divisions have been linked with university competencies (in the form of learning units), as well as transversal competencies to provide students with the tools to work in a variety of fields of knowledge. While students specialize in professions as they continue in the cycles, engagement with other areas of knowledge is a consistent component of this educational model, as is consideration of social, economic, cultural, and natural environments. Furthermore, each of the study divisions within this model is explicitly linked to the 17 SDGs. For example, the Studies in Society, Justice and the Rule of Law is linked with SDG 5 on gender equality; SDG 10 on reduced inequalities; SDG 11 on sustainable cities and communities; SDG 16 on peace, justice, and strong institutions; and SDG 17 on partnerships for the goals.

### *Tsinghua University China Supports its SDG-focused 'Global Strategy*

In April 2016, Tsinghua University announced the launch of a programme reforming its organization and management of scientific research, aiming particularly to promote 'interdisciplinary teaching and research, 'integration of military-civilian research', 'systematic efforts for frontier research, and 'application-oriented translation of scientific and technological achievements'. In July 2016 Tsinghua University launched its 'Global Strategy', aiming to fulfill its mission of implementing the SDGs as a university through four identified functions of universities: teaching, research, societal service, and cultural transitions. As a result of the University's policies and measures of promoting teaching and research across conventionally defined disciplines, Tsinghua University moves ahead of other universities in China in playing a role in implementing the SDGs that only universities can play. As of 2020, Tsinghua University has 410 SDG-related research institutions, and in that year its faculty and students conducted 9,253 SDG-related research projects, leading to more than 10,000 patents and 494 cases of successful practical application of scientific and technological achievements. In implementing a national goal to peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060, a team at Tsinghua University has developed key technology in the form of the high-resolution emission inventory of regional air pollution sources, on the basis of which a national three-kilometre high-precision grid inventory is formed through a large number of industrial point sources, traffic line sources, and agricultural non-point sources across the country through multiple-dimension and multiscale coupling technologies. In 2020 the university opened 1,151 SDG-related undergraduate courses, 1,166 SDG-related graduate courses, held thousands of SDG-related student activities, and organized 408 SDG-related social training programmes.

### *Utrecht University in The Netherlands as an Agent of Change for Sustainability*

Utrecht University has created spaces for integrative research, through discussion and scholarship, to foster invention, inspiration, and community spirit, and aims to be a 'safe place for a meeting of minds, both from within the university and beyond'. The integrative strengths illustrated by Utrecht University are evidenced by the more than 1,200 academics brought together within the Pathways to Sustainability strategic theme and who are working together on responses to the climate crisis and biodiversity loss through 13 research institutes. They include diverse disciplines from law and planning to Earth sciences and economics and draw on expertise from the Copernicus Institute

for Sustainable Development and the Urban Futures Studio to explore pathways to just and sustainable futures for all. Pathways to Sustainability advances innovative research via selected thematic areas. The focus in 2022 is on identifying and understanding transformative pathways in five hubs: Future Food Utrecht; Towards negative emissions; Transforming cities; Water, climate and future deltas; and towards a circular economy and society. The University sees itself as an agent of change for sustainability and has adopted a 'living lab' approach integrating its key roles of research, education, and business operations and providing spaces where researchers, students, and managers work together to find solutions for a sustainable campus and, by extension, society

***The Federal University of ABC (UFABC) in Brazil Establishing Intellectual Frameworks for Collaborative Research***

The Federal University of ABC (UFABC) in Brazil was established in 2006 was designed with an innovative interdisciplinary pedagogical plan. There are no departments, and the university explicitly seeks to foster interaction between academic members from different backgrounds. The reasoning behind creating such an open framework for collaborative research is that such interdisciplinarity contributes to academic excellence, which is in turn seen as a condition for social inclusion. Excellence is a fundamental characteristic to be fostered at UFABC, which aims to achieve high levels of quality in teaching, research and outreach. Strategic research units were created to contribute to the full implementation of the University's education programme. The activities developed by these units ensure their projects are innovative in nature, through cooperation and interdisciplinary integration between the different centres and other bodies of the UFABC, promoting knowledge in specific areas. One example is the Strategic Unit for Strategic Studies in Democracy, Development and Sustainability. The initiative brings together professors and researchers from diverse academic units at UFABC, representing six undergraduate courses (International Relations, Economic Sciences, Public Policy, Territorial Planning, Environmental and Urban Engineering and Biology), and four postgraduate programmes (Humanities and Social Sciences, Territory Planning and Management, Public Policy, Environmental Science and Technology). The strategic objectives of this Unit are to propose and produce, based on interdisciplinary approach, teaching, research and extension on the themes of democracy, development and sustainability.

***IPRE University of Oregon - USA Uses a Reflexive Research Model of Community Science***

The Institute for Policy Research and Engagement (IPRE) at the University of Oregon in the USA uses a reflexive research model of community science. Faculty and students from the University of Oregon partner with Oregonian Government and NGOs, as well as local community groups, to identify and conduct research projects. IPRE research partnerships are best described as 'reflexive', in so far as research projects begin with a shared notion of research as a public good, one that serves a social function. As such, a collective understanding of what constitutes a socially and environmentally relevant research project is used in selecting what will be researched, with whom, and how. IPRE projects are driven by a messy process of social engagement that acknowledges the variegated interests and needs of different publics, going on to use an iterative research methodology that incorporates different forms of knowledge and understanding to expand how research takes place and is in turn applied.

**University of Global Health Equity (UGHE) Based in Rural Rwanda Strengthens Health Systems**

The University of Global Health Equity (UGHE) based in rural Rwanda is a high-quality health sciences institution helping shift the centre of gravity in expertise and know-how from where it has traditionally been, within higher-income countries, to lower-income countries, and the continent of Africa specifically. To ensure Equity in Education and to address disparities, UGHE provides high-quality, affordable, or free education through full or partial scholarships. UGHE innovates funding methods such as the Umusanzu model to build and strengthen health systems in disadvantaged places. The Umusanzu agreement, for medical students to be educated free of charge, is made between UGHE, the students and the Ministry of Health of the students' country of origin and is part of what makes UGHE unique. Upon graduation, students commit to serve, under the direction of their Ministry of Health, for a period of six to nine years according

to the difficulties of the placement, which can range from a city to a remote area or refugee camp. This is done to strengthen health systems and serve vulnerable communities, either in their own country or anywhere their government sees fit. Graduates work with their Ministry of Health to determine how long and where these placements will be.

### Swaraj University in Rajasthan India Encourages Research

Swaraj University located near Udaipur in Rajasthan, Northern India, it was established in 2010 to provide an innovative form of higher education that was simultaneously accessible to learners, provided a richer and more meaningful experience, and could underpin the building of a more just and environmentally sustainable world. Small communities, movements and local practitioners are reconceptualizing learning in terms of a re-entanglement with land and place, with story and story-making practices, with gift culture as a touchstone for community living, with collective intelligences and subtle forms of consciousness, and with the messiness that comes from being in tune with oneself, with one's roots and with plural ways of knowing the world. In the spirit of trans disciplinarity, students, known as *khojis* (or seekers), can simultaneously explore several fields of study from organic agro-forestry, eco-architecture and renewable energy to alternative healing and film-making, all underpinned by a focus on self-designed learning and livelihood-regenerative entrepreneurship. Use of Hindi and local languages is encouraged, and experiences are designed to reconnect learners with their purpose and cultural environment as well as with the rest of nature. At the same time, there is an explicit challenge to the dominant culture of consumerism, waste and unlimited economic-technological growth. The two-year programme consists of a combination of reflective group meetings, mentorship with an experienced practitioner (drawing on the Indian *guru-shishya* tradition), and experiential learning outside of the institution, in local communities and with civil society organizations, start-ups and social movements. 'Unlearning journeys' are also offered, such as the bicycle pilgrimage, in which the *khojis* travel without any money, technology, plans or first aid to more authentically engage with villages and traditional wisdom and innovation of India. These experiences are compiled in a unique portfolio which the graduates can then use in their professional lives.

### USA National Science Foundation Enhancing Action-Oriented Research

In February 2021, the USA National Science Foundation funded an innovative partnership between Alaska Pacific University (APU), the University of Alaska Fairbanks (UAF), and the University of Colorado Boulder (CU Boulder) to host a new US$5 million Navigating the New Arctic Community Office (NNA-CO) . The NNA-CO will include both research and indigenous advisory boards, will offer expertise and advice to the office, advocate for more collaborative, equitable, and action-oriented research, and facilitate dialogue on topics including the coproduction of knowledge and reconciliation. The decision-making and philosophical approaches of the NNA-CO will also follow seven Guiding Principles. These include effective communication for community building, a focus on convergence and collaboration, the acknowledgment of multiple ways of knowing and learning in Arctic research, a recognition of Arctic Indigenous Peoples' right to self-determination under the UN Declaration of the Rights of Indigenous Peoples (UNDRIP), a commitment to long-term institutional transformations that may be needed to address complex Arctic challenges, the recognition that Diversity, Inclusion, and Equity principles are foundational for programme success, and a commitment to human security and safety throughout the Arctic. Finally, the NNA-CO will host four strategic objectives: the coproduction of knowledge with Indigenous peoples, convergence research, culturally responsive education, outreach, and open science. The NNA-CO will also work to increase recognition of indigenous knowledge, issues of data sovereignty, and the need for more collaborative and inclusive research design.

## Conclusions

The role of university is to educate for the constant change, through development and induction of skills and competencies of critical rationality which provides the intellectual willingness for permanent change and production of new knowledge. The role of the university 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. The university has a major role in the affirmation of a development project and national sovereignty in the conditions of globalization in the contemporary world. To achieve that, it's necessary to find a new structure of academic and professional formation and to renew its faculty practices with the incorporation of new teaching methodologies and new information and communication technologies.

It is important for universities and HEIs more broadly to retain their position as arenas for developing and debating critical ideas, basic research and education, and freedom of thought. However, it is crucial that they strengthen their role now, as providers of knowledge and solutions in order to play a key role in this agenda, by exploring and explaining the risks to societies and the natural environment, advising on remedies, and engaging in societal transitions (in technology, social norms, consumption, law, the economy and distribution of goods) that counteract the risk of dangerous shifts in climate and ecosystems. This calls for a radically new mode of inter- and transdisciplinary action in research and education, a matrix in which new horizontal structures and platforms add to the vertical, often silo-like structures of faculties and their departments. It also calls for much more active collaborative research agendas are becoming more common, and new technologies are transforming researcher workflows. Expanding the number of free and open knowledge platforms has the potential to accelerate knowledge acquisition among populations previously unable to access higher education. The recent growth of open online educational resources and massive open online courses (MOOCs) provides tremendous opportunities for training, knowledge acquisition, and sharing for, and among, under-resourced populations.

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